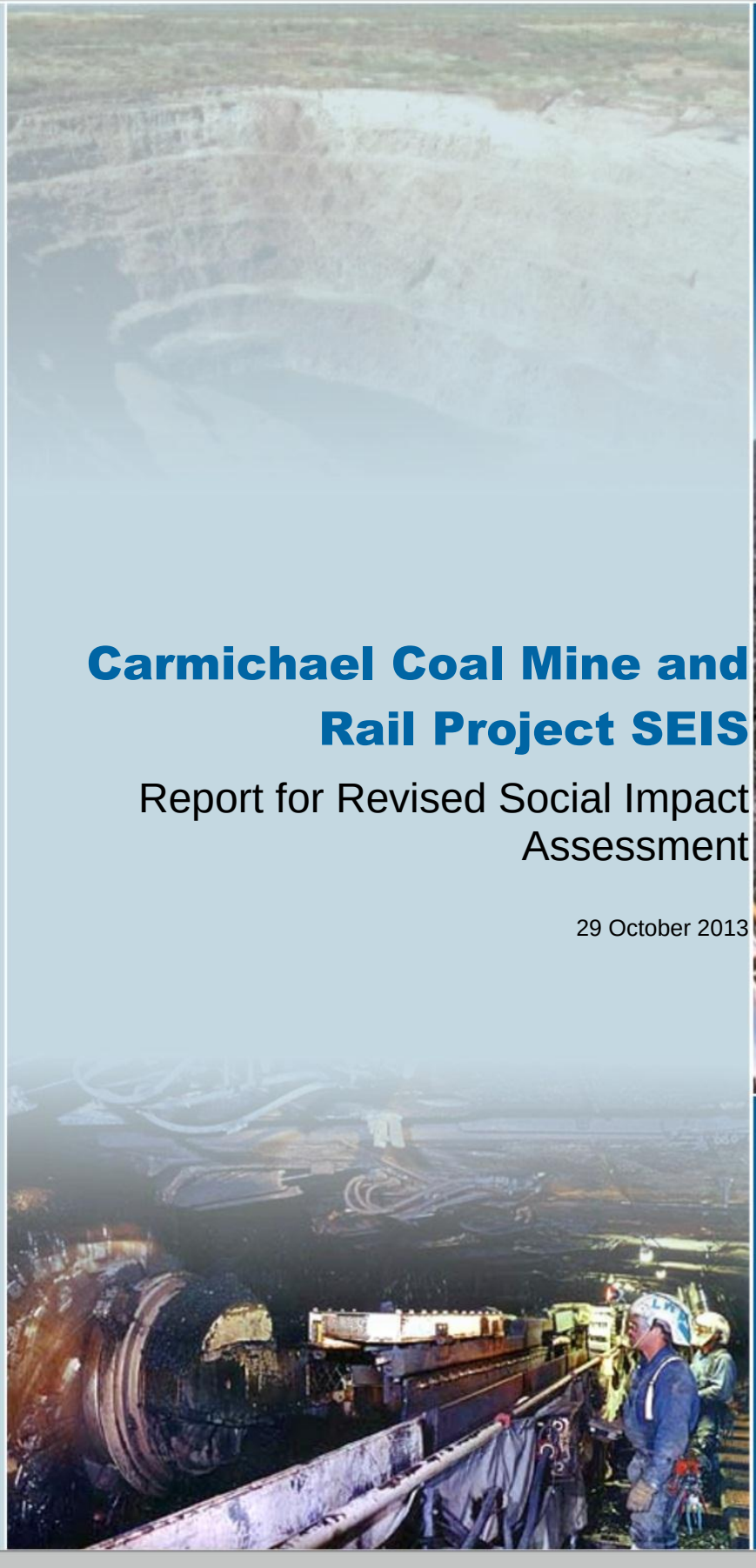
Adani Mining Pty Ltd



Carmichael Coal Mine and Rail Project SEIS

Report for Revised Social Impact Assessment

29 October 2013

GHD

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- *any error in, or omission in connection with assumptions, or*
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Executive summary

A Social Impact Assessment (SIA) is the overarching framework that includes a process of identifying, analysing, managing and monitoring positive and negative impacts on people that may be intentionally or unintentionally caused by development. Its core purpose is to guide decision making in order to create sustainable socio-cultural, economic and biophysical environments (Vanclay, 2003). This SIA addresses both the Mine and Rail components of the Project and is prepared in accordance with the Terms of Reference (ToR) for the Project EIS, May 2011 as issued by the State of Queensland Coordinator-General. This SIA has been updated for the Supplementary EIS (SEIS) in repsonse to submissions received on the EIS during the public notification period (January 2013), and to reflect amendments to the Project description.

A robust methodology was employed to ensure the 'tactics and assumptions are clear, data collection and analysis is appropriate, and social equity considerations are accurately identified and described' (Queensland Government, 2010b). The methodology is informed by internationally accepted guidelines and principles, particularly the International Association for Impact Assessment (IAIA) Social Impact Assessment International Principles. This SIA has been undertaken in close consultation with Queensland Government Office of Coordinator General (OCG). When preparation of the SIA commenced, the OCG was a unit of the then Department of Employment, Economic Development and Innovation (DEEDI). Under more recent machinery of government changes, the OCG falls within the Department of State Development, Infrastructure and Planning (DSDIP). Queensland government publications were also used as a basis in writing this SIA and the Social Impact Management Plan (SIMP). The SIMP was developed following the Queensland Government publication Social impact assessment: Guideline to preparing a social impact management plan (released 2010).

The SIA outlines the following, as relevant to the Project:

- The social and cultural area of influence
- Community engagement with likely affected parties
- A social baseline study
- A workforce profile
- The potential impacts of the Project on the above
- Measures and strategies to mitigate the impacts of the Project on the above.

The Study Area for the SIA is defined as locations at which the construction, operation and decommissioning of the Project may have a social and cultural influence, at a scale that can be attributed to the Project. From an impact assessment point of view, in the Queensland context, social impacts may be said to occur in the immediate area of a Project, in the nearby communities/localities, in the regional centres closest to the project area and sometimes in the wider area of the State. Generally, the area of social and cultural influence is determined by the movement of project related people (workforce) as they travel around to the immediate project area, nearby localities and regional centres to access various services and facilities.

Consultation played a critical role in the SIA. The SIA consultations were closely integrated with the whole of EIS public consultation process and a SIA team member participated in relevant public consultation events. A number of milestone meetings were held with OCG at each stage of the SIA process, in conjunction with regular progress meeting regarding the EIS as a whole. The outcomes of these meetings were then fed back in to the Project methodology and Project concept design.

In addition, detailed consultation with local government was undertaken to identify relevant service providers, identify baseline conditions, potential impacts and opportunities for the various community groups in the regional study area and management strategies and monitoring programs relevant for the region.

To prepare this updated SIA for the SEIS, additional consultation was undertaken with key stakeholders, specifically Isaac Regional Council, to ensure the SIA adequately responds to the submissions received during the public exhibition of the EIS and to gain stakeholder feedback on the amendments to the Project description.

Landholder case studies formed part of the agreed SIA methodology to engage with the affected landholders and include their feedback into developing the local baseline, impact identification and impact management at the local study area. All directly affected landholders were invited to participate in the case studies for the SIA. Most landholders considered that they were already providing a considerable amount of detailed information during the land negotiations with Adani and therefore only one landholder participated in the case study process. The potential impacts of the Project have been identified through SIA consultations, desktop review of literature, and information from discussions with landholders held by Adani personnel. The key potential impacts identified were:

- Impacts of existing mining
- Local economic impacts
- Housing and accommodation demand
- Roads, traffic and safety
- Landholder and amenity impacts
- The capacity of social services and infrastructure to deal with the development
- The potential to change the community values.

Strategies to respond to the potential impacts identified include:

- Project design
- Landholder agreements
- Stakeholder Engagement
  - Engagement Plan
  - Membership of the Clermont Preferred Futures Group
- Housing and Accommodation
- Workforce management
  - Workforce behaviour

  - Recruitment, education and training
  - Safety and wellbeing
- Local Industry Participation Plan
- Community health and safety
- Emergency services planning and consultation
- Community development initiatives.

Other technical study management plans that will also influence the management of potential social impacts are opportunities include:

- Environmental Management Plan (construction and operation)
- Cultural Heritage Management Plan
- Traffic Management Plan
- Emergency Response Plan.

A monitoring program will be developed in consultation with the key stakeholders during the finalisation of the SIMP; however the action plans outline preliminary performance and monitoring indicators for each of the mitigation strategies.

This report is subject to, and must be read in conjunction with, the limitations set out in Section 2.11 and the assumptions and qualifications contained throughout the Report.

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Appendices

Abbreviations and glossary

Abbreviation	Term
ABS	Australian Bureau of Statistics
Adani	Adani Mining Pty Ltd
ATSI	Aboriginal and Torres Strait Islander
BIBO	Bus in/bus out
CCD	Census Collection District
CDEP	Community Development Employment Projects
CHMP	Cultural Heritage Management Plan
CHPP	Coal Handling Processing Plant
CHRC	Central Highlands Regional Council
CSQ	Construction Skills Queensland
CTRC	Charters Towers Regional Council
DEHP	Department of Environment and Heritage Protection
DHPW	Department of Housing and Public Works
DIDO	Drive in/drive out
DSDIP	Department of State Development, Infrastructure and Planning
EIA	Environmental Impact Assessment
ERP	Estimated resident population
EMAs	Enterprise Migration Agreements
EMP	Environmental Management Plan
ESB	English Speaking Background
FIFO	Fly-In/Fly-Out
FTE	Full Time Equivalent
IRC	Isaac Regional Council
ha	Hectares
hrs	Hours
IAHT	Isaac Affordable Housing Trust
km	Kilometres
KPIs	Key Performance Indicators
LGA	Local Government Area
MRC	Mackay Regional Council
MISC	Mining Industry Skills Centre
NESB	Non English Speaking Background
OCG	Office of the Coordinator General
OESR	Office of Economic and Statistical Research
PHIDU	Public Health Information Development Unit
PIFU	Planning, Information and Forecasting Unit
QPS	Queensland Police Service
RFDS	Royal Flying Doctors Service
RTCA	Rio Tinto Coal Australia
SD	Statistical Division
SEIFA	Socio-economic Indexes for Areas
SEQ	South-east Queensland

Abbreviation	Term
SIA	Social Impact Assessment
SIMP	Social Impact Management Plan
SPQs	Single Persons Quarters
TCC	Townsville City Council
ToR	Terms of Reference
UDA	Urban Development Area
ULDA	Urban Land Development Authority
WRC	Whitsunday Regional Council

1. Introduction

1.1 Project overview

Adani Mining Pty Ltd (Adani, the Proponent), commenced an Environmental Impact Statement (EIS) process for the Carmichael Coal Mine and Rail Project (the Project) in 2010. On 26 November 2010, the Queensland (Qld) Office of the Coordinator General declared the Project a 'significant project' and the Project was referred to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) (referral No. 2010/5736). The Project was assessed to be a controlled action on the 6 January 2011 under section 75 and section 87 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The controlling provisions for the Project include:

- World Heritage properties (sections 12 & 15A)
- National Heritage places (sections 15B & 15C)
- Wetlands (Ramsar) (sections 16 & 17B)
- Listed threatened species and communities (sections 18 & 18A)
- Listed migratory species (sections 20 & 20A)
- The Great Barrier Reef Marine Park (GBRMP) (sections 24B & 24C)
- Protection of water resources (sections 24D & 24E)

The Qld Government's EIS process has been accredited for the assessment under Part 8 of the EPBC Act in accordance with the bilateral agreement between the Commonwealth of Australia and the State of Queensland.

The Proponent prepared an EIS in accordance with the Terms of Reference (ToR) issued by the Qld Coordinator-General in May 2011 (Qld Government, 2011). The EIS process is managed under section 26(1) (a) of the *State Development and Public Works Act 1971* (SDPWO Act), which is administered by the Qld Government's Department of State Development, Infrastructure and Planning (DSDIP).

The EIS, submitted in December 2012, assessed the environmental, social and economic impacts associated with developing a 60 million tonne (product) per annum (Mtpa) thermal coal mine in the northern Galilee Basin, approximately 160 kilometres (km) north-west of Clermont, Central Queensland, Australia. Coal from the Project will be transported by rail to the existing Goonyella and Newlands rail systems, operated by Aurizon Operations Limited (Aurizon). The coal will be exported via the Port of Hay Point and the Point of Abbot Point over the 60 year (90 years in the EIS) mine life.

Project components are as follows:

- The Project (Mine): a greenfield coal mine over EPC 1690 and the eastern portion of EPC 1080, which includes both open cut and underground mining, on mine infrastructure and associated mine processing facilities (the Mine) and the Mine (offsite) infrastructure including a workers accommodation village and associated facilities, a permanent airport site, an industrial area and water supply infrastructure

- The Project (Rail): a greenfield rail line connecting to mine to the existing Goonyella and Newlands rail systems to provide for the export of coal via the Port of Hay Point (Dudgeon Point expansion) and the Port of Abbot Point, respectively including:
  - Rail (west): a 120 km dual gauge portion running west from the Mine site east to Diamond Creek
  - Rail (east): a 69 km narrow gauge portion running east from Diamond Creek connecting to the Goonyella rail system south of Moranbah
  - Quarries: The use of five local quarries to extract quarry materials for construction and operational purposes.

The Project has been declared a 'significant project' under the *State Development and Public Works Organisation Act 1971* (SDPWO Act) for which an Environmental Impact Statement (EIS) is required. The Project is also a 'controlled action' and requires assessment and approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Project EIS and SEIS has been developed with the objective of avoiding or mitigating all potential adverse impacts to environmental, social and economic values and enhancing positive impacts.

Figure 1 shows the Project location.

LEGEND

- Town
- Major Port
- Other Rail Network
- Goonyella System
- Newlands System
- Local Road
- Watercourse
- Local Government Area
- Project (Rail)
- Rail (West)
- Rail (East)
- Project (Mine)
- Mine (Offsite)
- Quarry

1:2,000,000 (at A4)

0 10 20 30 40 50

Kilometres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 55

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Adani Mining Pty Ltd

Carmichael Coal Mine and Rail Project SEIS

Job Number 41-26422
Revision 2
Date 14-10-2013

Project Location

Figure 1

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Level 9, 145 Ann St Brisbane QLD 4000 T +61 7 3316 3000 F +61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data Source: © Commonwealth of Australia (Geoscience Australia): Town, Railways, Watercourses (2007); DNRM: LGA, (2011), Hillshade (2009); DMR: State Roads (2008); Adani: Project Rail 1 (Opt11 Rev2) & 2 (Opt9 Rev3), Offsite, Quarry (2013). Created by: MS

1.2 Aims and objectives of the social impact assessment

The aim of the Project Social Impact Assessment (SIA) is to:

- Identify and characterise the people and communities likely to be affected by the proposed development
- To understand existing socio-cultural conditions and dynamics from which to predict social impacts
- Obtain type and level of data and information to accurately respond to the Project EIS ToR
- Provide a practical basis on which to predict potential social impacts
- Identify and evaluate potential impacts on people and communities
- Identify mitigation measures to avoid or minimise potential adverse impacts and maximise benefits
- Develop a project specific Social Impact Management Plan (SIMP) including adaptive impact management strategies to avoid or minimise potential adverse impacts and maximise benefits and a monitoring and reporting framework to provide a mechanism to validate and update impacts and corresponding management strategies in the future.

1.3 Purpose of report

This report provides a revision of the SIA undertaken for the Project to incorporate an update to the Project (Mine) description (see SEIS Volume 4 Appendix B). The report also addresses submissions received during the public consultation period for the EIS.

1.4 Scope of reporting

This SIA is structured to present the following key components:

- The Project's social and cultural area of influence
- Community engagement with likely affected parties
- Social and socio-economic characteristics of communities within the social and cultural area of influence
- A workforce profile
- The potential social and socio-economic impacts of the Project on communities within the social and cultural area of influence
- Measures and strategies to mitigate the social impacts of the Project.

The SIA is prepared in accordance with Section 4 of the Project Terms of Reference (ToR), May 2011 as issued by the Queensland Coordinator-General. It is noted that the SIA addresses both the Mine and Rail components of the Project. As such, a reference to the Project is to be taken as a reference to the whole project unless otherwise specified.

Social impact assessment is necessarily short term, as social impacts relate strongly to social and socioeconomic conditions and community concerns and aspirations at the time of the

assessment. Community characteristics are very dynamic and even quite minor changes in any of these factors can affect the potential for impacts to occur and the magnitude of any actual impacts. Changes in Federal, State, regional and local policies and planning frameworks may also influence the context in which any SIA is undertaken.

Additionally, given that the Project has a 60 year life span, it can be expected that the manner in which the Project is undertaken will also change with time, as new mining and transportation technologies are identified, and also in response to demand for coal. Such changes will potentially alter the social impacts of the Project, for example changing the demand for workforce, and skills requirements.

Given the socio-political and economic dynamics in the region and its impacts on the communities it is not possible to predict social impacts of the project for the life of 60 years. The SIA and the SIMP therefore adopt an adaptive management approach by which impacts and management strategies will be reviewed, monitored and updated on a regular basis. Based on advice from the Office of the Coordinator General (OCG) the impacts and the SIMP will be reviewed and reported to the OCG on an annual basis during construction and for the first two years of operations. Thereafter the review, monitoring and updating process will be included in Adani's annual review and reporting process.

1.5 Outline of report

The report is structured as follows:

- Section 2 provides an overview of the SIA methodology
- Section 3 and 4 describe the regional and local study areas
- Section 5 outlines the planning and policy context of the Project
- Section 5 provides a profile of the workforce required for construction and operation of the Project
- Section 6 describes the current impacts of mining and the potential impacts/opportunities of the Project
- Section 8 outlines the mitigation and management strategies
- Section 9 outlines the expected model for monitoring and reporting for the Project
- Section 10 contains the reference list for the SIA

1.6 Relevant policies, standards and guidelines

The SIA has been prepared in accordance with the ToR for the EIS. The methodology for this SIA has been based on the International Association for Impact Assessment (IAIA), *International Principles for Social Impact Assessment* (Vanclay, 2003). See Section 2.2 for a description of these principles.

As per the Project ToR the SIMP was developed following the Queensland Department of Infrastructure and Planning (now State Development, Infrastructure and Planning) publication *Social impact assessment: Guideline to preparing a social impact management plan* (2010), and has been revised for the SEIS based on the new *Social Impact Assessment Guidelines (July, 2013)* and subsequent advice received from the OCG.

2. Social impact assessment methodology

2.1 Introduction

The SIA is best understood as an overarching framework that includes a process of identifying, analysing, managing and monitoring positive and negative impacts on people that may be intentionally or unintentionally caused by developments. Its core purpose is to guide decision making in order to create sustainable socio-cultural, economic and biophysical environments (Vanclay, 2003). Assessment of social impacts is a complex and dynamic process involving a range of steps. It requires an understanding of the values, concerns, attitudes and aspirations of stakeholders and also the socio-economic and cultural conditions, trends and dynamics that characterise communities and their characteristics.

To capture the social impacts of large projects such as the one under consideration, it is necessary to develop a robust methodology which provides clear assumptions, appropriate data collection and analysis, and accurately identifies and describes social equity considerations (Queensland Government, 2010b). In order for the SIA to perform the function of assisting in the decision making process for a new development, in 2010 the Queensland Government developed a fact sheet which was used as a basis in writing this SIA and the SIMP. The update and approach to the SIA in the SEIS has been based on the new Social Impact Assessment Guidelines (July, 2013). The SIA has also been informed by internationally accepted guidelines and principles.

This SIA was conducted in consultation with the OCG. A number of milestone meetings were held with the OCG at each stage of the SIA process (during EIS and SEIS), in conjunction with regular progress meetings regarding the EIS as a whole. The outcomes of these meetings were then fed back in to the Project methodology and report outcomes.

2.2 Guiding principles of social impact assessment

The IAIA *International Principles for Social Impact Assessment* provide the framework for the SIA methodology. These principles summarise the social intentions implied in landmark international agreements and declarations, such as the 1992 Rio Declaration on Environment and Development and 1986 Declaration of Right to Development. The following guiding principles from the IAIA have been utilised when identifying social impacts and management strategies:

- Precautionary principle
- Uncertainty principle
- Prevention principle
- Protection and promotion of health and safety

2.2.1 Precautionary principle

In order to protect the environment, a concept which includes people's way of life and the integrity of their communities, the precautionary approach shall be applied. Where there are threats or potential threats of serious social impact, lack of full certainty about those threats should not be used as a reason for approving the planned intervention or not requiring the implementation of mitigation measures and stringent monitoring.

2.2.2 Uncertainty principle

It is recognised that our knowledge of the social world and of social processes is incomplete and because the social environment and the processes affecting it are changing constantly, and vary from place to place over time, our social knowledge can never be fully complete.

2.2.3 Prevention principle

It is preferable to prevent negative social impacts and ecological damage from happening than having to restore or rectify damage after the event.

2.2.4 Protection and promotion of health and safety

Health and safety of people and communities are paramount. All planned actions and interventions should be assessed for health impacts and accident risks, especially in terms of assessing and managing the risks from hazardous substances, technologies or processes, so that their harmful effects are minimised, including not bringing them into use or phasing them out as soon as possible. Health impacts cover the physical, mental and social wellbeing and safety of all people, paying particular attention to those groups of the population who are more vulnerable. This may include such groups as the economically deprived, indigenous groups, children and women, the elderly, the disabled, as well as to the population most exposed to risks from the planned intervention.

2.3 Stages in social impact assessment

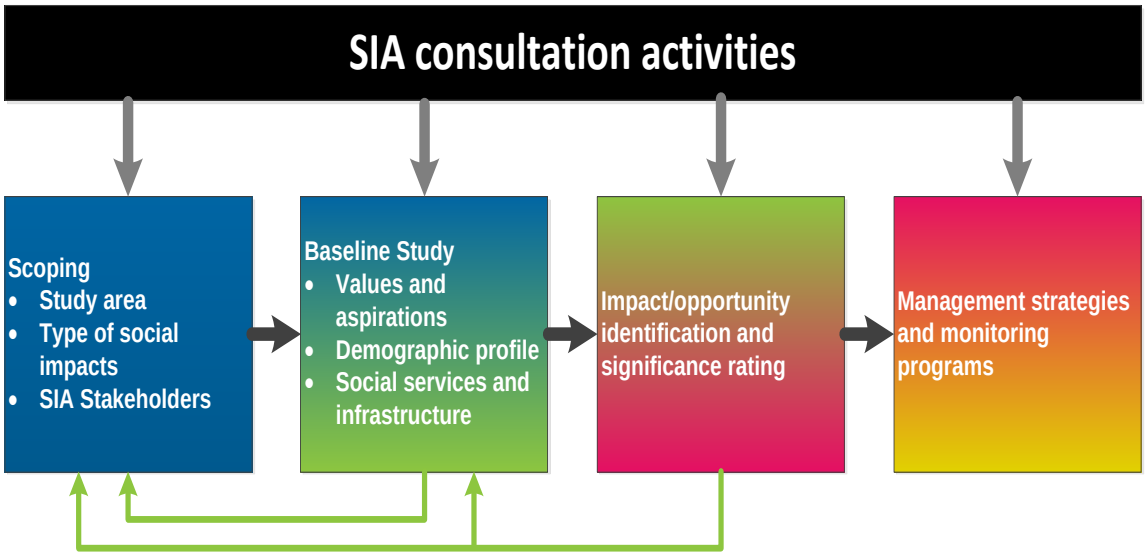
Table 1 and Figure 2 provide a summary of the main steps in the SIA methodology developed at the outset of the project.

Table 1 Summary of stages and tasks

Stage of SIA	Step	SIA task
EIS		
Scoping	1	Scoping exercise to understand the Project, identify the Study Area and SIA Stakeholders and initial identification of social issues and opportunities.
	2	Meeting with the OCG to confirm the social and cultural area of influence and SIA methodology.
	3	Development of SIA report structure and indicators.
	4	Desktop research to respond to ToR and literature review.

Stage of SIA	Step	SIA task
Baseline	5	Consultation with Isaac Regional Council (IRC), Charters Towers Regional Council (CTRC), Townsville City Council (TCC), Mackay Regional Council (MRC), Central Highlands Regional Council (CHRC) and Whitsunday Regional Council (WRC) and service providers to identify baseline conditions.
	6	Meeting with the OCG to provide SIA update and feedback on social baseline study (regional study area only).
	7	Literature review, gathering social statistics and data analysis, including demographic analysis.
Impact/Opportunity identification	8	Project description for the Project finalised.
	9	Consultation with IRC, CTRC, BSC, TCC, MRC, WRC, CHRC and social infrastructure service providers to identify potential impacts and opportunities.
	10	Consultation with landholders as part of land negotiations.
	11	Meeting with the OCG to provide SIA update and feedback on local study area (baseline, impacts/opportunities and management strategies) and regional study area (potential impacts and opportunities).
Impact mitigation, management and monitoring	12	Consultation with IRC, CTRC, BSC, TCC, MRC, WRC, CHRC and social infrastructure service providers to identify potential management strategies and monitoring programs.
SIA report and draft SIMP	13	Develop SIA and draft SIMP Reports
	14	Meeting with OCG to provide SIA update and provide feedback key findings of the SIA process. Present draft SIMP.
	15	Final SIA and SIMP presented to the Queensland State Government.
SEIS		
Baseline	16	Updating regional and local social baseline based on Census 2011 data
Impact/opportunity identification	17	Consideration of revised elements of Project Description
	18	Meeting with OCG to discuss SIA update and approach
	19	Consideration of submissions to the EIS and revised Project elements to update impact assessment
Impact mitigation, management and monitoring	20	Consultations with IRC, service providers (including Queensland Police Services [QPS]), DATSIMA and other agencies to discuss submissions to the EIS and include considerations to update impact management strategies
Updated SIA report and SIMP	21	Develop final SIA and revised SIMP

Figure 2 SIA methodology



2.4 Data sources and type

A range of primary and secondary data sources were used to prepare the SIA. The SIA relied on both qualitative and quantitative information collected from the various sources. Literature sources were also used as essential references throughout the SIA process, informing the impact identification phase as well as the measures recommended to mitigate negative impacts. The SIA has been developed based on a combined understanding of issues using triangulation of information from various sources. Individual consulted during the SIA processes cannot be referenced due to privacy reasons. Table 2 presents an overview of data type and sources used for the SIA.

It should be noted that with data provided by the Office of Economic and Statistical Research (OESR) and the Australian Bureau of Statistics (ABS), there may be slight inconsistencies in data in some tables. For example, the sum of population of the local government areas may not be equivalent to the region. The OESR advises that this difference is likely due to introduced random error to preserve confidentiality of census information at a small scale. The OESR has adjusted cells to prevent confidential data being exposed and totals and sub-totals of individual tables have also been adjusted to ensure summing of data. Hence, the totals in different tables on similar topics, e.g. birthplace by region and birthplace by proficiency in English, may be slightly different.[1]

[1] A fuller explanation can be found on the ABS website: http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/2901.0Chapter38202011

Table 2 Overview of data type and sources used in the SIA

Data type	Data source (primary)	Data source (secondary)
Qualitative	Community information sessions Feedback received via Project 1800 number Feedback from landholders via Land Agents Meetings and discussions with traditional owners Service provider workshops Meetings with IRC, CTRC, CHRC, TCC, MRC, WRC Discussions with state agencies and service providers	Website and documents from Councils within the regional study area Information leaflets and reports provided by service providers
Quantitative	Community information sessions Feedback received via Project 1800 number Feedback from landholders via Land Agents. Engagement with traditional owners Service provider workshops and meetings Data from meetings with IRC, CTRC, CHRC, MRC, WRC, TCC, CTRC	Australian Bureau of Statistics (ABS) Queensland Treasury Office of Economic and Statistical Research (OESR) Public Health Information Development Unit Websites and documents from Councils within the regional study area Information leaflets and reports provided by service providers Various website including rpdata.com.au, realestate.com.au, etc.

2.5 Scoping stage

A scoping process was undertaken to gain an initial understanding of:

- The Project
- The geographical area likely to be impacted by the Project
- Who the 'community' is and who is likely to be impacted by the Project
- Potential social impacts and opportunities

The scoping process assists in identifying the social and cultural area of influence and an initial list of SIA stakeholders. By identifying the potential social impacts and opportunities, the scoping process also allows the methodology and data sources to be targeted such that information necessary to understand and evaluate potential impacts is collected. For example, if one of the potential opportunities identified is employment, the baseline study can focus on labour force characteristics and skills and qualifications of individuals within the study areas.

2.5.1 Study area

The Project comprises of two major components:

- Project (Mine): the Mine and associated infrastructure and offsite infrastructure
- Project (Rail): a Rail line, associated infrastructure and quarries

The Study Area for the SIA is defined as locations at which the construction, operation and decommissioning of the Project may have a social and cultural influence at a scale that can be attributed to the Project. Social impacts are often not contained within the immediate area of the Project components. From an impact assessment point of view, in the Queensland context social impacts may be said to occur in the immediate area of a project, in the nearby communities/localities, in the regional centres closest to the project area and sometimes in the wider area of the State. Generally, the area of social and cultural influence is determined by the movement of project related people (workforce) as they travel around to the immediate project area, nearby localities and regional centres to access various services and facilities.

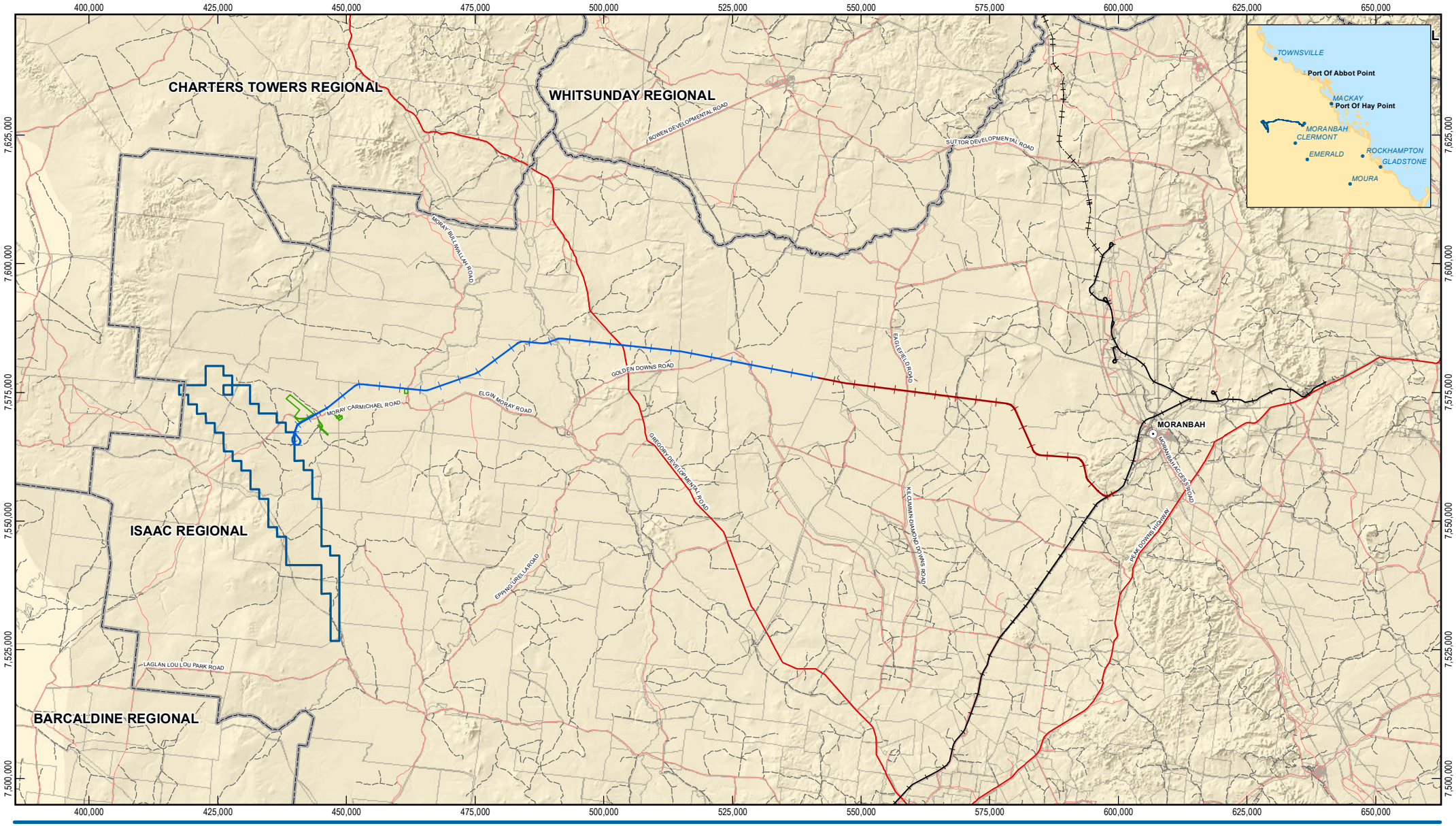
The SIA Study Areas for the EIS were –

- Local study area comprising the former Belyando Shire which includes the towns of Moranbah and Clermont, as well as those landholders directly affected by the mine and rail corridors
- District study area comprising Isaac Regional Council and Charters Towers Regional Council areas. Isaac Regional Council was formed during 2008 as a result of the amalgamation of Belyando, Broadsound and Nebo Shires. Charters Towers Regional Council was formed by the amalgamation of Charters Towers City and the Shire of Dalrymple in 2008
- Regional study area comprising the local government areas (LGAs) of Isaac, Charters Towers, Townsville, Whitsunday, Mackay, and Central Highlands

Since the district study area was a mid-tier created solely on the basis of statistical demographic data, it was considered more appropriate to limit the Project Study to:

- Local study area including landholders directly affected by the Project Mine and Rail corridors together with major urban localities nearest to the Project area namely Moranbah and Clermont (refer to Figure 3)
- Regional study area including the LGAs of Isaac, Charters Towers, Townsville, Whitsunday, Mackay, and Central Highlands (refer to Figure 4)
- State of Queensland to provide a wider context to the Project

The local and regional study areas offer appropriate administrative boundaries and policy framework necessary to collect required statistical information, assess impacts and implement mitigation management strategies.



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0 5 10 15 20 25

Kilometres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 55

N

LEGEND

- Town
- Existing Railway
- State Road
- Local Road
- Track
- Rail (West)
- Rail (East)
- Mine (Onsite)
- Mine (Offsite)
- Cadastral Parcel
- LGA boundary

Adani Mining Pty Ltd

Carmichael Coal Mine and Rail Project SEIS

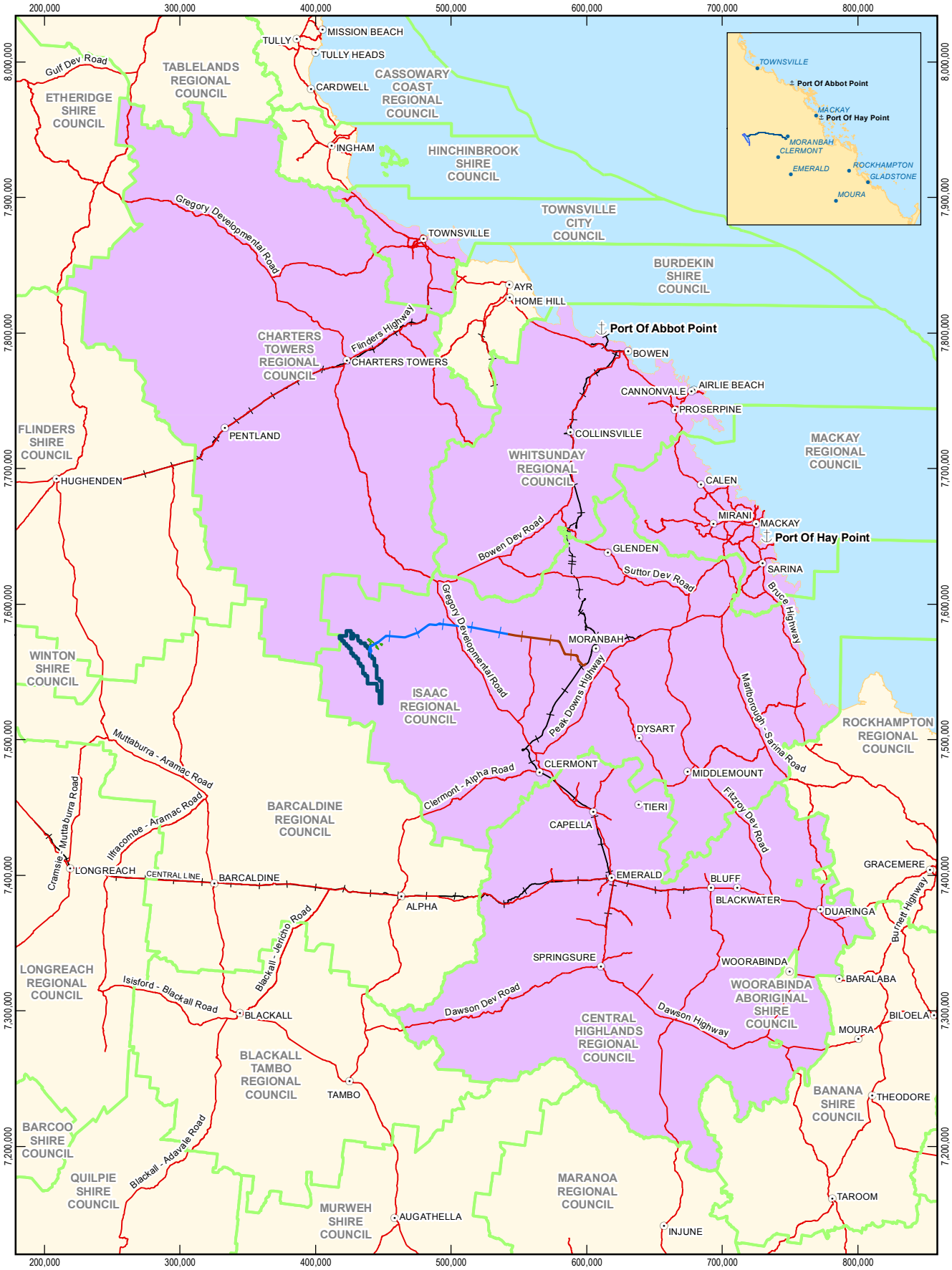
Social Impact Assessment
Local Study Area

Job Number 41-26422
Revision B
Date 14-10-2013

Figure 3

G:\41\26422\GIS\Maps\MXD\0700_SIA\41-26422_0703_rev_b.mxd Level 9, 145 Ann St Brisbane QLD 4000 T +61 7 3316 3000 F +61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data source: DERM: DEM (2008), DCDB (2010), Physical Road Network (2011), LGA (2012); DME: EPC1690 (2010), EPC1080 (2011); © Commonwealth of Australia (Geoscience Australia): Localities, Railways (2007); Adani: Alignment Opt9 Rev3 (SP1&2) (2012), Construction Camps (2011); Gassman/Hyder: Mine (Offsite) (2012). Created by: BW, jvc



LEGEND

- Major Port
- Key Centre / Locality
- State Road
- Existing Railway
- Local Government Area Boundary
- SIA Study Area (Regional)

Project (Rail)

- Rail (West)
- Rail (East)
- Project (Mine)
- Mine (Offsite)

1:4,000,000 (at A4)

0 20 40 60 80 100

Kilometres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 55

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Adani Mining Pty Ltd

Carmichael Coal Mine and Rail Project SEIS

Social Impact Assessment
Regional Study Area

Job Number 41-26422
Revision B
Date 30-07-2013

Figure 4

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Data Source: GA: Key Centre / Locality (2007); DERM: LGA (2011); DMR: State Roads (2008); DME: EPC1690 (2010), EPC1080 (2011); Adani: Alignment Opt9 Rev3 (2012); Gassman/Hyder: Mine (Offsite) (2012). Created by: BW, MS

2.5.2 Social and cultural area of influence

The social and cultural area of influence was defined as part of the scoping process at the commencement of the Project, in accordance with the content outline in Section 4.1.1 of the ToR and in consultation with the OCG. Table 3 outlines the background information for each of the ToR considerations.

Table 4 outlines the rationale for the social and cultural area of influence as per the ToR.

Table 3 Background information for the social and cultural area of influence

Consideration	Background
The potential for social impacts to occur at local, regional and state level.	**Local** Landholders with land adjoining or directly affected by the Project (Mine) and Project (Rail) will experience the majority of impacts associated with the project, along with the township of Clermont (~160 km south-east) and to a lesser extent Moranbah (~160 km east) which are both located in the former Belyando Shire. Clermont is the closest township to the Project (Mine) by road. The focus of the local study area is therefore the former Belyando Shire and directly affected landholders. Traditional owners were also included in the local study area to identify any potential impacts directly related to the country from the Project footprint. Note that the project traverses four ABS Census Collection Districts (CCDs), namely 3031602, 3031603, 3031604 and 3031504. As the geographical area of these CCDs is much larger than the project footprint, data for CCDs has not been presented.
	Regional This project is expected to have a measurable influence within a wide geographical area and with transport links to Townsville and Mackay in particular. The regional study area comprises the LGAs of Isaac, Charters Towers, Townsville, Whitsunday, Mackay, and Central Highlands.
	State Comparisons to state average data are included within the SIA.
Location of other relevant proposals or projects	There are a number of other state significant projects proposed in the region, including: • Approved Alpha Coal Project (~100 km south of proposed Carmichael Mine) • Approved Kevin's Corner Project (adjacent to the Alpha Coal Mine) • South Galilee Coal Project: South Galilee Coal Mine (15 km southwest of Alpha) • China First Project - formerly the Galilee Coal Northern Export Facility, (~80 km south of proposed Carmichael Mine) • Proposed Galilee Basin Power Station Project (~120 km south of proposed Carmichael Mine) • Central Queensland Integrated Rail Project • Goonyella to Abbott Point Rail (24 km north-west of Moranbah to Abbott Point) • Bowen Basin Coal Growth Project (includes construction and expansion of three mines in the Bowen Basin near Moranbah and a new airport at Moranbah).

Consideration	Background
	There are currently no resource projects operating in the Galilee Basin; however The Alpha Coal Project and Kevin's Corner Project have received state environmental approvals. There are approximately 50 other resource-related projects in the neighbouring Bowen Basin. The regional study area was considered where appropriate, given the number of proposed and operating projects which may influence the social impacts/opportunities of the Carmichael Project.
Location and types of physical and social infrastructure, settlement and land use patterns	The land use pattern in the area is dominated by agricultural use. Settlement is sparse, consisting mainly of isolated homesteads. There is a network of local roads and water courses in the vicinity of the Project (Mine) and along the Project (Rail) corridor. No electricity or telecommunication easements traverse the proposed Project area. No water or gas pipelines currently traverse the Project (Mine) and there are no proposed gas or water pipelines over the site. The project (Rail) corridor intersects the Gregory Developmental Road. The proposed rail line joins with the existing rail line southwest of Moranbah, and the north-south spur joins the Goonyella to Abbott Point line approximately 80 km north of Moranbah. The main towns likely to be impacted by the Project are Clermont and Moranbah.
Social values that might be affected by the project including Indigenous social and cultural characteristics	The Isaac Regional Vision 2020 Community Plan (Isaac Regional Council, 2009) recognises a number of values pertaining to the region: • Safety • Connectivity and community spirit • Active healthy outdoor lifestyle supported by sport and recreational facilities Celebration of unique local/regional identity. Based on initial searches of the native title register there are four separate native title claims registered, or in the process of being registered, in the region around the Project area, each from a different Indigenous group, being the: • Wangan and Jagalingou People • Jangga People • Barada Barna People. • BBKY No. 4. Any native title rights and interests will be considered through Indigenous Land Use Agreements (ILUA) and cultural heritage impacts will be considered through the Cultural Heritage Management Plans (CHMP).

Table 4 Rationale for social and cultural area of influence

Consideration	Local		Region	State
	Landholders/ traditional owners	Former Belyando Shire	Isaac, Charters Towers, Townsville, Whitsunday, Mackay, Central Highlands Councils	Queensland
The potential for social impacts to occur at local, regional and state level	✓ Landholders and traditional owners directly impacted by mine and rail construction and operation	✓ Potentially impacted by mine workforce during construction and operation	✓ Potentially impacted by workforce, services provision and transport corridors during construction and operation	✓ Potentially impacted by workforce during construction and operation
Location of other relevant proposals or projects	✓ Potential cumulative impacts with other proposed rail lines should they proceed (China First Project and the Alpha Coal Project)	✓ Other proposed projects in the Galilee Basin and existing projects in the Bowen Basin	✓ Other proposed projects in the wider regional area, especially in Isaac, Whitsunday, Mackay and Central Highlands	✓ Other proposed projects in Queensland
Social values that might be affected by the project	✓ Landholders and traditional owners affected by workforce presence, project construction and operation	✓ People living in the former Belyando Shire (FIFO and residents)	✓ People living in the wider regional area (both non-resident workers and residents)	
Indigenous social and cultural characteristics	✓ Social and cultural characteristics of the traditional owners	✓ Characteristics of the Indigenous people living in the former Belyando Shire		

2.5.3 Literature review

Desk based research was undertaken to provide background information for initial scoping of issues and to inform consultations with SIA stakeholders. This included a review of relevant regional and local plans, Queensland Government policies, research publications and other SIAs and similar studies undertaken for resource developments and associated infrastructure in Queensland and Australia. Table 5 provides the list of the key relevant studies consulted throughout out the SIA process. Studies selected for inclusion were the ones that covered similar geography, subjects or that were particularly recognised for outstanding quality/innovation. In addition, several other information and data sources were referred to throughout the SIA process and are referenced where relevant. A comprehensive list of references is included in Section 1.

Table 5 Relevant studies consulted in Carmichael SIA process

Study/SIA	Aspect of Project	Geographical area
SIA documents (alphabetical order)		
Hancock Prospecting Pty Ltd (2010), Alpha Coal Project, Social Impact Assessments (Mine and Rail)	Mine and Rail	Galilee Basin, Queensland
Queensland Rail (2005) Northern Missing Link Rail Project (Goonyella to Newlands), Social Impact Assessment	Rail	Bowen Basin, Queensland
Waratah Coal (2011) Galilee Coal Project, Social Impact Assessment (Mine and Rail)	Mine and Rail	Galilee Basin, Queensland
Studies/reports (alphabetical order)		
Barclay, M and Pattenden, C (2007) "Retention of Women in the Minerals Industry" (in) Unearthing New Resources: attracting and retaining women in the Australian minerals industry	Retention of Women in the Minerals Industry	Australia
Beach, R. and Cliff, D. (2003) "Turnover and FIFO operations: some facts, opinions and theories" AusIMM Bulletin Sept/Oct 5:64-65	FIFO workforce	Australia
Bowen Basin Mayors Group (2006) The challenges of rapid growth and influencing state government: a presentation to key directors general	Rapid growth associated with resource development	Bowen Basin, Queensland
Central Queensland University (2003) Economic and social impacts of the Coppabella Mine on the Nebo Shire and the Mackay Region: Part II: Economic Impacts Study	Economic impacts	Bowen Basin, Queensland
Cooperative Research Centre (CRC) for Rail Innovation (2009) Paper 2: Assessment of social, economic and environmental impacts of transport modes	Rail	Australia
Di Milia, L. (2006) "Shift work, sleepiness and long distance driving" (in) Transportation Research Part F:278-285	Impacts of shift work	Australia
Di Milia, L. and Bowden, B. (2007) "Unanticipated safety outcomes: shift work and drive in, drive out workforce in Queensland's Bowen Basin" (in) Asia Pacific Journal of Human Resources 45(1):100-112	Impacts of shift work and rosters	Australia
Economic Associates (2010) Galilee Basin Economic and Social Impact Study Report, prepared for DEEDI	Variety	Galilee Basin, Queensland
Haslam McKenzie, F. (2007) Attracting and retaining skilled and professional staff in remote locations DKCRC Report 21, Desert Knowledge Cooperative Research Centre, Alice Springs	Retaining a workforce in remote locations	Australia

Study/SIA	Aspect of Project	Geographical area
Hubinger, Parker and Clavarino (2002) “The intermittent husband: impact of home and away occupations on wives/partners” (in) Conference Proceedings of the Queensland Mining Industry Health and Safety Conference 2002	Impacts of shift work and rosters	Australia
Ivanova, G, Rolfe, J., Lockie, S. and Timmer, V. (2007) “Assessing social and economic impacts associated with changes in the coal mining industry in the Bowen Basin, Queensland, Australia” (in) Management of Environmental Quality: Am International Journal 18(2):211-228	Social and economic impacts of coal mining	Bowen Basin, Queensland
Kaczmarek, E. A. and Sibbel, A. M. (2008) “The psychosocial well-being of children from Australian military and fly-in/fly-out (FIFO) mining families” (in) Community, Work and Family Vol. 11, no. 3, pp.297-312	FIFO workforce	Australia
Kemp, D. (2009) “Mining and community development: problems and possibilities of local-level practice” (in) Community Development Journal 1-21	Community development	Australia
Lockie et al (2009) “Coal mining and the resource community cycle: A longitudinal assessment of the social impacts of the Coppabella mine” (in) Environmental Impact Assessment Review 29:330-339	Coal mine	Bowen Basin, Queensland
Murray and Peetz (2008) The Big Shift: The gendered impact of twelve hour shifts on mining communities Paper presented at the International Sociological Association Conference, Barcelona, Spain	Impacts of shift work	Australia
Petkova et al (2009) “Mining developments and social impacts on communities: Bowen Basin case studies” (in) Rural Society 19(3):211-228	Social and economic impacts of coal mining	Bowen Basin, Queensland
Rolfe, J., Ivanova, G. and Lockie, S. (2006) Assessing the social and economic impacts of coal mining on communities in the Bowen Basin: summary and recommendations Research Report No.11 Australian Coal Association Research Program (ACARP)	Social and economic impacts of coal mining	Bowen Basin, Queensland
Rolfe et al (2007a) “Lessons from the social and economic impacts of the mining boom in the Bowen Basin 2004-2006” Australasian Journal of Regional Studies 13(2):134-153	Social and economic impacts of coal mining	Bowen Basin, Queensland
Storey, K. (2001) “Fly-in/fly-over: mining and regional development in Western Australia” (in) Australian Geographer 32(2):133-148	Community development	Australia
Other data		
Built on existing data and data generated from stakeholder consultation and Isaac Regional Council baseline studies (data gathered by and provided by IRC) This data has not been independently verified.	Coal mine and rail	Isaac Regional Council

2.6 Social baseline study

2.6.1 Overview

To address the requirements of the ToR, a targeted social baseline study of the people residing in the Project's social and cultural area of influence within the local and regional study areas was undertaken based on the indicators identified in Section 4.1.3 of the ToR. Refer to Section 3 and 4 for the social baseline. Baseline information for the local and regional study areas was compared to data for the state where it was available.

2.6.2 Regional baseline

A combination of qualitative and quantitative information was used to develop the regional baseline. Data and information was gathered from various primary and secondary sources, some of the key sources are listed below:

- Census 2011 data from ABS
- Regional Profiles from the Office of Economic and Statistical Research (OESR)
- Other SIAs relevant to the study area
- Mackay, Isaac and Whitsunday Regional Plan (2011 – 2031)
- Isaac Regional Council Community Plan
- Moranbah Urban Development Area Strategy
- Isaac, and Charters Towers Regional Council Websites
- Websites and publications of state agencies covering health, education, housing, communities and emergency services and Isaac and Charters Towers Council websites
- Real estate websites
- Media reports
- Planning schemes and DERM land use mapping
- Consultations with key stakeholders.

The regional baseline describes the following community characteristics and issues:

- Community settlement patterns
- Housing availability, affordability and costs
- Community values and aspirations
- Demographic characteristics, including:
  - Total Population; population trends, growth and forecasts
  - FTE estimates (resident and non-resident population)
  - Age and gender profile
  - Family composition
  - Cultural and ethnic composition
  - Education profile, including school and vocational training enrolments
  - Employment and unemployment profile

  - Employment by industry and occupation profile
  - Income profile
  - Disability prevalence
  - Social and economic index of disadvantage
- Safety profile (crime data)
- Social and community infrastructure, including:
  - Housing and accommodation services and facilities
  - Health services and facilities
  - Community support services
  - Education and training facilities
  - Transport services
- Lifestyle and recreation.

The regional social baseline is presented in Section 3.

2.6.3 Local Study Area baseline

The area of the former Belyando Shire comprises the local study area as the mine site and a large proportion of the rail line is located in this area, along with both Clermont and Moranbah as the closest urban centres to the mine site.

As outlined in Section 2.3, the local baseline has been developed based upon the information gained by Adani during negotiations with landholders along with data relating to the former Belyando Shire. The local baseline is presented in Section 4. The local baseline includes:

- Properties affected by the Project
- Families directly and indirectly affected by the project
- Land use and land ownership patterns.
- Demographic information for the former Belyando Shire.

2.7 Impact and opportunity identification

The conceptual framework developed by van Schooten et al. (2003) for identifying social impacts was used for this SIA. This conceptual model was particularly chosen because it makes a clear distinction between social change processes and social impacts.

A social change process is described by van Schooten et al. (2003) as being able to be measured objectively, independent of the local context. Social change processes are set in motion by project activities or policies and can lead to several iterations of change (first, second and third order changes) and each of these can lead to social impacts occurring. van Schooten et al. (2003) explain that the ways in which social change processes are perceived, given meaning or valued, depend on the societal context in which various societal groups act. Some sectors of society, or groups in society, are able to adapt quickly and exploit the opportunities of a new situation. Others (for example various vulnerable groups) are less able to adapt and will bear most of the negative consequences of change. Therefore social impacts are implicitly context dependent.

A social impact is described by van Schooten et al. (2003) as something that is actually experienced by humans in either a corporeal (physical) or cognitive (perceptual) sense and results directly from the social change processes that are invoked by a project (direct social impacts). It is important to note that in many cases, perceived impacts are as important as actual (measurable) impacts as people may modify their behaviours or experience discomfort simply because of a perceived impact. Indirect social impacts are a result of changes in the biophysical environment. To apply this framework:

- Population growth or the presence of construction and operation workers, are social change processes that may lead to 'first order' social impacts
- Economic development which increases the number of tourists in a particular area can influence land use and water quality, which in turn can have indirect social impacts through a reduction in agricultural production and, subsequently, on income level for smallholder farms is an example of second and third order social impacts.

Potential impacts and opportunities have been developed based on desktop research (including review of literature and published research), consultation with the IRC and CTRC, service providers and landholders, and the experience of the SIA team.

Potential impacts and opportunities have been allocated a significance using the significance tool described in Section 7.2 and detailed in Appendix A.

2.8 Mitigation, management and monitoring

Once potential social impacts and opportunities were identified, appropriate management strategies and monitoring programs were developed. IRC, CTRC, TCC, WRC, MRC, CHRC, other stakeholders, service providers and landholders were involved in the development of management strategies and monitoring programs to ensure they are practicable for all parties including Adani, Councils, service providers, landholders and the community. Management strategies were developed to align with existing programs where appropriate. The monitoring program was also developed to align with existing programs in place for collecting social and socio-economic data.

2.9 Social impact management plan

The SIMP was developed using as a guide, the Queensland Government publication *Social impact assessment: Guideline to preparing a social impact management plan* (released 2010) and has been updated based on the new OCG Social Impact Assessment Guidelines (July, 2013) and advice from OCG. The SIMP identifies mitigation measures and management strategies to manage impacts during the construction and operations phases of the project and identifies stakeholders to be involved in the implementation these management strategies.

2.10 SIA consultations

2.10.1 Overview of SIA consultations

During the EIS process the SIA consultations were closely integrated with the whole of EIS public consultation process and a SIA team member participated in relevant public consultation events. During the SEIS process key consultations were carried out by Adani personnel.

Table 6 outlines the various consultations that occurred throughout the EIS and SEIS processes, with particular reference to those that have contributed to the development of the SIA.

Table 6 SIA relevant stakeholder consultations during EIS and SEIS

Timing	Component of EIS	Stakeholder	Purpose/outcome
EIS process			
March 2011	EIS Public consultations	Government agencies	EIS Agency briefings
March 2011	EIS Public consultations	Community in the regional study area	Community information sessions (EIS commencement and Project introduction)
March 2011	SIA milestone meeting #1	OCG	Confirmation of SIA scope, method and social and cultural area of influence
March 2011	SIA	IRC	Initial discussion on SIA methodology
June 2011	SIA Baseline study consultation	IRC	Meetings with IRC representatives and officers to collect, verify and interpret regional baseline data
June 2011	SIA Baseline study consultation	Service Providers and regional stakeholders (Clermont and Moranbah)	Focus Groups meetings to collect, verify and interpret regional baseline data
June 2011	SIA milestone meeting #2	OCG	Meeting with OCG for a progress update and outline initial findings of the regional baseline
August 2011	EIS public consultations	Community in the regional study area	Progress update on preliminary findings of EIS technical studies
November 2011	SIA Impact Identification and initial mitigation strategies consultation	IRC	Meetings with IRC representatives and officers in Moranbah and Clermont for impact identification in the regional and local study area
November 2011	SIA Impact Identification and initial mitigation strategies consultation	Service Providers and regional stakeholders (Clermont and Moranbah)	Focus Groups for impact identification in the regional study area and initial discussions regarding potential management and mitigation strategies
November 2011	SIA	Landholders	Landholder Case studies for baseline and impact identification in the local study area
December 2011	SIA	SIACAR Group	Presentation to the SIA Cross Agency Reference Group

Timing	Component of EIS	Stakeholder	Purpose/outcome
December 2011 – August 2012	CHMP	Traditional Owners	SIA engagement with TO groups and representatives
February 2012	SIA (SIMP – management and monitoring)	IRC, CTRC	Meetings
July - August 2012	SIA (SIMP – management and monitoring)	Service Providers, stakeholders and Councils within the regional study area	Meetings in Townsville, Emerald, Clermont, Moranbah, Mackay, Charters Towers and Brisbane
SEIS process			
Ongoing	Technical studies and design development consultation (Mine and Rail)	Landholders	Inform landholders of project environmental assessments and design development, including where relavant proposed crossing treatments, construction and operational infrastructure, flood modelling and proposed drainage treatments.
March 2013	EIS submissions	QPS	Discuss stakeholder submissions and key issues and actions
April 2013	EIS submissions	DATSIMA	Discuss stakeholder submissions and key issues and actions
July 2013	SIA update and approach meeting	OCG	Discuss approach to SIA updates
July 2013	EIS submissions	IRC	Discuss stakeholder submissions and key issues and actions

2.10.2 Consultations with regional councils

Consultations with IRC, CTRC, TCC, MRC, WRC and CHRC were undertaken to identify:

- Baseline conditions (i.e. current demographic profile of various community groups), social issues and future plans prior to the Project)
- Potential impacts and opportunities for the various community groups in the regional study area
- Management strategies and monitoring programs relevant for the region.

More specific consultation with IRC was also undertaken during the EIS and SEIS to identify relevant service providers to be consulted during the SIA and to discuss IRC's submission. The findings from the consultation with Councils have been integrated throughout the SIA and SIMP.

2.10.3 Consultations with service providers

Consultation with Councils and other stakeholders helped to identify relevant service providers to be included in the SIA. Detailed consultation has been undertaken with relevant service

providers such as QPS, Queensland Ambulance Services (QAS), Queensland Fire and Rescue Services (QFRS) and health services to identify:

- Baseline conditions (i.e. current situation, issues and capacities in the region prior to the Project)
- Potential impacts and opportunities on current service provision in the region
- Management strategies and monitoring programs to ensure services are not negatively impacted and enhanced where possible in the region.

The findings from these consultations have been used throughout the SIA and SIMP.

2.10.4 Landholders

Landholders were invited to participate in targeted SIA case studies; however as Adani had undertaken considerable engagement with landholders as part of land negotiations, most landholders noted that information relevant to the SIA had been provided during these consultations. While one landholder did participate in a case study, in order to retain data confidentiality, information from this case study has not been presented. Information relating to landholders has been gained through landholder negotiation discussions between landholders, their representatives and Adani.

Adani is in ongoing consultation with rail and mine landholders. Rail landholders continue to be informed about technical studies and the rail design development including information where relevant on proposed crossing treatments, construction and operational infrastructure, flood modelling and proposed drainage treatments.

Adani will continue to consult with the landholders during the detailed design phase of the project to ensure that they are fully informed of the design process and the proposed mitigation measures specific to their property operations.

2.10.5 Indigenous consultation

Indigenous consultation for the project was undertaken by Environment Land Heritage (ELH) in collaboration with GHD. Where appropriate, indigenous and non-indigenous consultation activities were undertaken jointly. Information in this section has been sourced from the 2012 ELH Report (ELH, 2012). Engagement with all traditional owner groups is ongoing as part of continuing to maintain relationships, as well as for the preparation of Indigenous Land Use Agreements (ILUA) and Cultural Heritage Management Plans (CHMP).

The Wangan and Jagalingou, Jangga and Barada Barna aboriginal groups have been identified as having an interest in the areas of land affected by the project.

Baseline consultations were undertaken with key Indigenous SIA stakeholders to supplement desktop analysis completed. The results of the consultations have been summarised under the following headings:

- Community values and aspirations
- Employment and training
- Housing and accommodation.

As at February 2012, one meeting and two phone interviews were held with Indigenous stakeholders from the following groups:

- Jangga Operations (Jangga People)
- Woora Consulting (Barada Barna People)
- The then DEEDI Indigenous Employment and Training Manager.

At the time, further follow-up discussions were planned with all Indigenous stakeholders. This will also involve the additional stakeholders identified as having an interest in Indigenous affairs including:

- Wangan and Jagalingou People Adani Project Coordinator
- Queensland Department of Communities, Aboriginal and Torres Strait Islander Services
- Commonwealth Department of Education, Employment and Workplace Relations
- Queensland Department of Education and Training
- Construction Skills Qld (CSQ)
- Mining Industry Skills Centre (MISC).

Outcomes from consultation to February 2012 have been incorporated into the relevant sections of this SIA.

2.10.6 Consultations with internal project stakeholders

The SIA process was closely linked with the other EIS studies undertaken by GHD and other consultants. Internal stakeholders such as the Project design engineers were consulted to understand the project description. Other EIS technical study teams were consulted where relevant to understand and cross-reference their findings and impact management strategies. Adani's land agents and in-house legal counsel were consulted to supplement information to develop the local baseline and verify impacts and management strategies.

2.11 Assumptions and limitations

It is acknowledged that the SIA has been developed based on certain assumptions and bounded by limitations which were outside the scope of influence of the SIA team. Some of the key assumptions and limitations are listed below:

- The relevant IAIA SIA principles have been adapted for this technical study, including the precautionary and uncertainty principle when predicting social impacts. Any predicted social impact may change as more information about the Project is known, and the Project is being constructed and operated. Therefore actual social impacts of the Project were not known with certainty when writing this report. A monitoring program has been developed in order to provide information on whether potential social impacts actually occur or not
- Social impacts are highly contextual and the social impacts of a particular project may be influenced by a range of social, socio-economic and economic trends that are outside the control of the proponent. Additionally, Federal, State, Regional and local policy and planning frameworks may change considerably over time and this will necessarily affect the identification and management of social impacts. This introduces an unavoidable level of uncertainty into predictions of future impacts which necessitates ongoing monitoring and an adaptive management approach. This approach has been incorporated into the SIMP for this project. Additionally, the SIA only examined the first

10- 20 years of the project, and provision is made for ongoing updating of the SIMP to reflect impacts and issues in changing social conditions

- The EIS Project Description has informed the development of the SIA methodology and findings of the impact/opportunity assessment. Project related developments outside the scope of the EIS Project Description have not been assessed in this SIA. This includes the construction of off-lease infrastructure such as quarries, etc.
- Workforce numbers and characteristics of the workforce provided in Section 1 are based on estimates only and may change as the Project moves into detailed design phase and operations phase. Strategies for worker accommodation and transport may also change. This in turn may change the nature and extent of predicted social impacts
- Data contained in this report has been drawn from publicly available sources including data from the Australian Bureau of Statistics (ABS), Office of Economic and Statistical Research (OESR), strategic planning documents and policies, SIA key stakeholders, and specialist advice from Adani and the OCG.
- A medical practitioner has not been contracted to undertake any medical or psychological testing as part of this study. Any reference to medical, health, wellbeing or psychological impacts are based on the self-diagnosis of the person providing the information

It is understood that unforeseeable activities may occur when the Project is being constructed and is in operation. A monitoring program has been developed in order to inform Adani and its social performance group on whether potential social impacts actually occur or not and to capture impacts that may occur as a result of unforeseeable activities or as a result of change in Project design (refer to SEIS Volume 4 Section D2 Social Impact Management Plan).

3. Regional social baseline

3.1 Introduction

3.1.1 Purpose and objectives

The purpose of the social baseline is to provide an understanding of existing conditions and characteristics of those communities identified in the study areas (regional and local study areas, refer to Section 2.5.1 for definition of Project study area). This provides the basis for predicting the effects of social changes arising from the Project on the communities, in addition to providing a benchmark against which predicted future change can be measured. Key considerations include:

- Baseline indicators identified for this study are relevant to the key social issues/impacts that may be caused by the proposed project as identified in the scoping exercise, through stakeholder consultations and those that are specified in the Project ToR
- The baseline is created for a certain point in time in the life of the community – in this instance, the 'planning phase' is the reference point for assessment (just prior to the commencement of project construction). Where possible and deemed necessary, trends and patterns are taken into account.

3.1.2 Information sources

The baseline has been compiled using publicly available quantitative data from ABS and the OESR, and complemented by qualitative information drawn from various strategic planning documents and policies including the Mackay, Isaac and Whitsunday Regional Plan (MIWRP). The desktop research was validated with information obtained from stakeholder consultations undertaken during the SIA process.

Where possible, reference has been made to 2011 Census data (ABS) to provide an up to date snapshot of demographic characteristics. The limitations of this data should be noted:

- Non-resident workers are not captured within ABS criteria as a 'usual resident' and therefore, are not included in Census counts of an area's estimated resident population (ERP). Therefore, OESR's 'Bowen and Galilee Basins Population Report' (2012) has been assessed for full time equivalent (FTE) population2 estimates and projections of the non-resident workforce
- The assessment has been developed as a 'snapshot' in time in order to provide a baseline from which to assess the potential social impacts arising from the Project. Whilst every effort has been made to provide up to date and relevant data, communities are in a constant state of change and information gathered to prepare the social baseline can change over time.

[2] The full time equivalent (FTE) population of an area is calculated by adding the count of non-resident workers on-shift to the estimated resident population (ERP) (OESR, 2012)

3.2 Community attitudes to mining

There has been a shift in community attitudes in the Bowen and Galilee Basin regions from the time the EIS was conducted and during the SEIS phase. Stakeholders have expressed eagerness to receive new projects in the region to restore and continue the region's growth. Impacts on housing and workforce impacts on communities were no longer considered as issues in the region with more housing vacancies and lesser incidence of workforce and community interactions. The shift in community attitude has been marked with the downturn in the coal mining industry over the last 12 months and subsequent economic effects in the region which have brought about loss of jobs and loss of opportunities to local businesses.

However, based upon GHD's previous experience on SIA work undertaken within the Bowen and Galilee Basins and the outcomes of the consultation processes carried out during the EIS process, including discussions with property owners (as part of landholder negotiations) a range of attitudes to mining have been identified. For many property owners, attitudes towards mining projects are shaped by the potential environmental issues and impacts on ongoing use of the land associated with mining and rail development. Potential negative issues include:

- Air quality and dust emissions
- Potential flooding over lands
- Restriction of stock movements
- Impacts on drinking water supplies, water bores and groundwater
- Fire risk.

From discussions with Adani personnel, engaging in purposeful landholder negotiation and giving appropriate compensation has a positive impact on property owner attitudes towards the actual and perceived impacts of mining. Negative experiences of others may influence this and it is essential that property owners are aware of the project and involved early in the development process.

Mine development can deliver positive outcomes for local communities but can also have negative impacts. Many communities have clear aspirations as to how mining development should benefit their communities, and strong thoughts on what impacts are undesirable. Through SIA consultation, the Clermont community in particular has indicated what the desired community outcomes are for their locality, including a local presence from the mining companies within the town and provision for workers to reside locally (i.e. 100 percent FIFO/DIDO is not generally supported). However, it is also acknowledged that in some situations it may not be practicable to achieve these desired outcomes and in these situations it is desired that mining companies work with the local communities to develop agreed outcomes.

There is an underlying community attitude that mining royalties benefit south-east Queensland and not the regional areas from which the resource is being extracted and there is a desire amongst the local communities for the State Government to reinvest in the local communities, especially in the areas of health, education and security (policing). The Queensland Government Royalties for the Region Program[3] and the Regional and Resource Town Action

[3]Over the next four years, this Queensland Government program will invest $495 million in new and improved community infrastructure, roads and floodplain security projects that benefit those who live, work and invest in our resource regions. In

Plan will enable local governments to secure additional royalty funding to improve infrastructure in areas impacted by mining activity. Applications for funding under this program opened in September 2012 with the announcement of successful projects not expected until early 2013.

Indigenous engagement is considerably advanced for this project with Indigenous Land Use Agreements in place with the four traditional owner groups identified for the Project.

3.3 Regional summary

3.3.1 Overview of demographics

Various data sources have been used to describe the demographics of the regional study area, which are summarised in Table 7. The extent of the regional study area is depicted in Figure 4.

Reference has been made to 2011 Census data (ABS) to provide an up to date snapshot of demographic characteristics. The limitations of this data should be noted: The assessment has been developed as a 'snapshot' in time in order to provide a baseline from which to assess the potential social impacts arising from the Project. Whilst every effort has been made to provide up to date and relevant data, communities are in a constant state of change and information gathered to prepare the social baseline can change over time.

Table 7 Key Baseline community characteristics for the Regional Study Area

Socio-economic variable from ToR	Data source	Regional summary
Total population	OESR, 2011(f)	Estimated total population in 2011 of 393,680 persons, with an annual average growth rate of 1.7 percent per annum. (2007-2011).
Existence of anticipated major population trends and changes irrespective of project	OESR, 2011(f)	Projected population of 641,101 persons by 2031 – an increase of 224,725 at a growth rate of 2.2 percent per annum (2011-2031). In terms of population distribution, the largest population bases will continue to be located in coastal urban regions (Townsville, Mackay, and Whitsunday). Central Highlands Region will have highest percentage growth at 2.4 percent per annum, driven by resource sector activity in the Galilee Basin.
Non-resident workers Full-time equivalent Population (FTE)	OESR, 2012a	2012 FTE population and proportion of non-resident workers in the Bowen Basin = 25,035 (23 percent of the total population). Number of non-residents living in regional study area on a temporary basis is increasing due to mining industry growth and use of FIFO and DIDO workforce.

future years there will be an ongoing commitment of $200 million each year. More information can be found at http://www.dsdip.qld.gov.au/grants-and-funding/royalties-for-the-regions.html

Socio-economic variable from ToR	Data source	Regional summary
Age and gender distributions	OESR, 2011(f)	Relatively young age profile with 65.8 percent aged <45 compared to state average of 62.1 percent High proportions of working age groups (15-64) in Whitsunday (70.0 percent), Isaac (71.2 percent) and Central Highlands (69.7 percent). Pockets of older age groups (65+) in Charters Towers, Whitsunday and Mackay.
Indigenous population	OESR, 2011(f)	Relatively large Indigenous population at 5.1 percent, compared to Queensland average of 3.6 percent Highest Aboriginal and Torres Strait Islander representation in Charters Towers (7.9 percent) and Townsville (6.1 percent).
Cultural and ethnic characteristics Place of birth	OESR, 2011(f)	Less cultural diversity than Queensland. 12.3 percent of regional study area population were born overseas, compared to state average of 20.5 percent. Whitsunday had highest proportion of persons born overseas (14.1 percent), with lowest in Charters Towers (6.0 percent) and Isaac (9.9 percent).
Family structures	OESR, 2011(f)	98,514 families in the regional study area in 2011, constituting 8.6 percent of Queensland total. 'Couple families with children' are the dominant family type (45.3 percent). Slightly lower representation of 'one-parent families than the state average'.
Household composition	ABS, 2011 (a,b,d,e,f,g)	Family households were the most common type. Whitsunday and Charters Towers had large numbers of single/lone person households (about one quarter of the LGA total), compared to Queensland the other LGAs in the regional study area.
Education, including schooling levels	OESR, 2011(f)	Lower level of educational attainment in the regional study area. Schooling - 50.6 percent completed Year 11 or 12 (or equivalent), compared to 55.3 percent for Queensland. Post school qualifications - five of the six LGAs registered a lower proportion of persons with post school qualifications than Queensland. Isaac Region had a higher proportion compared to Queensland.
Unemployment	OESR, 2011(f)	For December 2012 quarter unemployment was 3.8 percent, compared with 5.8 percent in Queensland. Unemployment rates are variable in the regional study area ranging from 1.1 percent in Isaac Region to 6.1 percent in Whitsunday.
Labour force by occupation and industry	OESR, 2011 (a,b,d,e,f,g,h) ABS, 2011 (a,b,d,e,f,g)	In 2011, main industries of employment were Mining (16.7 percent), Retail Trade (9.1 percent), Construction (8.6 percent) and Accommodation and Food Services (7.8 percent). Mining was the largest employer in Isaac, Central Highlands, Charters Towers and Mackay regions. Largest occupation categories were Technicians & Trades Workers (18.5 percent) and Machinery Operators & Drivers (15.5 percent).

Socio-economic variable from ToR	Data source	Regional summary
Income	OESR, 2011(f)	Fewer people in the <$400/ week individual income category than Queensland, except for Charters Towers. Income in Isaac and Central Highlands were 3 to 4 times higher than the state average in the >$2,000/week income category, which is indicative of higher salaries in the mining sector.
Housing type	OESR, 2011(f)	130,200 occupied private dwellings in the regional study area: 82.7 percent separate houses; 5 percent semi-detached houses; and 10 percent apartments.
Housing tenure type and landlord type for rental properties	OESR, 2011(f)	25.9 percent of the occupied private dwellings in the regional study area were fully owned, 34.2 percent were being purchased and 36.3 percent were being rented. Very high numbers of rentals in Isaac and Central Highlands (60.8 percent and 44.4 percent respectively) having regard to the mining presence in these communities.
Housing availability and affordability	OESR, 2012(b) OESR, 2012(a)	In the 12 months to March 2012, there were 3,075 dwelling units in new residential buildings approved in the regional study area. Temporary accommodation –Workers Accommodation Village bed shortages in Clermont.
Measures of community safety, health and wellbeing	Public Health Information Development Unit (PHIDU) 2013b	Higher rates of poor health and risk factors evident in Charters Towers, Mackay and Whitsunday than Queensland, reflecting older age groupings in these areas.
Crime	QPS, 2012	Most common crimes in the regional study area - 'Other Offences', 'Offences Against Property', 'Other Theft (excl. Unlawful Entry)', and 'Traffic and Related Offences'. Incidence of crime is highest in Townsville City and lowest in Isaac Region (i.e. total number of reported offences).
Disability prevalence	OESR, 2011(f)	Proportion of persons in need of assistance with a profound or severe disability was less in regional study area (at 3.6 percent) in comparison to the state average of 4.4 percent. At 5.8 percent, Charters Towers was the only LGA higher than the state.
Socio and economic index	OESR, 2011(f)	Populations with higher SEIFA index indicating less relative disadvantage were Central Highlands and Isaac Regions. Charters Towers and Whitsunday registered the most disadvantages.

3.3.2 Community characteristics

The regional study area covers an extensive area totalling 222,340 km^2 across six local government areas. Each region has different histories, settlement patterns and characteristics, as summarised below.

Table 8 Snapshot of community characteristics

LGA	Community snapshot
Isaac Region	Isaac Region comprises the former LGAs of Belyando, Nebo and Broadsound Shires. It is a resource rich region with a long history in both agricultural and mining activities, as it contains a substantial portion of the Bowen Basin coal reserve.
Charters Towers Region	Charters Towers Region comprises the former LGAs of Charters Towers City and Dalrymple Shire. It comprises a predominantly rural area with the main town of Charters Towers, which supports the mining and beef industry sectors, and a growing horticultural industry in the south.
Central Highlands Region	The Central Highlands is located in Central Queensland and encompasses an area of about 60,000 km2 located near the Tropic of Capricorn covering a portion of the Bowen Basin coal resource. The Region was formed with the amalgamation of Bauhinia, Duaringa, Emerald and Peak Downs Shires. It has a dispersed population across a number of towns and rural settlement areas. Key centres include Emerald, Blackwater, Capella and Duaringa.
Mackay Region	Mackay Region was established by the amalgamation of Mackay City and Sarina Shire. The Mackay urban area an important regional service centre for Central Queensland region. Mackay Region has a number of smaller towns including Sarina, Mirani, Marian and Walkerston providing regional and local services. The region's growth is focussed on the mining industry in the Bowen Basin, agribusiness, tourism, retail and an emerging marine sector. Mackay Region supports mining activities through major port facilities at Hay Point and Dalrymple Bay.
Whitsunday Region	Whitsunday Region is located on the Central Queensland coast, approximately 125 km north of Mackay. The natural assets of the Great Barrier Reef, tropical islands and National Parks make it one of Australia's premier tourist destinations. The Region includes the older centres of Bowen and Proserpine, the coastal urban strip, scattered coastal and rural settlements, west to Collinsville and the coal fields. It has a highly transient population associated with the region's tourism, mining and agricultural industries. The Whitsunday Region supports mining activities through major port facilities at Abbot Point near Bowen.
Townsville City	Townsville is a major regional service centre and is widely known as the capital of North Queensland. It provides a northern link for state and federal governments, business and the key industries of mining, commerce, retail, community and cultural services. The current LGA was established in 2008 with the amalgamation of the former Cities of Townsville and Thuringowa. The region encompasses a major urban coastal area, rural areas, mountain ranges, Magnetic Island a number of smaller islands (TCC, 2012).

Community identity, values and lifestyle

Regional identity and aspirations are articulated in each Council's Community or Regional Plan. These documents are typically developed through an extensive consultation process to reflect community aspirations. A detailed analysis of existing community planning and policy frameworks, including regional values, is presented in Section 4 of this report.

Key opportunities and challenges

Table 9 sets out the opportunities and challenges facing the different LGAs in the Regional Study Area, based on a review of planning and policy documents, and stakeholder feedback during SIA consultation.

Table 9 Key opportunities and challenges

LGA	Opportunities and challenges
Isaac Region	Opportunities • Resource sector expansion • Employment and training opportunities, particularly for younger people • Community development through the Moranbah Urban Development Area (UDA) • Expansion of air services Challenges • Shortages in temporary accommodation • Economic diversity to ensure long term viability beyond mining • Affordability of housing and services, particularly for those not in the mining sector • Land availability for development (Moranbah and Clermont) • Addressing traffic safety issues on the Peak Downs Highway • Securing reliable and safe water supply for communities • Cumulative impacts of mining on communities and social infrastructure
Charters Towers Region	Opportunities • Regional community has a strong sense of pride and shared vision • Ageing population as a foundation for local knowledge and experience in guiding community organisations • A council that is representative of its people in urban and rural areas. • Improvements to strategic planning and community consultation • Support for service delivery by non-government organisations • Employment and training opportunities • Contribution to services for young people Challenges • Service provision to small communities across a large area • Managing cumulative impacts of mining on local communities • Diminished access to locally available natural resources for public works • Competing priorities and pressures of economic development, environmental protection and lifestyle preservation
Central Highlands Region	Opportunities • Strong community spirit, identity and social fabric • Relaxed rural lifestyle, diverse and prospering economy • Opportunities for social inclusion • Securing regional investment for more economic diversity • Improving regional road networks for the safe and efficient movement of people and freight Challenges • Managing and responding to the effects of global economy • Climate change • Rapid population growth and imbalance in some areas • Ageing population

LGA	Opportunities and challenges
	• Affordability of land and housing • Providing quality infrastructure to service regional needs
Mackay Region	Opportunities • Develop and maintain strong relationships between major stakeholders in the economy • Promoting the region as a lifestyle destination with quality education facilities • All sectors of the community informed, engaged and the opportunity for their views to be considered in important decisions that affect them Challenges • Loss of agricultural land • Increasing employment opportunities to support the population • Diversifying the region's economic base to ensure economic sustainability • Providing a range of housing types including affordable and temporary housing options • Ensuring goods and freight can be moved safely to and from the region • Ensuring infrastructure is efficient and sustainable
Whitsunday Region	Opportunities • High profile region • Strong economic diversity • Rich resource area • New economic, social, tourism and cultural opportunities • Industry attraction and support for growth Challenges • Natural disasters • Community safety • Isolation of some communities • Ageing population • Transient and non-resident population • Shortfalls in some community facilities and services • Infrastructure development, maintenance and asset replacement • Limited capacity of community-based organisations
Townsville Region	Opportunities • Strong economic base and growth • Strong population growth • Growing role of Townsville as a public and private sector regional service centre • Economic diversification in mining, mineral processing, marine research, defence, education and tourism. Challenges • Remoteness • Social impacts arising from large transient workforce,, growing defence presence and FIFO • Affordable housing and market pressures • Cultural diversity • Population growth • Need for revitalisation in some areas of Townsville to attract business investment in the region

3.4 Population

3.4.1 Resident population and projections

As at 30 June 2011, the regional study area had an estimated resident population (ERP) of 393,680, representing 8.8 percent of Queensland's total population (refer to Table 10). The regional study area has grown steadily between 2007 and 2011, increasing by approximately 22,623 people at a growth rate of 1.7 percent p.a., similar to the state average of 1.8 percent p.a.

Townsville Region had the largest population base of the six LGAs accounting for almost half of the total (approx. 46 percent), followed by Mackay Region (approx. 29 percent). Charters Towers Region had the smallest population base and experienced subdued growth between 2007 and 2011 at 0.3 percent p.a.

Table 10 Estimated resident population of regional Study Area, 2011

Locality	2007	2011	Pop'n change (2007-2011)	Average annual growth (% p.a.)
	- number -			2007-2011
Central Highlands (R)	28,375	29,533	1,158	1.5
Charters Towers (R)	12,261	12,461	200	0.3
Isaac (R)	21,615	23,212	1,597	1.8
Mackay (R)	108,978	115,677	6,699	1.7
Townsville (C)	168,192	180,389	12,197	1.9
Whitsunday (R)	31,636	32,408	772	1.0
Regional Study Area	**371,057**	**393,680**	**22,623**	**1.7**
Queensland	4,177,089	4,474,098	297,009	1.8

Note: data is preliminary rebased.
Source: OESR, 2011f

Table 11 shows that solid growth in the regional study area is expected to continue in the future. Population projections forecast a total resident population of 641,101 by 2031 (an increase of 224,725 people) at a growth rate of 2.2 percent p.a., exceeding the state's average of 1.8 percent.

All six LGAs are expected to experience growth, with the highest increases in Townsville City (accounting for 46.1 percent of total growth), followed by Mackay Region (29.2 percent) and Whitsunday Region (8.6 percent). Isaac Region's population will increase by almost 14,000 people between 2011 and 2031 (at a rate of 2.3 percent p.a.) coinciding with continued expansion of the mining industry.

Although recent growth in Townsville and Mackay (as shown in Table 10) was high in terms of numbers, the rate of growth (percentage growth) will be overtaken by other localities in the future. In comparison, the Central Highlands and Isaac Regions are expected to experience the highest percentage growth at 2.4 percent and 2.3 percent respectively. This will undoubtedly be driven by resource sector activity in the area.

Table 11 Population projections for Regional Study Area 2011 – 2031

Locality	Projected population as at 30 June (number)					Ave. annual growth rate 2011-2031 (%)
	2011	2016	2021	2026	2031	
Central Highlands (R)	31,861	36,256	40,880	45,685	50,742	2.4
Charters Towers (R)	12,979	13,627	14,063	14,521	14,963	0.7
Isaac (R)	23,277	28,266	31,418	34,270	37,000	2.3
Mackay (R)	121,397	138,348	156,117	172,604	187,367	2.2
Townsville (C)	191,119	216,524	241,684	268,330	295,578	2.2
Whitsunday (R)	35,743	40,618	46,008	50,928	55,451	2.2
Regional Study Area	**416,376**	**473,639**	**530,170**	**586,338**	**641,101**	**2.2**
Queensland	4,611,491	5,092,858	5,588,617	6,090,548	6,592,857	1.8
Regional study area as % of Qld	9.0	9.3	9.5	9.6	9.7	-

Note: - not applicable
Source: OESR, 2011f

3.4.2 Non-resident population

Analysis of the FTE populations for selected LGAs in the regional study area from 2011-2012 shows that:

- Isaac Region had the largest proportion of non-resident workers (42 percent), being almost double that of the entire Bowen Basin in 2012 (23 percent)
- Both Central Highlands Region and Whitsunday Region – Bowen SLA registered lower proportions of non-resident workers at 16 percent and 5 percent respectively for the period.

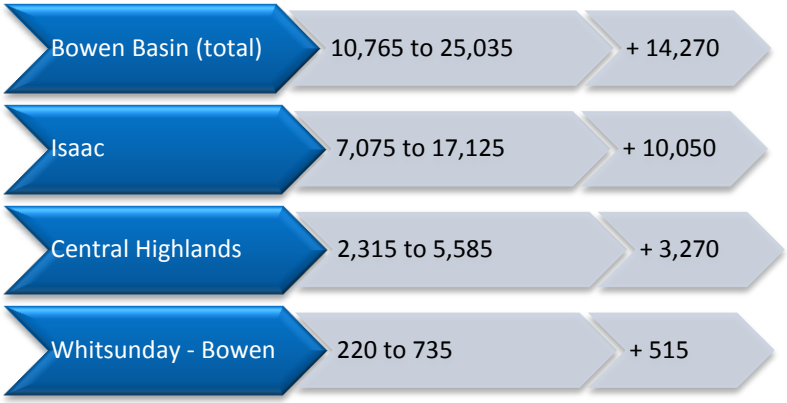
Table 12 FTE Populations for selected LGA's and SLA's in the Bowen Basin, 2011-2012

LGA	Resident population (estimated)*	Total non-resident workers	FTE population estimate	Percentage of non-resident workers*
Isaac (R)				
2011	23,210	13,590	36,800	37%
2012	23,720	17,125	40,850	42%
Change, 2011-12	510	3,535	4,050	..
Central Highlands (R)				
2011	29,535	4,835	34,365	14%
2012	30,125	5,585	35,710	16%
Change, 2011-12	590	750	1,345	..

LGA	Resident population (estimated)*	Total non-resident workers	FTE population estimate	Percentage of non-resident workers*
Whitsunday (R) – Bowen SLA only**				
2011	13,215	715	13,935	5%
2012	13,250	735	13,985	5%
Change, 2011-12	35	20	50	..
Bowen Basin total				
2011	80,825	20,520	101,340	20%
2012	82,065	25,035	107,100	23%
Change, 2011-12	1,240	4,515	5,760	..

* Percentages have been rounded to the nearest whole number; ** Non-resident worker data for Whitsunday (R) for 2011 include Merinda, which was not included in previous years' collections.
Source: OESR, 2012a

For the six year period 2006-2012, the total number of non-resident workers on-shift increased from:



3.4.3 Age and gender

The regional study area's age and gender distribution differs from the Queensland profile as follows:

- The regional study area population generally is more youthful with 65.8 percent of residents aged 45 years and under, compared with a state average of 62.1 percent.
- There is a slightly higher proportion of infants and children aged under 15 (21.1 percent for the regional study area and 19.8 percent for Queensland) and a lower representation of residents aged 65 or more at 9.6 percent, compared to 12.9 percent for Queensland.
- Persons of retirement age were most evident in the Charters Towers, Whitsunday and Mackay Regions. Isaac recorded the lowest proportion of persons aged 65 or more.
- There were slightly more people in the working age groups of 15 to 64 (69.2 percent of the regional study area compared to 67.3 percent for Queensland). The highest proportions of working age groups were recorded in Isaac (71.2 percent), Whitsunday (70.0 percent) and Central Highlands (69.7 percent).

Feedback from stakeholders suggests that less people in the 65+ cohort is attributed to:

- Retirees leaving the region and settling in coastal areas closer to medical facilities; and
- A lack of residential aged care facilities within regional areas.

The gender balance in the regional study area is characterised by a higher proportion of males than females, at 52.1 percent and 47.9 percent respectively. Isaac and Central Highlands had the most males (55.6 percent and 53.6 percent respectively). In comparison, 49.6% of the Queensland population is male (ABS, 2011 a,b,d,e,f,g).

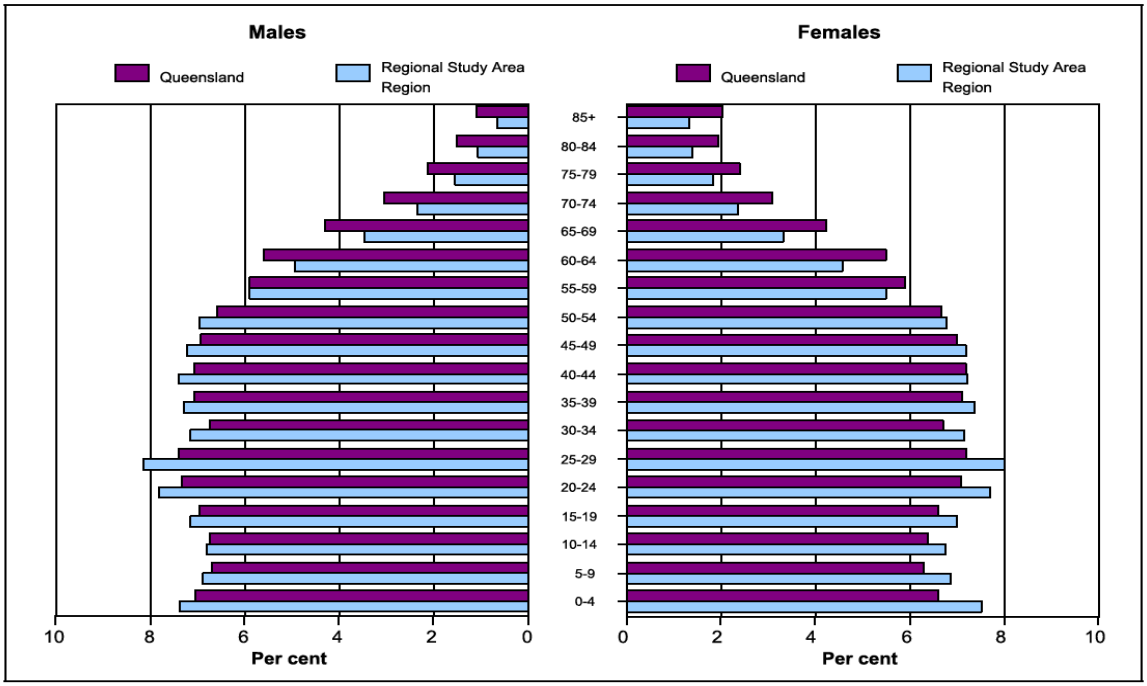
Table 13 and Figure 5 provide a breakdown of regional study area age and gender profile.

Table 13 Estimated Resident Population by Age in the Regional Study Area, 30 June 2011pr

Locality	Population by age									
	0–14		15–24		25–44		45–64		65+	
	number	%	number	%	number	%	number	%	number	%
Central Highlands	7,126	24.1	4,082	13.8	9,671	32.7	6,850	23.2	1,804	6.1
Charters Towers	2,804	22.5	1,557	12.5	3,061	24.6	3,157	25.3	1,882	15.1
Isaac	5,720	24.6	2,958	12.7	8,330	35.9	5,252	22.6	952	4.1
Mackay	24,141	20.9	15,902	13.7	33,557	29.0	29,896	25.8	12,181	10.5
Townsville	37,299	20.7	29,858	16.6	53,449	29.6	42,372	23.5	17,411	9.7
Whitsunday	5,974	18.4	4,088	12.6	9,594	29.6	9,013	27.8	3,739	11.5
Regional Study Area	**83,064**	**21.1**	**58,445**	**14.8**	**117,662**	**29.9**	**96,540**	**24.5**	**37,969**	**9.6**
Queensland	887,487	19.8	625,429	14.0	1,264,341	28.3	1,119,056	25.0	577,785	12.9
Regional study area as % of Qld	9.4	..	9.3	..	9.3	..	8.6	..	6.6	..

pr = preliminary rebased. Source: OESR, 2011(f)

Figure 5 Population pyramid for Regional Study Area and Queensland, 30 June 2011pr



pr = preliminary rebased . Source: OESR, 2011(f)

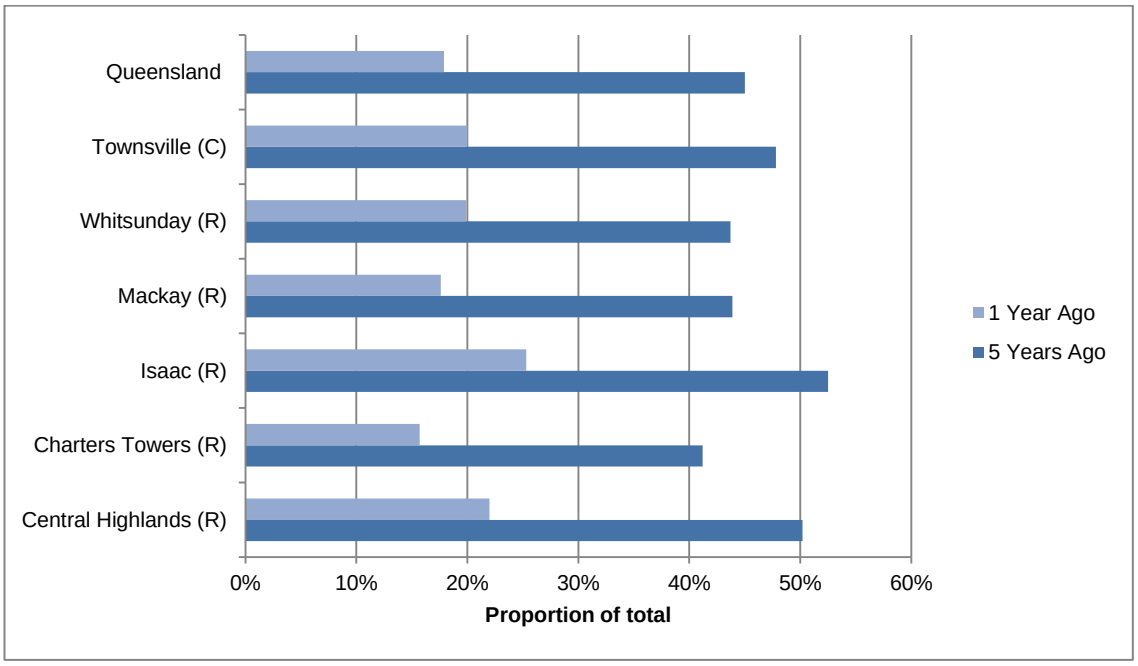
Each of the LGAs within the regional study area had the following notable characteristics:

- Central Highlands Region had 24.1 percent of persons aged 0-14, 69.7 percent aged 15-64 (working age) and 6.1 percent aged 65 and over.
- Charters Towers Region had 22.5 percent of persons aged 0-14, 62.4 percent aged 15-64 (working age) and 15.1 percent aged 65 and over.
- Isaac Region had 24.6 percent of persons aged 0-14, 71.2 percent aged 15-64 (working age) and only 4.1 percent aged 65 and over.
- Mackay Region had 20.9 percent of persons aged 0-14, 68.5 percent aged 15-64 (working age) and 10.5 percent aged 65 and over.
- Townsville City had 20.7 percent of persons aged 0-14, 69.7 percent aged 15-64 (working age) and 9.7 percent aged 65 and over.
- Whitsunday Region had 18.4 percent of persons aged 0-14, 70 percent aged 15-64 (working age) and 11.5 percent aged 65 and over.

3.4.4 Mobility

Figure 6 presents the usual place of residence for the regional study area population, at one and five years prior to the 2011 Census. In Queensland, 17.9 percent of residents had a different address one year prior – all LGAs in the regional study area recorded a higher level of population migration with the exceptions of Mackay Region at 17.6 percent and Charters Towers at 15.7 percent. Isaac Region recorded the highest migration figure of 25.3 percent.

Figure 6 Proportion at different address 1 and 5 years ago in the Regional Study Area, 2011 (a)(b)



(a) Based on place of usual residence; (b) Based on persons aged one year and over; (c) Includes persons who stated that they were usually resident at a different address but did not state that address; (d) Includes persons who did not state whether they were usually resident at a different address.
Source: OESR, 2011(f)

About half of the residents in Central Highlands, Townsville City and Isaac Region had a different address five years prior to the 2011 Census – Queensland recorded an average migration figure of 45.0 percent for the same survey period. All other LGAs in the regional study area had a slightly lower level of migration than the state, with Charters Towers Region having the lowest at 41.2 percent.

3.4.5 Indigenous population

The regional study area has a relatively large Indigenous population, with 19,534 persons of Aboriginal or Torres Strait Islander descent at the time of the 2011 Census. This equates to 5.1 percent of the regional study area population.

All LGAs except Isaac Region had an equivalent or higher Indigenous representation than the state average of 3.6 percent. Charters Towers Region had the largest representation at 7.9 percent, followed by Townsville City (6.1 percent) and Mackay Region (4.4 percent).

Table 14 Persons by Indigenous status in the Regional Study Area (a), 2011

Locality	Aboriginal	Torres Strait Islander	Both (b)	Total Indigenous	Indigenous proportion (%)	Non-Indigenous	Total persons (c)
Central Highlands	922	53	45	1,020	3.6	25,322	28,715
Charters Towers	855	22	55	962	7.9	10,448	12,169
Isaac	492	58	54	604	2.7	19,788	22,586
Mackay	2,907	1,303	702	4912	4.4	101,061	112,797
Townsville	7,800	1,727	1,176	10,703	6.1	153,056	174,462
Whitsunday	1,068	125	140	1,333	4.2	26,821	31,427
Regional Study Area	**14,074**	**3,288**	**2,172**	**19,534**	**5.1**	**336,496**	**382,156**
Queensland	122,896	20,094	12,834	155,824	3.6	3,952,707	4,332,740
Regional study area as % of Qld	11.5	16.4	16.9	12.5	..	8.5	8.8

(a) = Based on place of usual residence; (b) = Applicable to persons who are of 'Both Aboriginal and Torres Strait Islander origin'; (c) = Includes Indigenous status not stated
Source: OESR, 2011(f)

3.4.6 Cultural and ethnic characteristics

Country of birth

In 2011, there were 46,939 persons in the regional study area who were born overseas equating to 12.3 percent of the total population, of which 5.2 percent were born in non-English speaking (NES) countries. In comparison, Queensland's average for persons born overseas was much higher at 20.5 percent (including 9.5 percent from NES backgrounds). In the regional study area, 307,175 people (or 80.4 percent) were Australian-born (refer to Table 15).

Whitsunday Region is characterised by the highest representation of persons born overseas (14.1 percent), followed by Townsville City (13.3 percent) and Mackay Region (11.7 percent). There were considerably less overseas-born people in Central Highlands, Charters Towers and Isaac Regions.

Table 15 Number of persons by birthplace in Regional Study Area, 2011(a)

Locality	Born in Australia		Born in ESB countries (b)		Born in NESB countries		Total born overseas		Total persons (c)
	number	%	number	%	number	%	number	%	number
Central Highlands	23,139	80.6	1,980	6.9	1,140	4.0	3,120	10.9	28,715
Charters Towers	10,575	86.9	444	3.6	281	2.3	725	6.0	12,168
Isaac	18,060	80.0	1,416	6.3	816	3.6	2,232	9.9	22,588
Mackay	92,103	81.7	7,917	7.0	5,326	4.7	13,243	11.7	112,796

Locality	Born in Australia		Born in ESB countries (b)		Born in NESB countries		Total born overseas		Total persons (c)
	number	%	number	%	number	%	number	%	number
Townsville	139,831	80.1	12,557	7.2	10,624	6.1	23,181	13.3	174,462
Whitsunday	23,467	74.7	2,770	8.8	1,668	5.3	4,438	14.1	31,425
Regional Study Area	**307,175**	**80.4**	**27,084**	**7.1**	**19,855**	**5.2**	**46,939**	**12.3**	**382,154**
Queensland	3,192,115	73.7	478,290	11.0	410,346	9.5	888,636	20.5	4,332,738
Regional study area as % of Qld	9.6	..	5.7	..	4.8	..	5.3	..	8.8

(a) Based on usual place of residence; (b) Includes UK, Ireland, Canada, USA, South Africa and New Zealand; (c) Includes countries not identified individually, 'Australian External Territories', 'Inadequately described', 'at sea', and 'not stated responses'
Source: OESR, 2011(f)

Proficiency in spoken English

As shown in Table 16, 14,646 persons in the regional study area were born overseas who spoke a language other than English at home (31.2 percent of the overseas-born population), which is less than the State average of 36.0 percent.

Of those born overseas, who stated that they spoke a language other than English, 3.2 percent stated they spoke English either 'not well', or 'not at all', compared with 5.2 percent in Queensland. In the regional study area, Whitsunday Region had a higher number of overseas-born people who spoke English either 'not well or not at all' (5.2 percent), followed by Townsville Region (3.5 percent).

Table 16 Proficiency in English of overseas persons in the Regional Study Area, 2011

Locality	Speaks English only		Speaks other language at home and speaks English						Persons born overseas (c)
			Very well or well		Not well or not at all		Total (b)		
	number	%	number	%	number	%	number	%	number
Central Highlands	2,114	67.8	921	29.5	73	2.3	1,002	32.1	3,119
Charters Towers	548	76.0	154	21.4	12	1.7	170	23.6	721
Isaac	1,531	68.6	645	28.9	41	1.8	693	31.0	2,233
Mackay	9,096	68.7	3,753	28.3	324	2.4	4,109	31.0	13,247
Townsville	15,589	67.3	6,577	28.4	811	3.5	7,514	32.4	23,180
Whitsunday	3,265	73.6	902	20.3	229	5.2	1,158	26.1	4,439
Regional Study Area	**32,143**	**68.5**	**12,952**	**27.6**	**1,490**	**3.2**	**14,646**	**31.2**	**46,939**
Queensland	565,544	63.6	269,847	30.4	45,927	5.2	319,949	36.0	888,635

Locality	Speaks English only		Speaks other language at home and speaks English						Persons born overseas (c)
			Very well or well		Not well or not at all		Total (b)		
	number	%	number	%	number	%	number	%	number
Regional study area as % of Qld	5.7	. .	4.8	. .	3.2	. .	4.6	. .	5.3

(a) Based on usual place of resident; (b) includes proficiency in English not stated; (c) excludes persons who did not state their country of birth.
Source: OESR, 2011(f)

3.4.7 Family composition

Table 17 shows there were 98,514 families in the regional study area in 2011, constituting 8.6 percent of all Queensland families. 'Couple families with children' are the dominant family type at 45.3 percent, being marginally higher than the state average of 42.8 percent.

The regional study area had lower representations of 'Couple family with no children' at 38.8 percent (compared with 39.5 percent for Queensland) and 'One-parent families' at 14.5 percent, compared with the state average of 16.1 percent.

Table 17 Family composition in the Regional Study Area, 2011

Locality	Couple family with no children (c)	Couple family with children (c)	One-parent family	Total (d)	
	— Number —			%	Number
Central Highlands (R)	2,565	3,685	639	9.2	6,962
Charters Towers (R)	1,280	1,260	511	16.6	3,086
Isaac (R)	1,844	2,933	442	8.4	5,258
Mackay (R)	11,783	13,986	3,990	13.2	30,169
Townsville (R)	17,128	19,726	7,647	16.9	45,319
Whitsunday (R)	3,582	2,992	1,059	13.7	7,720
Regional Study Area	**38,182**	**44,582**	**14,288**	**14.5**	**98,514**
Queensland	453,102	491,200	184,547	16.1	1,148,179
Regional study area as % of Qld	8.4	9.1	7.7	..	8.6

(a) Based on place of usual residence; (b) Includes same-sex couple families; (c) Children are defined as children aged under 15 years of age or dependent students aged 15 to 24 years; (d) Includes other families
Source: OESR, 2011(f)

3.4.8 Household structure

Family households were the most common type of household structure for all LGAs. Four of the LGAs had a higher proportion of family households than the state average, Whitsunday and Charters Towers being the exceptions. In these LGAs a large number of single/lone person households were counted (about one third of the total).

Table 18 Household structure in the Regional Study Area, 2011

Locality	Family Households (%)	Single or Lone Person Households (%)	Group Households (%)
Central Highlands (R)	76.3	19.6	4.2
Charters Towers (R)	72.1	25.0	2.9
Isaac (R)	77.6	18.9	3.5
Mackay (R)	76.3	20.1	3.6
Townsville (R)	72.7	22.0	5.3
Whitsunday (R)	70.1	24.9	5.0
Queensland	**72.4**	**22.8**	**4.7**

Source: ABS, 2011(a,b,d,e,f,g)

3.5 Employment, education and training

3.5.1 Education

As at 30 June 2010, there were 192 schools (public and private) in the regional study area (OESR, 2011f).

In 2011, 145,682 people (50.6 percent) completed Year 11 or 12 (or equivalent) in the regional study area, which is lower than the state average of 55.3 percent (Table 19). Levels of senior schooling are quite variable across the LGAs, with the highest in Townsville City (55.1 percent) and lowest in Charters Towers Region (40.1 percent).

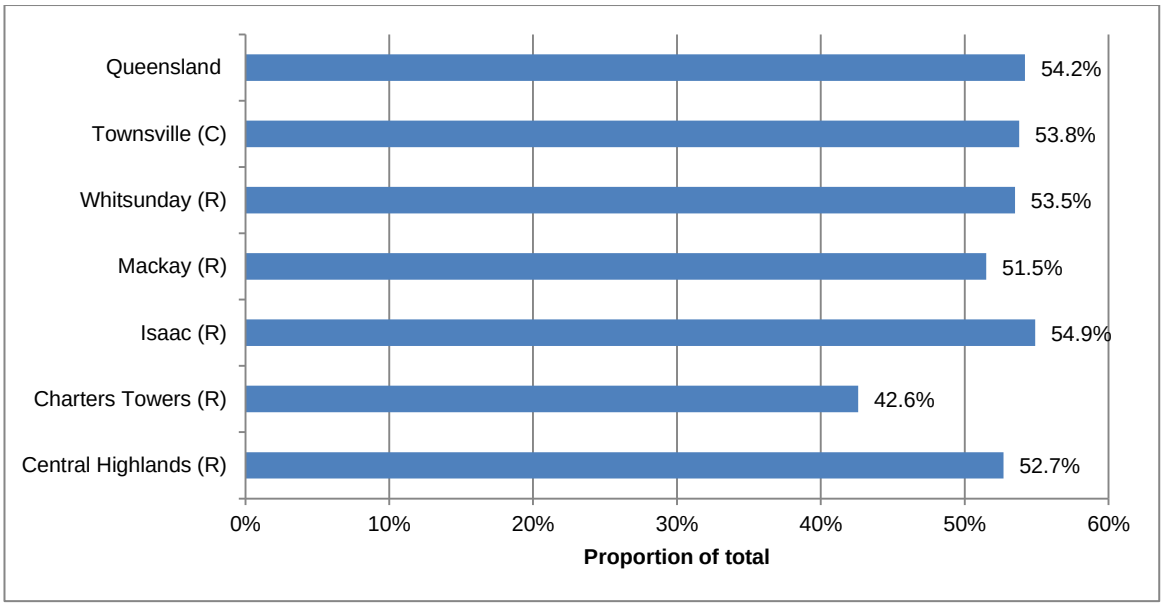
Table 19 Highest level of schooling completed (a) in the Regional Study Area, 2011

Locality	Did not go to school, or Year 8 or below	Year 9 or 10 or equivalent	Year 11 or 12 or equivalent	Total (b)	
	— Number —			%	Number
Central Highlands	1,088	7,016	10,383	49.8	20,858
Charters Towers	1,080	3,275	3,570	40.1	8,904
Isaac	734	5,258	8,202	50.2	16,337
Mackay	6,468	30,674	39,777	46.6	85,354
Townsville	7,474	39,018	72,659	55.1	131,856
Whitsunday	1,762	8,556	11,091	44.6	24,866
Regional Study Area	**18,606**	**93,797**	**145,682**	**50.6**	**288,175**
Queensland	219,102	977,116	1,836,995	55.3	3,320,761
Regional study area as % of Qld	8.5	9.6	7.9	..	8.7

(a) Based on usual residents aged 15 years and over who are no longer attending primary or secondary school
(b) Includes highest year of schooling not stated.
Source: OESR, 2011(f)

A lower level of educational attainment in the regional study area is also evident in post-school qualifications – five of six LGAs registered a lower rate than the Queensland average of 54.2 percent, with the exception of Isaac at 54.9 percent. Charters Towers registered the lowest level at 42.6 percent.

Figure 7 Post school qualifications in the Regional Study Area, 2011 (% aged 15+)(a)



(a) Based on usual residents aged 15 years and over; Includes bachelor degree, graduate diploma, graduate certificate and postgraduate degree; Includes Certificate, I, II, III and IV and Certificates not further defined responses; Persons aged 15 years and over, includes 'inadequately described' and 'not stated' level of education responses
Source: OESR, 2011(f)

3.5.2 Labour force, unemployment and income

Unemployment

During the December quarter of 2012, 8,747 persons were unemployed in the regional study area at a rate of 3.8 percent, which was lower than the Queensland rate of 5.8 percent.

There is considerable variation in unemployment across the regional study area, ranging from lows of 1.1 percent in Isaac Region and 2.2 percent in Central Highlands, to highs of 5.6 percent in Charters Towers and 6.1 percent in Whitsunday.

Table 20 Unemployment and labour force (a) in the Regional Study Area, December Quarter 2012

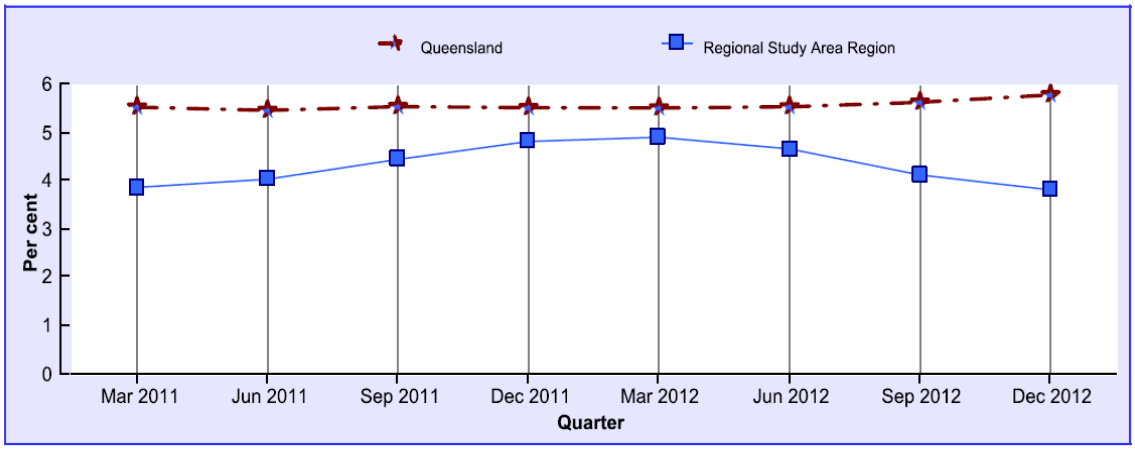
Locality	Unemployed	Labour force	Unemployment rate
	— Number —		%
Central Highlands (R)	420	19,524	2.2
Charters Towers (R)	361	6,483	5.6
Isaac (R)	156	14,065	1.1

Locality	Unemployed	Labour force	Unemployment rate
	— Number —		%
Mackay (R)	2,381	67,552	3.5
Townsville (C)	4,190	101,185	4.1
Whitsunday (R)	1,239	20,309	6.1
Regional Study Area	**8,747**	**229,118**	**3.8**
Queensland	143,637	2,480,728	5.8
Regional study area as % of Qld	6.1	9.2	..

(a) Based on a 4-quarter smoothed series;
Note: Small Area Labour Force data have been generated from a Structure Preserving Estimation (SPREE) methodology using ABS and Centrelink data. As such, these estimates can exhibit considerable variability and care should be taken when interpreting these values.
Note: Based on ABS, ASGS, July 2011. The sum of the LGAs may not be equivalent to the total of regional study area.
Source: OESR, 2011(f)

Between the March quarter 2011 and the December quarter 2012, the unemployment rate in the regional study area ranged between 3.8 percent (December quarter 2012) and 4.9 percent (March quarter 2012).

Figure 8 Unemployment rate in the Regional Study Area and Queensland, March Quarter 2011 to December Quarter 2012



Source: OESR. 2011(f)

Labour force by industry

In 2011, the main industries of employment for the regional study area were Mining (averaging 16.7 percent of total labour force), Retail Trade (9.1 percent), Construction (8.6 percent) and Accommodation and Food Services (7.8 percent).

Variation exists at the local level for industries of highest employment, as follows:

- Mining - Isaac, Central Highlands, Charters Towers Regions and Mackay
- Health care and social assistance – Townsville City
- Accommodation and food services – Whitsunday Region.

Table 21 Employment by industry in the Regional Study Area, 2011 (% of total workforce)

Locality / Industry	Central Highlands	Charters Towers	Isaac	Mackay	Townsville	Whitsunday	QLD
Agriculture, forestry and fishing	11.0	11.1	8.5	3.2	0.5	8.3	2.7
Mining	26.0	13.7	39.5	11.1	2.9	7.2	2.6
Manufacturing	3.4	4.0	2.8	9.5	7.6	5.9	8.4
Electricity, gas, water and waste services	0.8	0.6	0.8	0.9	1.6	0.9	1.2
Construction	7.9	7.0	6.3	10.3	9.8	10.2	9.0
Wholesale trade	2.7	1.8	1.8	4.5	3.0	2.3	3.6
Retail trade	7.3	10.2	5.8	10.1	10.7	10.3	10.7
Accommodation and food services	6.5	6.3	6.4	5.9	6.9	14.8	7.0
Transport, postal and warehousing	4.2	4.6	3.7	6.8	5.1	7.5	5.3
Information, media and telecommunications	0.4	0.5	0.3	0.6	1.4	0.6	1.2
Financial and insurance services	1.0	0.8	0.6	1.4	1.6	1.1	2.7
Rental, hiring and real estate services	1.8	1.0	1.4	1.8	1.6	1.9	1.8
Professional, scientific and technical services	2.9	2.0	1.6	4.7	4.7	3.2	6.5
Administrative and support services	2.2	1.9	3.0	2.5	3.0	3.7	3.2
Public administration and safety	3.8	6.5	3.2	4.0	11.9	3.5	6.7
Education and training	6.5	11.5	5.3	5.8	8.1	4.7	7.9
Health care and social assistance	4.5	10.0	3.6	8.7	12.5	6.7	11.9
Arts and recreational services	0.5	0.4	0.3	0.5	1.3	0.9	1.4
Other services	4.2	3.6	2.9	5.3	3.7	3.5	3.9

Source: OESR, 2011(a,b,d,e,f,g,h)

3.5.3 Employment by occupation

In 2011, technicians and trades workers were the largest occupation group representing 18.5 percent of the employed labour force, followed by machinery operators and drivers (15.5 percent). Labourers and managers were also present in the regional study area in higher proportions compared to Queensland.

Table 22 Employment by occupation in Regional Study Area, 2011(%)(a)(b)

Occupation \ Locality	Central Highlands	Charters Towers	Isaac	Mackay	Townsville	Whitsunday	QLD
Managers	14.6	14.6	11.9	10.3	9.8	13.3	12.0
Professionals	10.7	12.2	10.7	12.9	17.3	10.4	18.9
Technicians and trades workers	18.8	16.2	20.6	21.2	16.7	17.7	14.9
Community and personal service workers	5.5	8.6	4.6	7.2	12.2	9.7	10.0
Clerical and administrative workers	11.6	9.3	9.6	13.0	14.3	10.7	14.7
Sales workers	5.7	7.9	4.9	8.6	9.7	8.9	9.8
Machinery operators and drivers	19.9	14.5	24.3	13.9	8.2	12.0	7.3
Labourers	11.4	14.5	11.5	11.1	9.9	15.5	10.6

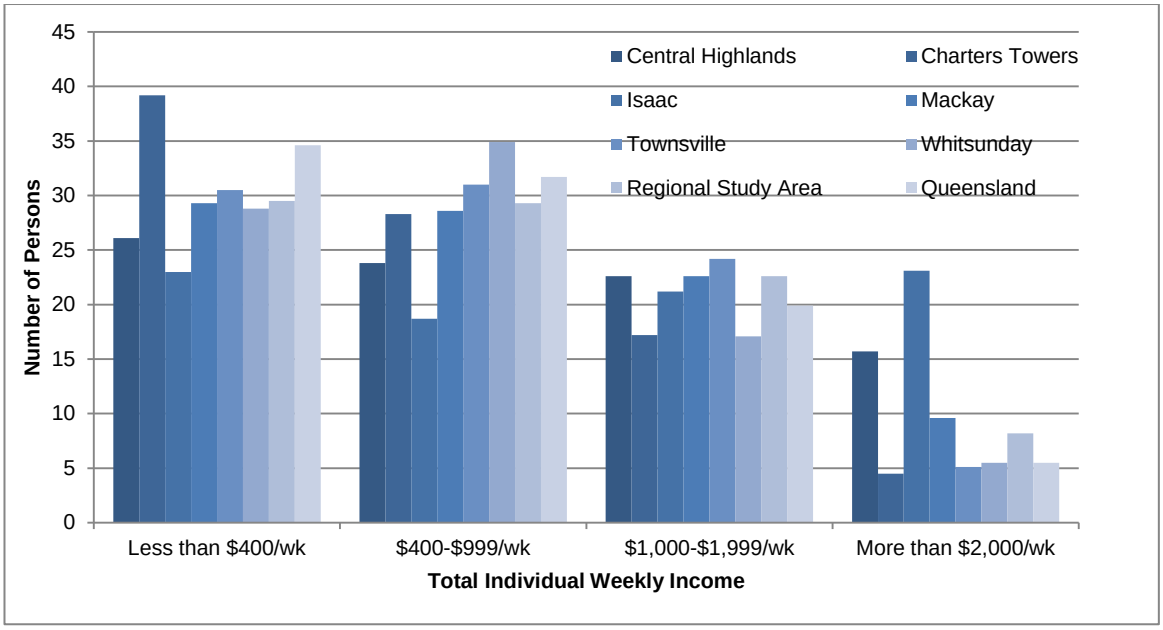
(a) Employed persons aged 15 years and over; (b) Occupation was coded to the ABS 2006 ANZSCO. This has replaced the 1997 ASCO Second Edition; Includes inadequately described and not stated responses.
Source: OESR, 2011(a,b,d,e,f,g,h)

3.5.4 Income

Figure 9 shows the total personal weekly income for people in the six LGAs in 2011, as well as averages for the regional study area and Queensland. The income profile for the regional study area is different when compared to the state:

- Averages for the less than $400 per week income category were lower than the state average of 34.6 percent, with the exception of Charters Towers (39.2 percent).
- Isaac and Central Highlands significantly exceeded the state average in the $2,000 or more per week category (3-4 times higher), which may be attributed to the mining sector.

Figure 9 Total individual weekly income in Regional Study Area, 2011 (%)



Based on usual residents aged 15 and over.
Source: OESR, 2011(f)

3.6 Housing and accommodation

3.6.1 Housing types

The regional study area had 130,209 occupied private dwellings at the time of the 2011 Census. When compared with Queensland, the regional study area is characterised by:

- A higher proportion of separate houses (82.7 percent) than the state average (78.5 percent)
- Lower proportion of semi-detached dwellings (regional study area – 5 percent; Queensland – 8.4 percent) and apartments (regional study area – 10.1 percent and Queensland – 11.7 percent).

Table 23 Occupied private dwellings[(a)] by type in the Regional Study Area, 2011

Locality	Separate house	Semi-detached (b)	Apartment (c)	Total (d)	Separate houses as % of total
Central Highlands (R)	7,698	257	552	8,971	85.8%
Charters Towers (R)	3,862	42	136	4,207	91.8%
Isaac (R)	5,873	313	182	6,652	88.3%
Mackay (R)	32,841	1,913	2,968	38,561	85.2%
Townsville (C)	49,191	3,412	7,707	60,968	80.7%
Whitsunday (R)	8,172	601	1,556	10,850	75.3%
Regional Study Area	**107,637**	**6,538**	**13,101**	**130,209**	**82.7%**

Locality	Separate house	Semi-detached (b)	Apartment (c)	Total (d)	Separate houses as % of total
Queensland	1,215,303	129,430	181,716	1,547,303	78.5%
Regional study area as % of Qld	8.9	5.1	7.2	8.4	..

(a) Excludes visitors only and other not classifiable households; (b) Includes row or terrace house, townhouse etc.; (c) Includes flat, unit or apartment; (d) Includes other dwelling types and dwelling types not stated.
Source: OESR, 2011(f)

3.6.2 Home ownership

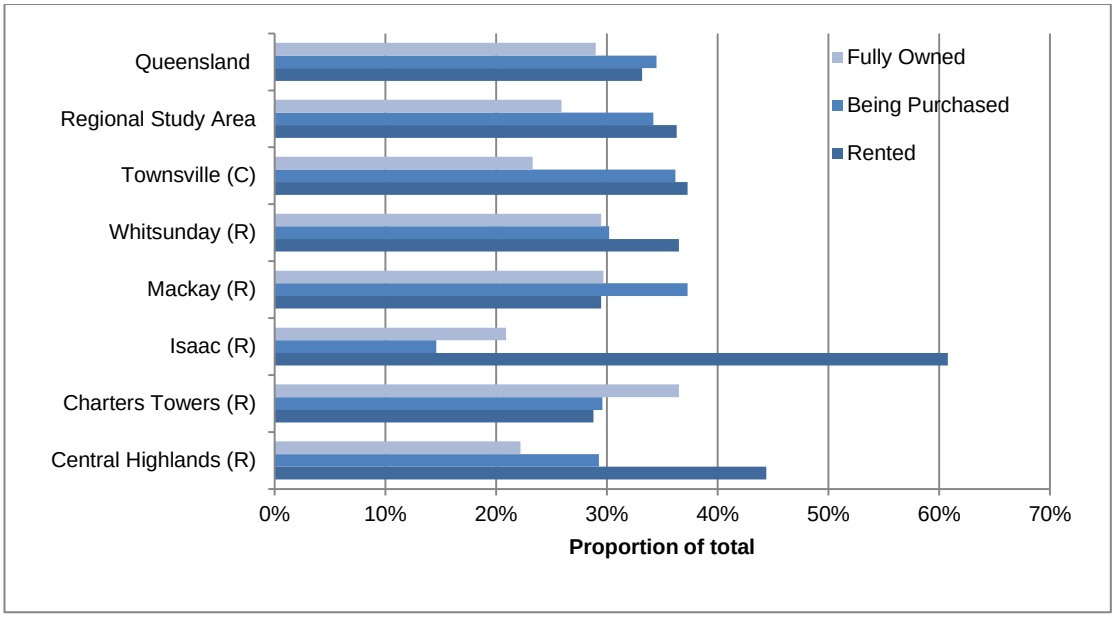
In 2011, fully owned houses represented 25.9 percent of housing in the regional study area which was lower than Queensland at 29.0 percent. The largest ownership type in the regional study area was dwellings being rented. Both the Isaac and Central Highlands had a very high proportion of rental houses (60.8 percent and 44.4 percent respectively) as shown in Table 24 and Figure 10. The most prevalent ownership type was renting

Table 24 Occupied private dwellings by tenure type in the Regional Study Area, 2011

Locality	Fully owned		Being purchased (a)		Rented (b)		Total (c)
	Number	%	Number	%	Number	%	Number
Central Highlands (R)	1,995	22.2	2,630	29.3	3,986	44.4	8,969
Charters Towers (R)	1,535	36.5	1,246	29.6	1,210	28.8	4,207
Isaac (R)	1,389	20.9	974	14.6	4,041	60.8	6,651
Mackay (R)	11,471	29.7	14,374	37.3	11,362	29.5	38,560
Townsville (C)	14,134	23.2	22,083	36.2	22,752	37.3	60,969
Whitsunday (R)	3,202	29.5	3,281	30.2	3,957	36.5	10,848
Regional Study Area	**33,726**	**25.9**	**44,588**	**34.2**	**47,308**	**36.3**	**130,204**
Queensland	448,617	29.0	533,868	34.5	513,415	33.2	1,547,303
Regional study area as % of Qld	7.5	..	8.4	..	9.2	..	8.4

(a) Excludes visitors only and other not classifiable households; (b) Includes dwellings being purchased under a rent/buy scheme; (c) Includes renting from a real estate agent, state or territory housing authority, renting from a person not in the same household, renting from cooperative/community/church group, other landlord type and landlord type not stated; (d) Includes other tenure type and tenure type not stated.
Source: OESR, 2011(f)

Figure 10 Tenure type comparison in the Regional Study Area, 2011



Source: OESR, 2011(f)

3.6.3 Housing availability

Housing availability

In the 12 months ending 31 March 2012, there were 3,075 dwelling units in new residential buildings approved in the regional study area (Table 25), with Townsville City having the largest number (1,301 dwelling units).

These residential approvals were valued at almost $795 million, or 12.3 percent of the Queensland total. The highest value was recorded in the coastal urban areas of Townsville City (42.6 percent) and Mackay Region (41.5 percent). In comparison, Central Highlands and Isaac represented 6.6 percent and 5.3 percent of the total value, with a majority of these approvals for building in Emerald, Moranbah and Clermont.

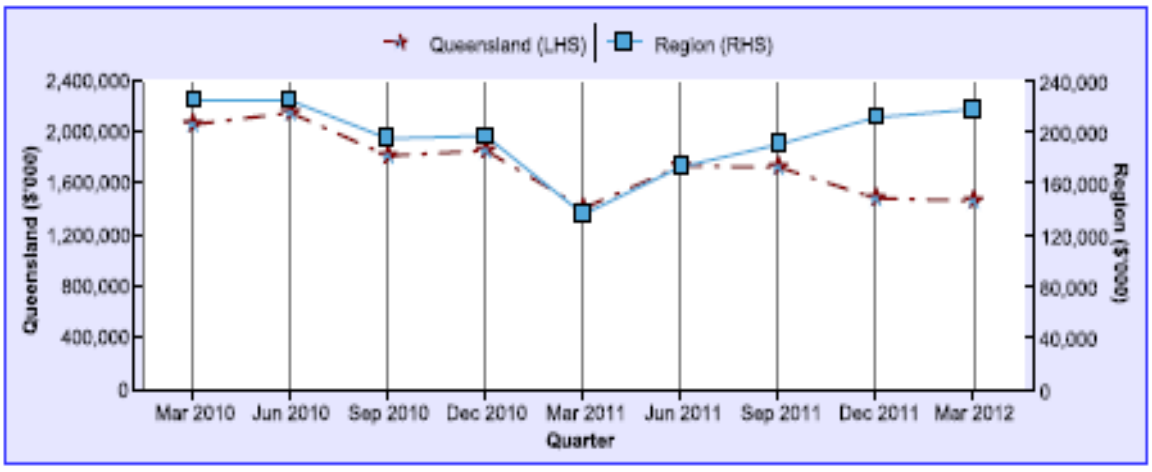
Table 25 Residential and non-residential building approvals in the Regional Study Area (12 Months Ending 31 March 2012)

Locality	Dwelling units in new residential buildings (a)	Residential building value (a)	Total residential building value (b)	Total non-residential building value (b)	Total building value (b)	Proportion of total value that is residential (c)
	Number	— $'000 —				%
Central Highlands (R)	241	52,190	55,806	37,360	93,166	59.9
Charters Towers (R)	39	10,263	13,985	2,110	16,095	86.9
Isaac (R)	244	42,438	45,383	56,337	101,720	44.6
Mackay (R)	1,176	330,138	362,348	195,782	558,130	64.9
Townsville (R)	1,301	338,767	402,809	515,416	918,225	43.9
Whitsunday (R)	74	20,874	25,448	14,934	40,382	63.0

Locality	Dwelling units in new residential buildings (a)	Residential building value (a)	Total residential building value (b)	Total non-residential building value (b)	Total building value (b)	Proportion of total value that is residential (c)
	Number	— $'000 —				%
Regional Study Area	**3,075**	**794,670**	**905,779**	**821,939**	**1,727,718**	**52.4**
Queensland	26,388	6,436,635	7,740,571	5,620,949	13,361,520	57.9
Regional study area as % of Qld	11.7	12.3	11.7	14.6	12.9	. .

(a) Excludes visitors only and other not classifiable households; (b) Includes dwellings being purchased under a rent/buy scheme; (c) Includes renting from a real estate agent, state or territory housing authority, renting from a person not in the same household, renting from cooperative/community/church group, other landlord type and landlord type not stated; (d) Includes other tenure type and tenure type not stated.
Source: OESR, 2012(b)

Figure 11 Value of residential building approvals (a) in the Regional Study Area and Queensland, March quarter 2010 to March quarter 2012



(a) Excludes alterations, additions and conversions.
Source: OESR, 2012(b)

Housing and rental costs

For the regional study area, a consistent theme to emerge during SIA consultations was the capacity for residential expansion and housing affordability in coastal urban regions, to support mining workforce growth in Central Queensland and emerging FIFO hubs.

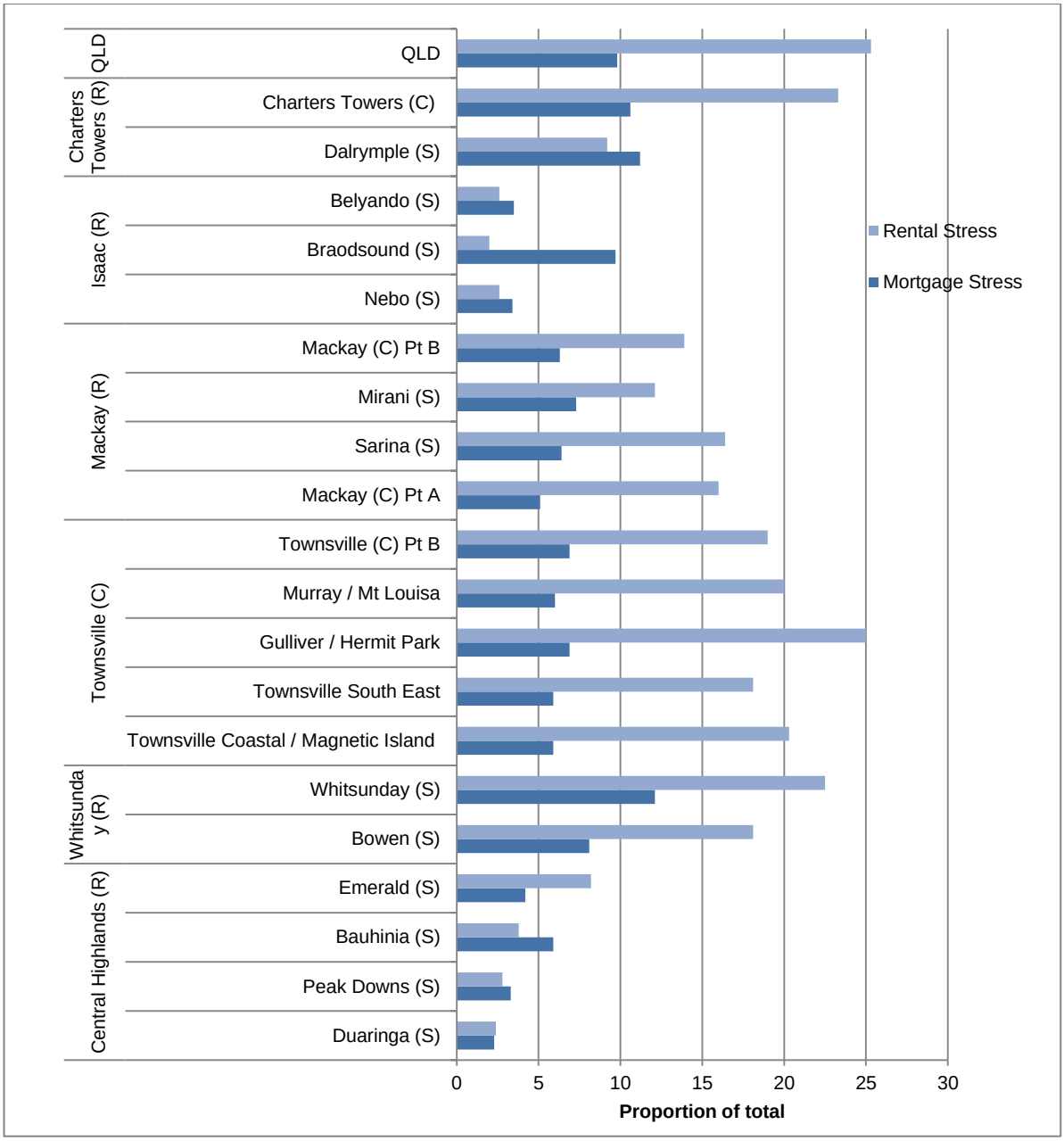
Mortgage and rental stress

Mortgage stress is defined by the Public Health Information Development Unit (PHIDU) as *"… households in bottom 40 percent of income distribution (with less than 80 percent of median income) spending more than 30 percent of income on mortgage repayments" and "includes households in bottom 40 percent of income distribution (with less than 80 percent of median income), spending more than 30 percent of income on rent"(PHIDU, 2013b).*

Key observations concerning mortgage and rental stress amongst low income households in the regional study area are:

- Mortgage stress is most evident in the Shires of Dalrymple (Charters Towers Region) and Whitsunday (Whitsunday Region).
- Rental stress is most evident in Charters Towers City (Charters Towers Region), Gulliver/Hermit Park (Townsville City), and Whitsunday Shire (Whitsunday Region). Overall, the regional study area demonstrates a lower level of rental stress than Queensland.

Figure 12 Housing affordability stress in the Regional Study Area, 2013 (%)



Includes households in bottom 40% of income distribution with mortgage and rental stress
Source: PHIDU, 2013b

Other temporary accommodation

According to OESR's *Bowen Basin Population Report 2012*, the Bowen Basin had a total capacity of 27,565 beds in workers accommodation villages[4], with the largest number of workers accommodation village beds located in Isaac Region. Data shows that the total number of workers accommodation village beds in the Bowen Basin has increased by 16,775 since 2006, with more than half this growth occurring since June 2010 (9,765 beds) (OESR, 2012).

The OESR Report notes that not all unoccupied rooms may be available for use by other guests, as some workers accommodation village operators hold rooms vacant for workers when off-shift, while other rooms are shared by different occupants (known as 'motelling'). In June 2012, 7 percent of workers accommodation village beds in the Bowen Basin were vacant and available for use.

Table 26 Worker accommodation village bed capacity and non-resident workers on-shift counted in villages, selected LGAs, June 2012

LGA	Total capacity (beds)	Non-resident workers on-shift counted in villages	Percentage of villages in Bowen Basin
Isaac (R)	19,515	16,105	70.8%
Central Highlands (R)	5,860	4,450	21.3%
Whitsunday (R) (Bowen only)	875	460	3.2%
Bowen Basin total	**27,565**	**22,150**	**-**

Source: OESR, 2012a

Approximately 88 percent of the Bowen Basin's non-resident workers (25,035 persons) are accommodated in workers accommodation villages.

Table 27 Non-resident workers on-shift by accommodation type for selected LGAs, June 2012

LGA	Workers accommodation village	Hotel/motel	Caravan park/other*	Total
	- Number of non-resident workers on-shift -			
Isaac (R)	16,105	490	535	17,125
Central Highlands (R)	4,450	1,020	115	5,585
Whitsunday (R) – Bowen only	460	275	0	735
Bowen Basin total	**22,150**	**2,035**	**845**	**25,035**

* Other includes private dwellings head-leased by companies if occupied by non-resident workers
Source: OESR, 2012a

Late 2011 discussions with key stakeholders in Clermont indicated that at that time there was a shortage of workers accommodation villages within the town. At that time, both Rio Tinto and BMA were actively working with Isaac Regional Council and the ULDA to address this

[4] In previous editions of the Bowen Basin report, workers accommodation villages were referred to as single person quarters. Other terms for workers accommodation villages include temporary workers' accommodation, worker camps and dongas.

accommodation shortage. Within Clermont, Rio Tinto had secured most available accommodation for workers associated with development of the Clermont Mine.

Within Clermont additional temporary accommodation has been constructed and the first 80 homes within new residential development are nearing completion.

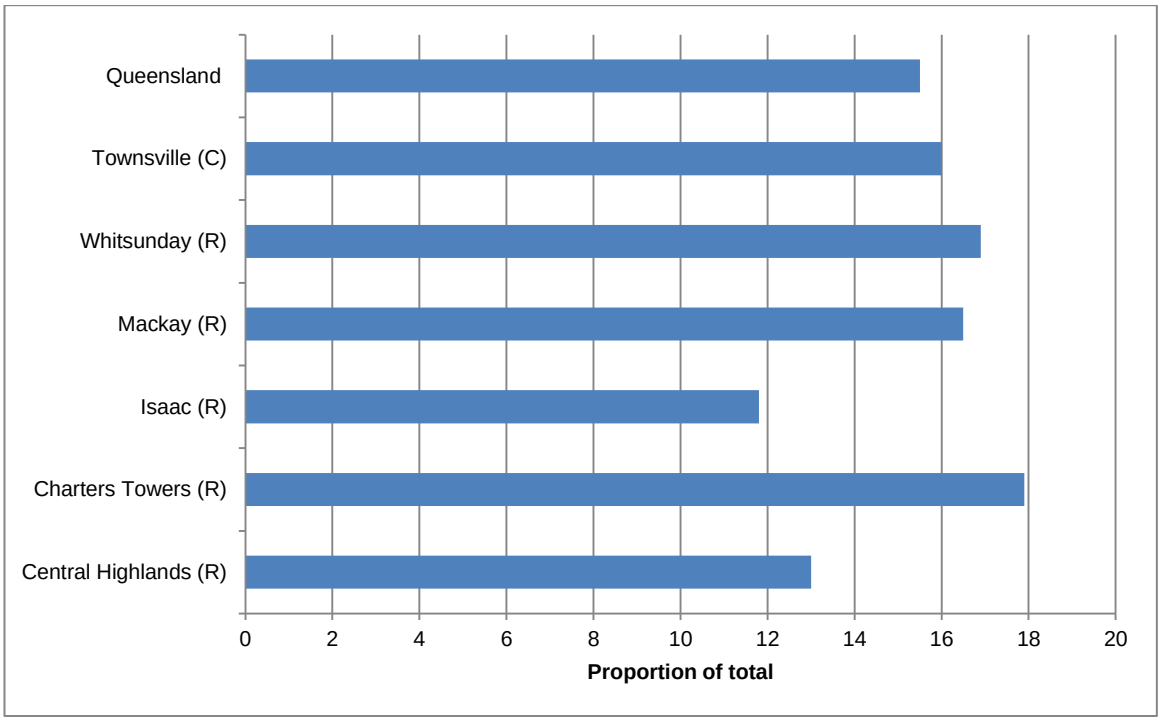
3.7 Community health, wellbeing and safety

3.7.1 Health and wellbeing

Data published as part of the National Health Atlas (PHIDU, 2013b) provides information on self-assessed health. Key observations are outlined below:

- Fertility rate – higher across most of the regional study area with the exceptions of Townsville City and Whitsunday Shire (PHIDU, 2013b).
- Assessment of poor health – higher rates than the Queensland average are evident in most of the regional study area with the exceptions of Central Highlands and Isaac Regions. This reflects the smaller population of persons aged 65 years and over in these localities (PHIDU, 2013b).
- Health risk factors – highest rates of at least one health risk factor (smoking, harmful use of alcohol or obesity) were in Charters Towers City and Whitsunday Shire (PHIDU, 2013b).

Figure 13 Fair or poor self-assessed health in Regional Study Area, 2013



Note: Rates per 100 people, persons aged 15 years and over; Compiled by PHIDU using data based on (ABS) Australian Standard Geographical Classification (ASGC) 2011.
Source: PHIDU, 2013b

3.7.2 Crime

Crime data obtained from the Queensland Police Service (QPS) for LGAs in the Regional Study Area is presented in the table below, and is compared with offence rates for Queensland.

Table 28 Crime data for Regional Study Area 2010/11

Reported offences	Regional Study Area	QLD
Homicide (Murder)	1	1
Other Homicide	1	2
Assault	443	419
Sexual Offences	96	112
Robbery	16	39
Other Offences Against the Person	54	78
Offences Against the Person	611	651
Unlawful Entry	773	938
Arson	17	27
Other Property Damage	715	921
Unlawful Use of Motor Vehicle	130	212
Other Theft (excl. Unlawful Entry)	1,569	2,142
Fraud	360	363
Handling Stolen Goods	73	101
Offences Against Property	3,636	4,705
Drugs	864	941
Prostitution	1	4
Liquor (excl. Drunkenness)	251	154
Breach Domestic Violence Protection Order	263	222
Trespassing and Vagrancy	79	86
Weapons Act	105	75
Good Order	1,083	1,048
Stock Related	19	13
Traffic and Related	1,087	837
Miscellaneous	25	47
Other	3,776	3,425

This data are preliminary and may be subject to change; Rates are expressed per 100,000 persons and are calculated based on the estimated residential population as at 30 June of each year.
Source: QPS, July 2012

The 2010/11 crime data shows a number of crimes in the regional study area exceeding the Queensland average, notably:

- Traffic and Related Offences
- Liquor (excl. Drunkenness)
- Breach Domestic Violence Protection Order
- Good Order Offences
- Other Offences.

Other observations for the regional study area are:

- The most common crimes were 'Other Offences', 'Offences Against Property', 'Other Theft (excl. Unlawful Entry)', and 'Traffic and Related Offences'
- Marginally lower rates of 'Offences Against the Person' than the state
- 'Offences Against Property' were considerably less than for Queensland, with rates in Central Highlands and Isaac Regions significantly lower
- The incidence of crime is highest in Townsville City and lowest in Isaac Region (based on total number of reported offences)
- 'Drug Offences' are more evident in the larger urbanised regions of Townsville, Whitsunday and Mackay.

3.7.3 Disability prevalence – need for assistance

Table 29 shows the number and percentage of persons in need of assistance in the regional study area in 2011. 'In need of assistance' includes people with a profound disability or severe disability. People with profound or severe disability are defined as needing help or assistance in one or more of the three core activity areas of self-care, mobility and communication because of a disability (lasting six months or more), long term health condition (6 months or more), or old age.

The regional study area had a lower proportion of people needing assistance (3.6 percent) when compared to Queensland (4.4 percent). At 5.8 percent, Charters Towers Region was the only LGA to possess a greater rate of need than the Queensland average.

Table 29 Persons in need of assistance in Regional Study Area, 2011

Locality	Need for assistance		No need for assistance	Total (c)
	Number	%	- Number -	
Central Highlands (R)	636	2.2	25,617	28,715
Charters Towers (R)	705	5.8	10,605	12,169
Isaac (R)	316	1.4	19,987	22,589
Mackay (R)	4,120	3.7	101,402	112,797
Townsville (C)	6,778	3.9	155,315	174,461
Whitsunday (R)	1,207	3.8	26,778	31,426
Regional Study Area	13,762	3.6	339,703	382,157
Queensland	192,019	4.4	3,880,396	4,332,738
Regional study area as % of Qld	7.2	..	8.8	8.8

Based on place of usual residence; Includes core activity need of assistance note stated.
Source: OESR, 2011(f)

3.7.4 Socio-economic index of disadvantage

The Socio-Economic Indexes for Areas (SEIFA) is a summary measure of the social and economic conditions of geographic areas across Australia (OESR, 2011f). SEIFA comprises a number of indexes, which are generated at the time of the ABS Census.

In 2011, a Socio-Economic Index of Disadvantage (SEID) was produced, ranking geographical regions to reflect disadvantage of social and economic conditions. The index focuses on low-income earners, relatively lower education attainment, high unemployment and dwellings without motor vehicles. Low index values represent areas of most disadvantage and high values represent areas of least disadvantage.

Table 30 shows the percentage of the population in each quintile according to the SEID for the regional study area. Quintile 1 represents the most disadvantaged groups of persons, while quintile 5 represents the least disadvantaged group of persons. By definition Queensland has 20 percent of the population in each quintile.

In the regional study area, both Central Highlands and Isaac have high proportions of population in quintile 5, with higher income rates likely to contribute to the population identified as being less disadvantaged than Queensland averages. Charters Towers and Whitsunday Regions registered the highest proportion of persons in quintile 1 (most disadvantaged).

Table 30 Social and economic index of disadvantage for Regional Study Area, 2011

Locality	Quintile 1 (most disadvantaged)	Quintile 2	Quintile 3	Quintile 4	Quintile 5 (least disadvantaged)
	- Percentage of population -				
Central Highlands (R)	8.4	14.5	19.2	26.6	31.3
Charters Towers (R)	43.1	35.1	15.8	4.3	1.7
Isaac (R)	1.8	12.5	22.7	34.2	28.9
Mackay (R)	11.3	20.9	28.7	22.3	16.8
Townsville (C)	13.4	28.2	19.7	15.8	23.0
Whitsunday (R)	26.9	32.6	20.0	16.7	3.8
Regional Study Area	**13.7**	**24.7**	**22.4**	**19.3**	**19.9**
Queensland	20.0	20.0	20.0	20.0	20.0

Source: OESR, 2011(f)

3.7.5 Social infrastructure

The *South East Queensland Regional Plan 2009-2031* defines 'social infrastructure' as:

> *"… communities' facilities, services and networks which help individuals, families, groups and communities meet their social needs and maximise their potential for development, and enhance community wellbeing. They include:*
>
> *Universal facilities and services such as education, training, health, open space, recreation and sport, safety and emergency services, religious, arts and cultural facilities, and community meeting places.*
>
> *Lifecycle-targeted facilities and services, such as those for children, young people and older people.*

Targeted facilities and services for groups with special needs, such as families, people with a disability, Aboriginal and Torres Strait Islander peoples and culturally diverse people."

Mackay and Townsville are the primary centres that service the higher level social infrastructure needs of the regional study area.

Mackay is a principal centre in the MIW region and has a full range of community infrastructure and services including the base hospital (Queensland Government, 2012). The Mackay Base hospital offers specialist services that are not provided in other townships, such as obstetrics and gynaecology, paediatrics, emergency medicine, orthopaedic surgery, anaesthetics, intensive care, coronary care, psychiatry, aged care; renal medicine, ophthalmology, palliative care, and day surgery (Queensland Health, 2013a).

The future provision of social infrastructure will be focused on the Mackay urban area and Sarina, with a mix of higher order community centres, aged care facilities, community health services, libraries, fire and rescue and state emergency services, housing support and youth services (Queensland Government, 2012). These services have the potential to support smaller communities in the regional study area, including Isaac and Whitsunday Regions.

Townsville is the other regional centre close to the study area. It is the major regional centre for North Queensland and provides a range of regional government services including health care and higher education services (Townsville Enterprise, 2010). Townsville Hospital has a 460 bed capacity, and is the major tertiary referral hospital of the Northern Zone. The hospital offers a comprehensive range of services including acute medical, surgical, cardiothoracic surgery, neurosurgery, hyperbaric medicine as well as obstetrics, high risk pregnancy, general gynaecology, oncology services, haematology and bone marrow transplant, palliative care, level III intensive care services, rehabilitation, allied health and paediatric services. There is also a comprehensive mental health service in Townsville, which includes an Acute Mental Health Unit located adjacent to the main hospital complex and a Secure Mental Health Unit (Queensland Health, 2013b).

Townsville also offers an extensive range of education facilities including primary and secondary schools and tertiary and vocational education, and is home to James Cook University. It is an important transport hub of the northern region with port, rail, airport and main highway (Bruce Highway and Flinders Highway) connections (Townsville Enterprise, 2010).

Table 31 Summary of social infrastructure provision in the Regional Study Area

Social infrastructure	Summary of provision
Isaac Region	
Education Facilities	• 19 schools • Childcare and kindergarten facilities. • Central Queensland Institute of TAFE – campus at Moranbah.
Community, Cultural and Recreation Facilities	• Libraries – 8 branches at Carmila, Clermont, Dysart, Glenden, Middlemount, Moranbah, Nebo and St Lawrence. • Well established sport, recreation and park facilities in key population centres. • Art galleries, cultural centres and museums – Moranbah, Nebo, Clermont. • Community halls and centres in most towns.
Health and Wellbeing	• Hospitals at Moranbah, Clermont and Dysart • Public hospital in Moranbah – provides medical, surgical and respite care and specialist services, including maternity and psychiatric care. • Glenden Community Health Centre – aged and disability service; family and child health service; and mental health. • Middlemount Community Health – aged and disability service; family and child health service; and mental health. • Clermont Multi-Purpose Health Service - radiography; aged and disability service; alcohol, tobacco and other drug services; and family and child health service; and mental health. • Visiting medical specialists to the Region.
Other Major Facilities and Services	• Emergency services – 8 police stations, 15 ambulance stations and 5 fire stations • Aerodrome at Clermont operated by IRC; and private aviation facilities at Dysart, Middlemount and Moranbah. • Commercial air travel into Isaac Region is provided by Moranbah airport – also services charter flights for FIFO operations. • Taxi services in Moranbah and Clermont and coach services in Clermont, Moranbah and Nebo. • Government agencies, local, district and town centre shopping.
Central Highlands Region	
Education Facilities	• 28 Schools • Tertiary education includes a campus of the CQ University, TAFE College and the Australian Agricultural College.
Community, Cultural and Recreation Facilities	• Sport and recreation facilities. • National parks. • Community and cultural facilities include libraries, art galleries, and picture theatres. Also, organisation of festivals such as the Central Highlands Multicultural Festival.
Health and Wellbeing	• 3 hospitals in key centres of Emerald, Blackwater and Springsure. Smaller communities are serviced by health clinics and visiting allied health professionals.
Other Major Facilities and Services	• Government agencies, local, district and town centre shopping. • Emergency services - 8 police stations, 5 fire stations, 10 ambulance stations

Social infrastructure	Summary of provision
	• Airport - Council owns and operates the Emerald Airport which is located 6 km south of the Emerald town centre, catering for commercial and charter flights.
Charters Towers Region	
Education Facilities	• 13 schools (including 5 boarding schools) • Tertiary education includes an Open Learning Centre and a Seismograph Station (Qld University), Barrier Reef Institute of TAFE – Charters Towers campus.
Community, Cultural and Recreation Facilities	• Sports fields and courts, golf club, public swimming pools, recreation parks, PCYC and indoor sports courts, library. • Charters Towers Regional Council has formed a partnership with the Museum of Tropical Queensland (MTQ) and developed the Community Pass Program.
Health and Wellbeing	• 1 hospital • Health services include the Charters Towers Health Centre, the Eventide Nursing Home and the Rehabilitation Unit (Charters Towers/Tertiary Mental Health Service). • Charters Towers Health Service is a 25-bed facility located in Charters Towers, Queensland, about 134 km west of Townsville - services to the community include accident and emergency care, general in-patient medical, surgical, obstetric and paediatric services. • Noted that Townsville is only one and a half hours drive away to access other specialist services
Other Major Facilities and Services	• Emergency services - 4 police stations, 4 ambulance stations and 1 fire station • Airport at Charters Towers. • Government agencies, local, district and town centre shopping.
Mackay Region	
Education Facilities	• 55 schools • Mackay Trade Training Centre • Central Queensland Institute of TAFE and Axiom College. • Central Queensland University.
Community, Cultural and Recreation Facilities	• Libraries - 5 branches in Mackay, Sarina and Mirani and a mobile library service. • Art galleries - Mackay and Sarina. • Major indoor and outdoor sports facilities, parks and recreation, including Mackay Botanic Gardens, PCYC, skate parks and playgrounds, aquatic facilities including new Bluewater Lagoon development. • Community centres and halls.
Health and Wellbeing	• 5 hospitals including Mackay Base Hospital • Mackay Community Mental Health - support for persons with mental and health disorders • Mackay Community Based Rehabilitation Services - occupational therapy, physiotherapists, speech pathology and medical officer.
Other major facilities and services	• Government agencies, local, district and town centre shopping • Emergency services – 10 police stations, 6 ambulance stations and 4 fire stations • Domestic airport at Mackay.

Social infrastructure	Summary of provision
Townsville Region	
Education Facilities	• 60 schools • James Cook University (JCU). • Barrier Reef Institute of TAFE (five campuses in Northern Queensland at Townsville, Burdekin, Charters Towers, Ingham and Pimlico).
Community, Cultural and Recreation Facilities	• Libraries - 3 branches in Aitkenvale, Flinders Street and Thuringowa Central. • Major sport and recreation venues and parks network including The Strand and other popular foreshore precincts. • Art galleries, cultural centres and museums - Riverway Arts Centre and the Townsville civic theatre. • Community halls and centres.
Health and Wellbeing	• Major health services available in Townsville - Outpatient Clinics, Primary Health and Ambulatory Care Services, Community Health Services, Women's and Children's Services, Health Services, Oral Health Services, Dental, Aged Care and Private Health Facilities. • Townsville Hospital
Other major facilities and services	• Government agencies, local, district and town centre shopping. • Emergency services - 7 police stations, 4 ambulance stations and 5 fire stations • Domestic airport at Townsville
Whitsunday Region	
Education Facilities	• 17 schools • Barrier Reef Institute of TAFE campuses in Bowen and Cannonvale providing tertiary training to mining and associated industries. • No training institutions in Collinsville providing training relevant to workers in mining and construction areas, however, the high school does offer some courses in conjunction with TAFE.
Community, Cultural and Recreation Facilities	• Libraries - 4 branches located at Cannonvale, Bowen, Collinsville and Proserpine. • Well established sport, recreation and park facilities in key recreation centres. • Community halls and centres. • Proserpine Entertainment Centre
Health and Wellbeing	• Public hospital facilities in Bowen, Proserpine and Collinsville • Whitsunday Mental Health Service • Whitsunday Community Health Campus • Visiting medical specialists to the region. • Various other medical, health, aged care, employment and disability support services and respite care.
Other major facilities and services	• Government agencies, local, district and town centre shopping. • Emergency services - 4 police stations, 5 ambulance stations and 4 fire stations • Domestic airports at Proserpine and Hamilton Island. • Smaller available facilities at Bowen and Collinsville.

Source: OESR 2011(f), Regional Council websites: CHRC, CTRC, IRC, MRC, TCC, WRC, 2013

4. Local social baseline

4.1 Introduction

The local study area for the Project and is focussed on the local study area of the Project, comprising of:

- Clermont in Isaac Regional Council Area, which is the key urban locality closest to the project location, with relevant reference to Moranbah where required
- Landholders who may be directly impacted by the Project during construction and operation. The extent of the local study area is depicted in Figure 3.

Information contained in this section is based on publicly available data and SIA consultation activities undertaken with key stakeholders.

4.2 Local summary

This section provides a summary of the local study area's key demographic characteristics, as well as its social and cultural values.

Table 32 Key baseline community characteristics for the Local Study Area

Socio-economic variable from ToR	Data source	Local Study Area summary
Total population	OESR, 2011(c)	June 2012 estimated resident population = 4,033 with an annual average growth rate of 4.7 percent p.a. (2011-2012).
Non-resident workers Full-time equivalent population	OESR, 2011(c)	2012 FTE population of Clermont SA2 = 2,390. FTE population comprised 2,260 usual residents and 130 non-resident workers (5.4 percent).
Existing or anticipated major population trends and changes irrespective of project	OESR, 2011(c)	Total population estimated to reach approximately 4,378 by 2031, equating to an increase of 972 people between 2011 and 2031.
Indigenous population including age and gender	OESR, 2011(c)	In 2011, 90 persons of ATSI origin (2.4 percent of local study area population) compared with a state average of 3.6 percent.
Place of residence	OESR, 2011(c)	In 2011, 43.8 percent of the population were living at a different address 5 years earlier, compared with 45.0 percent in Queensland.
Age and gender distributions	OESR, 2011(c)	Youthful profile with large representation of people in working age groups (25-44) at 30.1 percent, exceeding the state average of 28.3 percent. Low representation in >65 age cohorts (9.4 percent), compared with 12.9 percent for Queensland. Gender – higher proportion of males (52.1 percent) to females (47.9 percent).

Socio-economic variable from ToR	Data source	Local Study Area summary
Cultural and ethnic characteristics Place of birth	OESR, 2011(c)	The local study area has less cultural diversity than Queensland. 6.2 percent of local study area population born overseas, compared with state average of 20.5 percent. 35.8 percent of overseas born persons in Clermont spoke a language other than English at home.
Family structures	OESR, 2011(c)	939 families in the local study area with dominant type being 'couple family with children' (48.8 percent), followed by 'couple only families' (40.3 percent). 'One parent families' accounted for 9.4 percent of the total, compared to the state average of 16.1 percent.
Household composition	ABS, 2011(c)	Clermont SA2 had a high number of family households (74.4 percent), followed by single/lone person households (22.2 percent) and group households (3.3 percent).
Education, including schooling levels	OESR, 2011(c)	Highest level of schooling in 2011 – 45.9 percent of people aged >15 years had completed Year 11 or 12 (or equivalent). In contrast, 229 people (8.2 percent) did not go to school or Year 8 or below. Post-school qualifications in 2011 – 1,379 persons aged >15 had a qualification (47.8 percent). The majority hold a Certificate (660 persons).
Unemployment	OESR, 2011(c)	Low rates of unemployment in local study area at 1.1 percent compared to state average of 5.8 percent (December quarter 2012).
Labour force by occupation and industry	OESR, 2011(c)	In 2011, Mining was the largest industry of employment at 22.2 percent, followed by Agriculture, Forestry and Fishing (21.9 percent) and Retail Trade (6.7 percent). Managers were the largest occupation group (20.2 percent), followed by Machinery Operators and Drivers (18.5 percent) and Technicians and Trade Workers (17.6 percent).
Income	OESR, 2011(c)	Gross individual weekly income is on average higher than Queensland. 13.0 percent of Clermont's workforce earning >$2000 per week, which is more than double the state average of 5.5 percent. 29.2 percent have a weekly income of less than $400, compared with 34.6 percent in Queensland.
Housing costs	ABS, 2011h	The majority of monthly housing loan repayments are $2,000 and over. 60.6 percent of weekly rents in local study area are $0-$149. This is compared to only 15.8 percent in Queensland.
Housing type	OESR, 2011(c)	Limited mix in housing type across the local study area. Separate houses account for 88.7 percent of total occupied private dwellings, compared with 78.5 percent in the state.

Socio-economic variable from ToR	Data source	Local Study Area summary
Housing tenure type and landlord type for rental properties	OESR, 2011(c)	In 2011, there were 1,233 occupied provide dwellings in the local study area. High (and rising) rates of rental accommodation at 39.7 percent, compared with state average of 33.2 percent. 32.0 percent of occupied private dwellings were fully owned, compared with 29 percent in Queensland.
Housing availability	OESR, 2011(c)	Moranbah has exhibited declining housing affordability and limited availability. In 2011, 112 residential dwelling units approved in local study area.
Measures of community safety, health and wellbeing	PHIDU, 2013(c)	In comparison to Queensland, the local study area had lower rates of persons: Self-assessing themselves as having 'fair' or 'poor' health Having high or very high psychological distress levels With at least one of four health risk factors.
Disability prevalence	OESR, 2011(c)	In 2011, 97 persons (2.6 percent) identified in the local study area as in 'need of assistance' with a profound or severe disability, compared with 4.4 percent in Queensland.
Crime	OESR, 2003	Limited crime data is available at the local study area level. Belyando and Nebo Shires had higher rates of 'offences against the person' than the state average.
Socio and economic index	OESR, 2011(c)	0.0 percent of persons are in the most disadvantaged quintile compared with 20.0 percent in Queensland. Over half of total persons are within Quintile 4 and Quintile 5.

4.2.1 Community characteristics

Settlement patterns and community history[5]

The former Belyando Shire covers a total area of 30,281 km^2 and was amalgamated with Broadsound and Nebo Shires in 2008 to form the Isaac Region. Its western sector included the Drummond Range, scrubby woodlands and some undulating parts with grasslands suitable for grazing. The more productive eastern sector has better grazing land, merging with the Peak Downs district, and the former mining towns of Clermont and Copperfield (defunct) and the Blair Athol and Moranbah/Goonyella coal fields.

The shire was named after the Belyando River which rises to the shire's south at Alpha and enters the Burdekin system at Lake Dalrymple, west of Mackay. The river was named by the New South Wales Surveyor-General, Thomas Mitchell, in 1846, believing it to be an Aboriginal name (Mitchell's journal, 9 August 1846).

Local government in the local study area began with the town of Clermont (1865). The Belyando local government division began in 1879. Gold mining effectively petered out within two decades, and copper mining ebbed and flowed with overseas export prices and competition from rich fields at Cloncurry. The last large-scale mining and smelting was in the 1890s. Coal

[5] Source: Queensland Places, 2001(b)

had been found at Blair Athol since the 1860s, but substantial mining was dependent on a railway link (1910), an extension of the Emerald to Clermont line (1884).

Open cut coal mining started in 1924, and coal was mined for railway locomotives and local consumption. Overseas export began after the oil crises of 1972. Blair Athol's ultimate coming of age coincided with the huge open cut operations at Peak Downs and Goonyella, from which the mining town of Moranbah arose. Built by Utah Development, it held over half the shire's population when barely five years old.

Cattle grazing was constant through the uneven periods of mining activity. Much of the grazing land had scattered Brigalow, an acacia which regrows as suckers if not cleanly ripped from the ground. Post-war mechanised clearing, the burning of windrows and sowing down with exotic pasture cleared the Brigalow and enabled intensified cattle grazing in the eastern part of the shire. Cereal growing also increased.

Activity of this scale was not feasible in the shire's west, dominated by the Drummond Range. Several parts of Range have been entered in the Register of the National Estate. These include the Epping Forrest National Park (home to the last known colony of Northern Hairy-nosed Wombats) and the Mazeppa National Park.

In 1993 Belyando Shire had over 280,000 beef cattle, a few hundred sheep and 63,000 ha of cereals.

Community identity, values and aspirations

Coal deposits in the Clermont area were originally discovered on the site of the now named Blair Athol Mine in 1864, with mining commencing around 1890. It was not until the 1920s and the introduction of rail that open cut operations began. The current open cut operation started in 1984, and this activity resulted in rapid growth of the area and substantially influenced economic prosperity. As at 2008, the mining industry accounted for about 22 percent of Clermont's workforce, largely represented by transient employees. Closure of the Blair Athol Mine therefore is considered by the community to have potential to impact upon the community. Conversely, the establishment of new operations at Clermont and in the vicinity has the potential to add pressure to existing social resources and facilities and provide opportunities for economic development. Therefore, the 'community of Clermont must seek to develop a future that adjusts to the closure of the Blair Athol Mine, capitalises on the growth that the new mine will bring and also consider a longer term post-mining future'.

A major contributing factor to the development of the Clermont Preferred Futures Project was the community's desire to retain their vibrant community, which benefits from 'a highly regarded lifestyle, sense of community wellbeing and good community cohesion'. This is to be achieved through developing a 'preferred future that will see growth and opportunity managed for the long term benefit of the region'.

Rio Tinto Coal Australia (RTCA) had a desire to integrate the Clermont Mine into the fabric of the community and invest strategically in the community to leave a legacy for the future. It was this situation that precipitated the Clermont Preferred Future project. The resulting Preferred Future Plan and Strategy were the products of a twelve-month initiative by the community and RTCA, under the leadership of the Council, and these are described in further detail below. It is the intention of the community, through the plan to 'proactively master their own destiny'.

For this Project, a series of stakeholder workshops were conducted at Clermont as part of the baseline assessment. In Clermont, the key issues identified revolved around emergency and health services, which are considered to be stretched to, and in some cases beyond, their limit. The difficulty of attracting new staff for emergency and health services, as well as other businesses and professions throughout the area was also a strong theme.

4.3 Population

4.3.1 Current resident population

Australian Bureau of Statistics 2011 Census data estimated the resident population of Clermont Statistical Area Level 2 (SA2) to be at 4,033 persons by June 2012 (refer to Table 33). The average annual growth rate in the area between 2011 and 2012 was 4.7 percent (about 181 additional people), compared with 1.9 percent for Queensland.

Table 33 Estimated Resident Population of Local Study Area (pr)

Locality	Estimated resident population as at 30 June			Average annual growth rate %	
	2007(pr)	2011(pr)	2012(p)	2007(pr)–2012(p)	2011(pr)–2012(p)
Clermont	3,529	3,852	4,033	2.7	4.7
Queensland	4,177,089	4,474,098	4,560,059	1.8	1.9
Local study area as % of Qld	0.1	0.1	0.1	..	..

p= preliminary; pr = preliminary rebased
Source: OESR, 2011(c)

4.3.2 Non-resident population

According to OESR's *Bowen Basin Population Report 2012*, Clermont had a FTE population of 2,390 people in June 2012. This comprised 2,260 usual residents and 130 non-resident workers. The non-resident workers made up 5.4 percent of Clermont's FTE population.

Table 34: FTE Population of Local Study Area, June 2012

SLA / UCL	Estimated Resident population	Non-resident workers on-shift	FTE population estimate	Percentage of non-resident workers
Clermont	2,260	130	2,390	5.4%
Bowen Basin Total	82,065	25,035	107,100	21.5%

Source: OESR, 2011(c)

4.3.3 Population projections

As shown in Table 35, the population of Clermont is expected to increase slightly over time.

Forecasts of future growth suggest an increase of 972 persons from 3,406 to 4,378 people between 2011 and 2031, at an annual average rate of 1.3 percent compared with 1.8 percent for Queensland.

Table 35 Projected population for Clermont SA2, 2011 to 2031

Locality	Projected population as at 30 June (number)					Average annual growth rate 2011-2031 (%)
	2011(b)	2016	2021	2026	2031	
Clermont	3,406	3,978	4,374	4,376	4,378	1.3
Queensland	4,611,491	5,092,858	5,588,617	6,090,548	6,592,857	1.8

Source: OESR, 2011(c)

The MIWRP *2012* notes that much of the growth in Isaac Region will be accommodated in established centres like Moranbah and Clermont, to efficiently use existing infrastructure and services, reduce growth pressures on locations with important environmental values (e.g. Good Quality Agricultural Land) and due to the availability of employment opportunities.

Stakeholder discussions in 2011 indicated that in Clermont, the population has increased dramatically in terms of the number of contractors in town associated with activity at the Clermont mine increasing and the future planned closure of Blair Athol Mine. It was observed that the limited housing stock has had an influence on keeping the resident population down.

4.3.4 Indigenous population

Background

The Indigenous baseline has been undertaken by consultants Environment Land Heritage (ELH) and provides:

- An understanding of the existing social context for Indigenous people in the region, including the recognised traditional owners and those Indigenous people with native title claims currently under consideration living within and outside the region.
- Information on the key indigenous groups and organisations and their roles.
- It is supplemented with ABS and OESR population data for the former Belyando Shire.

As outlined by ELH in their report of February 2012, the Indigenous SIA baseline analysis was undertaken with consideration given to:

- Cultural heritage and native title rights
- The Indigenous population including their age, gender, current employment, education and training
- The identity, values, lifestyles, vitality, characteristics and aspirations of Indigenous communities
- The number Indigenous traditional owners and their families directly and indirectly affected by the project
- Indigenous use of the social and cultural area for forestry, fishing, recreation, business and industry, tourism and cultural use of flora and fauna

- Recruitment of Indigenous workers
- Business and economic development opportunities for Indigenous people
- Other matters of interest to Indigenous people.
- Indigenous baseline information has been integrated throughout the local study area analysis e.g. education, employment, income.

Demographic characteristics

Key points as noted by the ELH research were:

- The Aboriginal community of the Bowen Basin resides predominantly in Rockhampton and within the Woorabinda Aboriginal Shire. A much smaller concentration is also located in the northern section of Mackay Region. Many of these people assert their aspirations to return to their traditional homelands (Miles and Kinnear, 2008, cited in ELH, 2012).
- The Fitzroy Basin Elders Committee, a group of senior members of Aboriginal groups from within the Fitzroy River catchment area provide some leadership in the Indigenous community of the Bowen Basin. The committee represents at least 12 traditional owner groups and has interests in the ongoing health of waterways in the area, good land and water management practices, and also the restoration of traditional knowledge (ELH, 2012).

As seen in Table 36, at the time of the 2011 Census there were 90 persons in Clermont SA2 who stated they were of Aboriginal or Torres Strait Islander origin, comprising 2.4 percent of the total population (compared with 3.6 percent in the State).

Further, ABS data provides further detail of the Indigenous population by sex. Some minor variance between data sources (ABS and OESR) is noted for this analysis. There were 88 Aboriginal and Torres Strait Islander people of which 43 (48.9 percent) were male and 45 (51.1 percent) were female.

Table 36 Persons by Indigenous status in Clermont SA2, 2011

Locality	Aboriginal	Torres Strait Islander	Both (b)	Total Indigenous	Indigenous proportion	Non-Indigenous	Total persons (c)
Clermont	74	6	10	90	2.4	3,426	3,744
Queensland	122,896	20,094	12,834	155,824	3.6	3,952,707	4,332,740

(a) Based on usual place of residence; (b) Applicable to persons who are of 'both Aboriginal and Torres Strait Islander origin'; (c) Includes Indigenous status not stated.
Source: OESR, 2011(c)

4.3.5 Population mobility

At the time of the 2011 Census, 21.2 percent or 780 persons in Clermont SA2 were living at a different address one year prior (compared to 17.9 percent in Queensland). There were 2,687 persons living at the same address one year prior.

43.8 percent or 1,502 persons were living at a different address five years earlier, compared with 45.0 percent in Queensland. There were 1,694 persons living at the same address five years earlier in Clermont SA2.

Table 37 Place of Usual Residence 1 year and 5 years ago for Clermont SA2, 2011 (a)(b)

Locality	Same address	Different address			Proportion with different address percent	Total persons (d)
		Within Australia	Overseas	Total (c)		
Place of residence 1 year ago						
Clermont	2,687	739	35	780	21.2	3,683
Queensland	3,278,187	691,522	63,184	764,695	17.9	4,275,277
Place of residence 5 years ago						
Clermont	1,694	1,405	78	1,502	43.8	3,433
Queensland	1,958,914	1,550,344	238,588	1,815,132	45.0	4,034,846

(a) Based on place of usual residence; (b) Based on persons aged one year and over; (c) Includes persons who stated that they were usually resident at a different address but did not state that address; (d) Includes persons who did not state whether they were usually resident at a different address.
Source: OESR, 2011(c)

4.3.6 Age and gender

The table and figure below present the age profile for Clermont SA2 at the time of the 2011 Census. In terms of gender, 52.1 percent of the area's population was male and 47.9 percent was female.

When compared to the Queensland age profile, Clermont SA2 is characterised by:

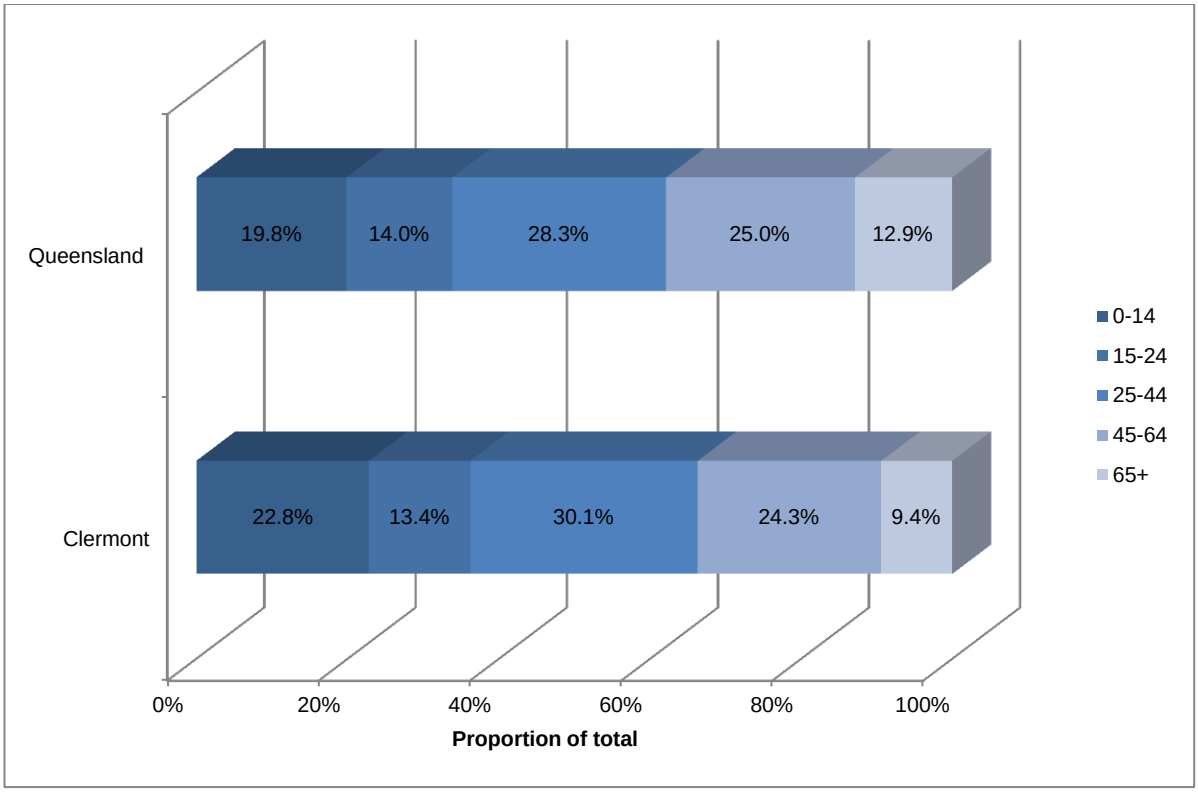
- Higher proportion of persons in the 25 to 44 year cohorts (younger workforce age groups) at 30.1 percent, compared with 28.3 percent across Queensland.
- Higher representation of infants and school age children under 15 at 22.8 percent, compared with 19.8 percent for Queensland.
- A lower representation of people aged 65 and over at 9.4 percent. The average for Queensland was 12.9 percent.

Table 38 Estimated resident population by age for Clermont SA2, 2011pr

Locality	Population by age									
	0–14		15–24		25–44		45–64		65+	
	Number	%	Number	%	Number	%	Number	%	Number	%
Clermont	880	22.8	516	13.4	1,159	30.1	935	24.3	362	9.4
Queensland	887,487	19.8	625,429	14.0	1,264,341	28.3	1,119,056	25.0	577,785	12.9

Source: OESR, 2011(c)

Figure 14 Age profile comparison of Clermont SA2 and Queensland, 2011



Source: OESR, 2011(c)

4.3.7 Cultural and ethnic characteristics

Country of birth

In 2011, 233 persons in Clermont SA2 stated they were born overseas, representing 6.2 percent of the total population. In comparison, the state average for overseas born persons was 20.5 percent in 2011; more than triple that of Clermont SA2.

3,262 persons in Clermont SA2 stated they were Australian-born (87.1 percent), compared with a Queensland average of 73.7 percent.

Table 39 Number of persons by birthplace in Clermont SA2, 2011

Locality	Born in Australia		Born in ESB Countries (b)		Born in NESB Countries		Total born Overseas		Total persons (c)
	Number	%	Number	%	Number	%	Number	%	Number
Clermont	3,262	87.1	135	3.6	98	2.6	233	6.2	3,745
Queensland	3,192,115	73.7	478,290	11.0	410,346	9.5	888,636	20.5	4,332,728

(a) Based on usual place of residence; (b) Includes UK, Ireland, Canada, USA, South Africa, New Zealand; (c) Includes countries not identified individually, 'Australian External Territories', 'inadequately described', 'at sea', 'not stated'
Source: OESR, 2011(c)

Proficiency in spoken English

Table 40 shows that in Clermont SA2, there were 83 persons born overseas who spoke a language other than English at home, which comprised 35.8 percent of the overseas-born population (compared with 36 percent in Queensland). Of the 83 persons, 9 stated that they spoke English' not well or not at all', equating to 3.9 percent of the overseas-born population of Clermont (compared with 5.2 percent in Queensland).

Table 40 Proficiency in spoken English of overseas persons in Clermont SA2, 2011

Locality	Speaks English only		Speaks other language at home and speaks English						Persons born overseas (c)
			Very well or well		Not well or not at all		Total (b)		
	Number	%	Number	%	Number	%	Number	%	Number
Clermont SA2	149	64.2	74	31.9	9	3.9	83	35.8	232
Queensland	565,544	63.6	269,847	30.4	45,927	5.2	319,949	36.0	888,635

(a) Based on usual place of residence; (b) Includes proficiency in English not stated; (c) Excludes persons who did not state their country of birth.
Source: OESR, 2011(c)

4.3.8 Family structures

Table 41 shows the composition of families in Clermont SA2. At the time of the 2011 Census, there were 939 families in the area. 'Couple family with children' was the dominant family type (48.8 percent), followed by 'Couple family with no children' (40.3 percent).

These figures suggest that the area has a higher representation of family households with dependent children, in comparison to the state as a whole. 'One parent families' accounted for only 9.4 percent of families in the area, which is significantly less than the state average of 16.1 percent.

Table 41 Family composition in Clermont SA2, 2011

Locality	Couple family with no children (c)		Couple family with children (c)		One-parent family		Total (d)
	Number	%	Number	%	Number	%	Number
Clermont	378	40.3	458	48.8	88	9.4	939
Queensland	453,102	39.5	491,200	42.8	184,547	16.1	1,148,179

(a) Based on place of usual residence; (b) Includes same-sex couple families; (c) Children are defined as children under 15 years or dependent students aged 15 to 24 years; (d) Includes other families.
Source: OESR, 2011(c)

4.3.9 Household structure

Clermont SA2 has a high percentage of family households at 74.4 percent in comparison to Queensland (72.4 percent). Representations of single person or group households were slightly lower than the State.

Table 42 Household structure in Clermont SA2, 2011

Locality	Family Households (%)	Single or Lone Person Households (%)	Group Households (%)
Clermont	74.4	22.2	3.3
Queensland	72.4	22.8	4.7

Source: ABS, 2011(c)

4.4 Education, employment and training

4.4.1 Education

At the time of the 2011 Census, Clermont SA2 had 1,281 persons (45.9 percent) aged 15 years or more, who had completed schooling to Year 11 or 12 (or equivalent). This was compared with 55.3 percent in Queensland.

Table 43 Highest level of schooling completed in Clermont SA2, 2011

Locality	Did not go to school, or Year 8 or below	Year 9 or 10 or equivalent	Year 11 or 12 or equivalent		Total (c)
	— Number —			%	Number
Clermont SA2	229	1,003	1,281	45.9	2,793
Queensland	219,102	977,116	1,836,995	55.3	3,320,761

(a) Based on place of usual residents aged 15 years and over who are no longer attending primary or secondary school.
(b) Includes highest year of schooling not stated.
Source: OESR, 2011(c)

Table 44 shows that Clermont SA2 had a slightly higher proportion of people in the age group of 15-19 who were earning and learning in 2011, compared to the State average of 75.7 percent.

Table 44 People earning and learning in Local Study Area, 2011

Locality	Learning or Earning ages 15 to 19	People aged 15 to 19	% Learning or Earning ages 15 to 19
Clermont	169	223	75.8
Queensland	222,439	293,917	75.7

Source: PHIDU, 2013a

2011 Census data has been relied upon as a measure of post-school qualifications in Clermont SA2. As shown in Table 45, there were 1,379 persons aged 15 years and over with a qualification, accounting for 47.8 percent of the population in this age group. In comparison, the state average was slightly higher at 54.2 percent.

Of the population aged 15 years and over with a qualification in Clermont, 18.3 percent had bachelor degree or higher (compared with 29.3 percent in Queensland), 9.6 percent had an advanced diploma or diploma (13.9 percent - Queensland), and 47.9 percent had a certificate (36.6 percent - Queensland).

Table 45 Post-school qualifications in Clermont SA2, 2011 (a)

Locality	Level of education			Persons with a qualification (d)		Total persons
	Bachelor degree or higher (b)	Advanced diploma or diploma	Certificate (c)			
	— Number —			Number	%	Number
Clermont SA2	253	133	660	1,379	47.8	2,885
Queensland	548,894	260,778	686,993	1,875,323	54.2	3,456,875

(a) Based on usual residents aged 15 years and over; (b) Includes bachelor degree, graduate diploma, graduate certificate and postgraduate degree; (c) Includes Certificate, I, II, III and IV and Certificates not further defined responses; (d) Persons aged 15 years and over, includes 'inadequately described' and 'not stated' level of education responses
Source: OESR, 2011(c)

4.4.2 Indigenous education

At the time of the 2011 Census, Clermont SA2 had 24 Indigenous persons (48 per cent) aged 15 or more, who had completed schooling to Year 11 or 12 (or equivalent) (ABS, 2011h).

Of the Indigenous population aged 15 years and over with a qualification, 3 Indigenous persons had an Advanced Diploma or Diploma Level qualification and 10 had a Certificate lll and over (ABS, 2011h).

In 2011, 14 employed Indigenous males in Clermont SA2 worked in the mining sector. All other sectors recorded zero with the exceptions of agriculture, forestry and fishing with 7 persons, and construction with 4 persons. This compared with 114 Indigenous males employed in mining in the Bowen Basin. Of the total employed Indigenous persons aged 15 years and over, 41.2 percent were employed in the mining industry. This compared with 22.7 per cent across the Bowen Basin.

In Clermont SA2, Indigenous working females were represented in two industries of employment, with 6 females in accommodation and food services and 3 in manufacturing, with all other industries recording zero. The largest industries of employment for Indigenous females in the Bowen Basin were health care and social assistance, and accommodation and food services.

Through SIA consultation with Indigenous groups conducted by ELH in 2012, it was identified that approximately 20 people from the Jangga people already have the required ‘tickets’ to work in the mining and construction sectors and that more were to undertake training in 2012 (approximately 20-50 people).

A number of those who already have their tickets are working in south east Queensland on residential constructions projects. A number of Jangga people who are already qualified to work in the mining sector had been targeted by Western Australian mining companies seeking to fulfil their Indigenous employment quotas. Those that had taken these Western Australian positions had found it difficult to adjust to living away from their family and community support networks and had felt ‘out of place’ in another group’s traditional country.

Lack of drivers’ licences and failure to complete school were seen to be major obstacles to increased participation of Indigenous people in the mining sector. The most difficult aspect of securing and retaining a driver’s licence appears to be the lack of access people had to

registered vehicles and licensed drivers to complete the required 100 hours supervised driving needed for a provisional licence. In the past a driving instructor had been employed to teach Indigenous people in the region but funding for that position had ceased and the instructor had relocated out of the area. The difficulties faced by Indigenous people seeking employment as they do not hold a driver's licence is also acknowledged by DEEDI (personal comment cited in ELH, 2012).

Barada Barna people (through Woora Consulting) have an existing joint venture agreement with a construction company in Mackay to provide training for machinery operators. They are also receiving mentoring in administration processes.

4.4.3 Unemployment

In the December quarter 2012 a total of 24 persons (aged 15 years and over) in Clermont SA2 were unemployed, at an unemployment rate of 1.1 percent. This is a significantly lower unemployment rate than the Queensland rate of 5.8 percent.

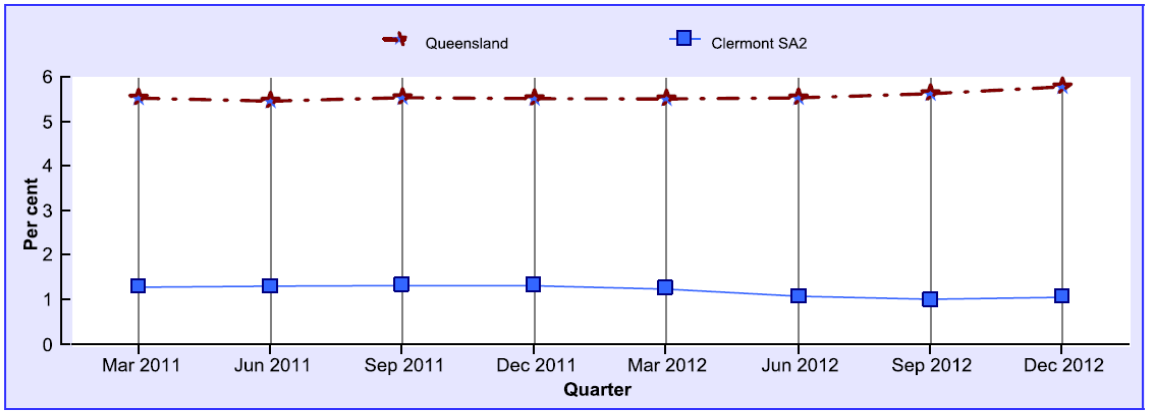
As shown in Figure 15, between the March quarter 2011 and the December quarter 2012, the unemployment rate ranged from 1.0 percent (September quarter 2012) and 1.3 percent (September quarter 2011). The substantially higher unemployment rate in Queensland also showed limited variation over this period, staying slightly under 6 percent.

Table 46 Unemployment and labour force (a) in Clermont SA2, December Quarter 2012

Locality	Unemployed	Labour force	Unemployment rate
	— Number —		%
Clermont	24	2,219	1.1
Queensland	143,637	2,480,000	5.8

Source: OESR, 2011(c)

Figure 15 Unemployment rate (a) for Clermont SA2, March Quarter 2011 to December Quarter 2012



Source: OESR, 2011(c)

4.4.4 Labour force by industry

At the time of the 2011 Census, the largest industry of employment for Clermont SA2 was mining, with a total of 441 persons or 22.2 percent of the area's total labour force. This was followed closely by Agriculture, Forestry and Fishing with 434 persons or 21.9 percent. Retail Trade (133 persons or 6.7 percent) and Construction (123 persons or 6.2%) were the next largest industries, employing a relatively high number of people. This data is represented in Table 47.

Table 47 Employment by industry, Clermont SA2, 2011 (a)(b)

Industry Sector	Clermont SA2		Queensland	
	Number	%	Number	%
Agriculture, forestry and fishing	434	21.9	55,416	2.7
Mining	441	22.2	52,955	2.6
Manufacturing	71	3.6	171,669	8.4
Electricity, gas, water and waste services	47	2.4	24,828	1.2
Construction	123	6.2	183,780	9.0
Wholesale trade	28	1.4	74,288	3.6
Retail trade	133	6.7	217,610	10.7
Accommodation and food services	80	4.0	141,855	7.0
Transport, postal and warehousing	91	4.6	107,072	5.3
Information, media and telecommunications	0	0.0	25,358	1.2
Financial and insurance services	12	0.6	54,153	2.7
Rental, hiring and real estate services	19	1.0	37,007	1.8
Professional, scientific and technical services	38	1.9	132,754	6.5
Administrative and support services	54	2.7	65,015	3.2
Public administration and safety	69	3.5	136,818	6.7
Education and training	105	5.3	160,921	7.9
Health care and social assistance	101	5.1	242,559	11.9
Arts and recreational services	6	0.3	28,444	1.4
Other services	76	3.8	78,713	3.9
Total (c)	1,983	100.0	2,039,275	100.0

(a) Employed persons aged 15 years and over; (b) Industry of employment was coded to the ABS 2006 ANZSIC. This has replaced the 1993 ANZSIC edition; (c) Includes inadequately described and not stated responses.
Source: OESR, 2011(c)

SIA consultation (2011) in Clermont indicated that local employers in non-mining sectors found it difficult to retain staff. Salaries do not match those of the mining industries and the cost of living is driven by demands from the mining sector. Strategies need to be implemented to support workforce retention in other sectors.

It was noted that competition for services between mines, agriculture and other industries also occurs. Mining and other large-scale activities have potential to monopolise resources such as trucking companies for long periods, making them unavailable to agricultural or other sectors.

Trades are particularly affected, impacting other industries as well as the community given that it is difficult to get trades persons to do small jobs at reasonable rates, affordable to community members and small business owners.

Feedback from stakeholders in mid-2012 revealed that some mining companies in the local study area are downsizing their workforce due to the current economic climate. This may result in a number of trained mine workers seeking alternative employment within the area, therefore, providing opportunities for Adani to potentially identify suitably skilled candidates for specific roles.

4.4.5 Employment by occupation

In 2011, Managers were the largest occupation group of employment in Clermont SA2, representing 20.2 precent of the local labour force (400 persons). Machinery Operators and Drivers represented 18.5 percent of the total (366 persons), followed by Technicians and Trades Workers at 17.6 percent (348 persons).This data is summarised in Table 48.

Table 48 Employment by Occupation for the Local Study Area, 2011 (a)(b)

Occupation	Clermont SA2		Queensland	
	Number	%	Number	%
Managers	400	20.2	245,605	12.0
Professionals	178	9.0	385,583	18.9
Technicians and trades workers	348	17.6	304,564	14.9
Community and personal service workers	83	4.2	202,979	10.0
Clerical and administrative workers	179	9.0	299,326	14.7
Sales workers	112	5.7	199,633	9.8
Machinery operators and drivers	366	18.5	149,322	7.3
Labourers	276	13.9	215,236	10.6
Total (c)	1,982	100.0	2,039,278	100.0

(a) Employed persons aged 15 years and over; (b) Occupation was coded to the ABS 2006 ANZSCO. This has replaced the 1996 ASCO Second Edition; (c) Includes inadequately described and not stated responses.
Source: OESR, 2011(c)

The Central Queensland Institute of TAFE has a local campus in Clermont. TAFE offers relevant training in skills and competencies required for employment in the mining, and other industries. Training courses in various trades are offered as well as areas such as hospitality. Course offerings vary from campus to campus.

While fees are payable for most courses at TAFE, these are government subsidised, and further discounts of up to 60 percent are provided for potentially disadvantaged students including unemployed and students of ATSI backgrounds. Where individuals are being trained as part of an overall employment program, employers will potentially meet the costs of training.

The website for the Central Queensland Institute of TAFE indicates places available for all courses.

4.4.6 Income

In 2011, there were 843 persons aged 15 years and over in Clermont SA2 with a gross individual weekly income of less than $400 (29.2 percent of persons aged 15 years and over). This was lower than the Queensland average of 34.6 percent.

There were 376 persons (aged 15 years and over) in the shire who reported a gross individual weekly income of more than $2,000 (13.0 percent). This is over double the state average of 5.5 percent and may be attributed to the mining industry.

Table 49 Gross individual weekly income in Clermont SA2, 2011

Locality	Persons earning less than $400 per week		Persons earning $400 to $999 per week		Persons earning $1,000 to $1,999 per week		Persons earning $2,000 or more per week		Total persons (c)
	Number	%	Number	%	Number	%	Number	%	Number
Clermont	843	29.2	738	25.6	593	20.5	376	13.0	2,886
Queensland	1,195,059	34.6	1,095,509	31.7	689,495	19.9	191,236	5.5	3,456,877

(a) Based on usual residents aged 15 years and over; (b) Includes personal income not stated
Source: OESR, 2011(c)

According to 2011 Census data, 17 Indigenous persons had a total personal weekly income of $1,000 or more. This accounted for 28 per cent of the Indigenous population compared with 33.5 per cent for Clermont SA2 earning $1,000 or more per week. Most of the Indigenous workforce of Clermont SA2 received lower weekly gross incomes than the remainder of the population (OESR 2011). In the young adult workforce (those aged between 15-24 years), nearly one-fifth obtained $399/week or less. Furthermore, less than one quarter of the overall indigenous workforce obtained an income of more than $600/week (Miles and Kinnear, 2008 cited in ELH, 2012).

For most Aboriginal communities, there is little economic prospect or real employment opportunity and many sit outside the mainstream economy. Employment in the mining sector is small and there is a need to develop strategies that will more directly engage the Indigenous community into the mainstream economy and the mining sector (Miles and Kinnear, 2008 cited in ELH, 2012).

4.5 Housing and accommodation

4.5.1 Housing affordability

As shown in the 2011 data below (Table 50), Clermont SA2 demonstrated a lower proportion of low income households displaying mortgage or rental stress, compared to the Queensland average.

Table 50 Indicators of housing affordability stress in Clermont SA2, 2011

Indicator	Clermont (SA2)		Queensland	
	Number	%	Number	%
Low income households(a) with mortgage stress	18	6.0	52,583	9.8
Low income households(a) with rental stress	30	5.7	133,599	25.3

(a) Households in bottom 40% of income distribution
Source: PHIDU, 2013a

Table 51 shows the monthly housing loan repayments in Clermont SA2 for 2011. Compared to weekly rents paid (shown in Table 52), this data is considered more representative of housing affordability as it is less likely to be influenced by the mining and resource sector employer-provided and subsidised housing.

Table 51 Monthly housing loan repayment in Clermont SA2, 2011

Locality	$0 - $449		$450 - $999		$1,000 - 1,399		$1,400 - $1,999		$2,000 - and over		Housing loan repayment not stated		Total
	#	%	#	%	#	%	#	%	#	%	#	%	#
Clermont	39	13.3	32	10.9	33	11.3	60	20.5	105	35.8	22	7.5	293

Source: ABS, 2011h

Table 52 Weekly rent being paid in Clermont SA2, 2011

Locality	$0 - $149		$150 - $274		$275 - $549		$550 and over		Rent not stated		Total
	#	%	#	%	#	%	#	%	#	%	#
Clermont	297	60.6	79	16.1	73	14.9	3	0.6	38	7.8	490
QLD	81,014	15.8	126,919	24.7	267,594	52.1	21,436	4.2	16,450	3.2	513,413

Source: ABS, 2011h

The highest proportion of monthly housing loan repayment was in the $2,000 and over category in Clermont SA2. Table 53 shows the number and proportion of occupied private dwellings being rented according to weekly rental value in 2011. Almost 80 percent of weekly rents in Clermont SA2 are between $0 - $274 and only 0.6 percent in the higher bracket of $550 and above.

To assist in alleviating high rental costs in the local area, BMA has implemented an accommodation policy that caps rental payments for their workers. According to IRC, this recent stance against high rental prices has opened up the rental market and assisted in improving housing affordability within the local study area (July 2012).

As noted by ELH (2012), issues of poor housing affordability and availability in the Bowen and Galilee Basins make it difficult for Traditional Owners to return to their traditional country.

4.5.2 Housing types

In 2011, there were 1,231 occupied private dwellings in Clermont SA2, of which 1,092 were separate houses, 7 were semi-detached and 64 were apartments.

Separate houses represented 88.7 percent of total occupied private dwellings in Clermont, compared with 78.5 percent in Queensland.

Table 53 Occupied private dwellings[(a)] by dwelling structure in Clermont SA2, 2011

Locality	Separate house	Semi-detached (a)	Apartment (b)	Total (c)	Separate houses as % of total
Clermont	1,092	7	64	1,231	88.7
Queensland	1,215,303	129,430	181,716	1,547,303	78.5

(a) Excludes visitors only and other not classifiable households; (b) Includes row or terrace house, townhouse etc.; (c) Includes flat, unit or apartment; (d) Includes other dwelling types and dwelling types not stated.
Source: OESR, 2011(c)

4.5.3 Home ownership

In 2011, 32.0 percent of occupied private dwellings in Clermont SA2 were owned, 23.7 percent were being purchased and 39.7 percent were rented.

Table 54 Occupied private dwellings[(a)] by tenure type in Clermont SA2, 2011

Locality	Fully owned		Being purchased (b)		Rented (c)		Total (d)
	Number	%	Number	%	Number	%	Number
Clermont	395	32.0	292	23.7	489	39.7	1,233
Queensland	448,617	29.0	533,868	34.5	513,415	33.2	1,547,303

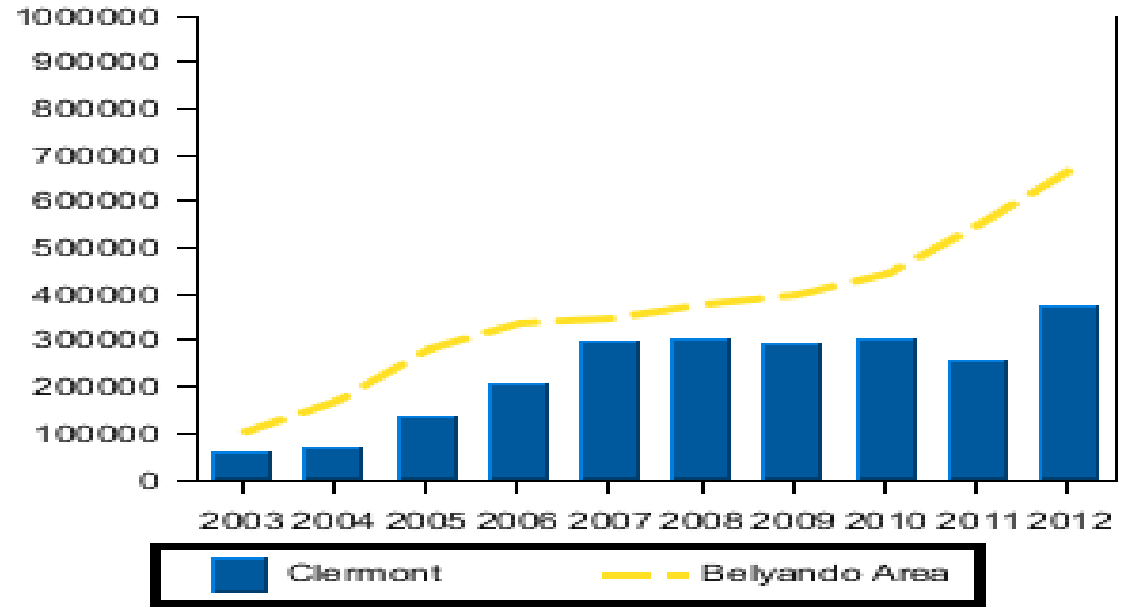
(a) Excludes visitors only and other not classifiable households; (b) Includes dwellings being purchased under a rent/buy scheme; (c) Includes renting from a real estate agent, state or territory housing authority, renting from a person not in the same household, renting from cooperative/community/church group, other landlord type and landlord type not stated; (d) Includes other tenure type and tenure type not stated.
Source: OESR, 2011(c)

4.5.4 Housing and rental costs

Residential property prices

RP Data provides longer range tracking of the median property prices in Clermont from 2003 to 2012. As shown in the Figure 16, Clermont has a trend of steady increase before a general plateau emerged in 2007, a slight decline in 2011, and in 2012 the highest recorded median house prices for the period. As noted by Miles et al (2008), it is apparent that median house prices have reduced local housing affordability.

Figure 16 Median house prices for Clermont, 2003-2012



Source: www.rpdata.com.au (July 2013)

Rental costs and housing affordability

SIA consultation (2011) in Moranbah indicated that there are a high of number families (including single parent households) not involved in the mining industry who are struggling with housing affordability.

Stakeholder feedback indicated a significant escalation of property prices (anecdotally up to $900,000 for a 3-4 bedroom house). There was concern that local residents who are not employed by mining sector would continue to be disadvantaged in accessing affordable housing and a feeling that people were being 'pushed out' of mining towns. This problem was amplified given the shortage of crisis and emergency accommodation.

SIA consultation undertaken in 2011 also indicated that rental prices continued to rise, suggesting a rise over the past few years resulting in rents being on average $1,500 - $2,000 per week. The inability to find affordable housing resulted in young people staying at home longer as they cannot afford to leave, or alternatively, leaving their local area altogether. While there was no data to support this being an issue unique to Moranbah and Clermont, anecdotal evidence suggests that the problem is more of an issue in these communities than in many others.

Stakeholders in the local study area maintain that inflation of housing prices and rental costs in the key centres of Moranbah and Clermont are due to the accommodation demands associated with the mining industry. This scenario was further exacerbated by the arrangement for some mining companies to subsidise employee housing costs.

Reflecting the comments above, declines in local housing affordability have been well documented in recent research and media. Some examples are provided below.

Moranbah mining town rents hit $3400 a week

MORANBAH locals have already labelled rents in the coal-mining town as out of control but now houses cost more to rent than luxury beachfront properties.

The Courier Mail, 17 November 2011

Mining town our most expensive place

Townsville Bulletin, 4 June 2011

Moranbah's housing crisis coverage

Central Queensland News, 13 June 2012

Mine announcement sparks housing affordability fears

ABC, 10 January 2007

More recent SIA consultations (2012) revealed that BMA has implemented an accommodation policy and capped rental payments for their workers. According to Isaac Region Council, this recent stance against high rental prices has opened up the rental market and assisted in improving housing affordability within the local study area (July 2012).

To further assist in addressing the issue of affordable housing in the local study area, the Isaac Affordable Housing Trust (IAHT) has received land and monetary contributions from both Council and other organisations, including mining companies in the region, to develop affordable housing for low income workers and families. The IAHT is a not-for-profit organisation run independent of Council. The trust has delivered three affordable housing developments in Isaac Region and is in the process of developing additional accommodation in Clermont, Dysart and Nebo.

4.5.5 Housing availability

SIA consultation highlighted increasing land and housing supply constraints in Clermont, together with inflated local property values.

Clermont

SIA consultation in 2011 in Clermont indicated that there are considerable problems associated with accommodation in the town in that housing is limited and prices are rising. It was

emphasised that this issue impacts the general resident population, particularly the aging. This issue is also detrimental in attempts to attracting people to the area as permanent residents.

With limited accommodation, prices of housing are observed to be high and continuing to rise. At the time the workshops for this assessment were conducted (June 2011) there was only one house available to rent. It was noted during the workshop that RTCA is currently working with developers to establish housing, given that it is understood that up to 100 FIFO workers wish to live in Clermont.

It was noted that a housing development is currently underway at Clermont with Stage 1 of a multi-stage residential development nearing completion. Rio Tinto has committed to 50 percent, or 40 homes, as part of the Stage 1 development. It was noted in the SIA consultation that Dyno-Nobel has also built houses in Moranbah. It would be an expectation of the community that houses be made available for the new working population and FIFO and DIDO should be balanced with permanent population.

Building approvals

Table 55 shows that in the 12 months ending 31 March 2013, there were 112 residential dwelling unit approvals in Clermont SA2, with a total value of $32 million.

The total value of non-residential building approvals in Clermont SA2 in the 12 months ending 31 March 2013 was $1.5 million.

Between the March quarter 2011 and the March quarter 2013, the value of new residential building approvals in Clermont SA2 ranged between $0.0 million and $27.3 million.

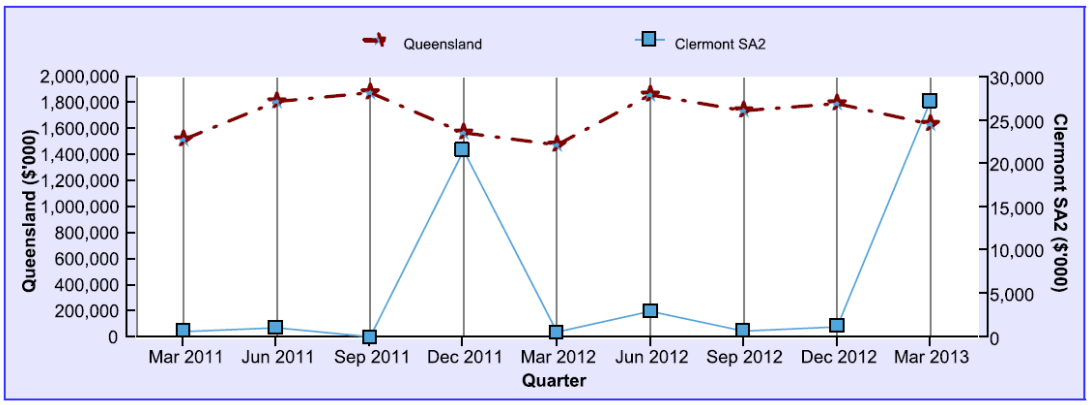
During SIA consultation (2012) with IRC Officers it was indicated that Council has identified sufficient residential zoned land to support future town expansion in Clermont, with a 15 year supply available. It was indicated that the new planning scheme will continue to support growth associated with regional industry.

Table 55 Residential and non-residential building approvals (12 Months Ending 31 March 2013)

Locality	Dwelling units in new residential buildings (a)	Residential building value (a)	Total residential building value (b)	Total non-residential building value (b)	Total building value (b)	Proportion of total value that is residential (c)
	Number		— $'000 —			%
Clermont	112	32,015	32,304	1,471	33,775	95.6
Queensland	28,479	7,042,701	8,170,425	6,640,631	14,811,056	55.2

Source: OESR, 2011(c)

Figure 17 Value of residential building approvals[(a)] Clermont SA2 and Queensland, March Quarter 2011 to March Quarter 2013



(a) Excludes alterations, additions and conversions
Source: OESR, 2011(c)

Social housing

Table 56 shows the indicators for social housing in Belyando Shire, as data was not available at the Clermont SA2 level. The Belyando Shire data was still considered relevant for the baseline as Clermont SA2 is located in the Shire. Overall, a considerably lower percentage of households in Belyando received rent assistance from Centrelink in comparison to the State and a slightly lower proportion of dwellings are rented from the government housing agency.

During SIA consultation, stakeholders commented on the lack of emergency housing in Clermont, which is considered a significant social issue. The consultations revealed that if and when family relationships end, for example the partner working with the mines leaves or dies, the remaining family members must vacate the property, as the house is then required for other workers. This is a difficult situation for families and is amplified by the lack of alternative housing and/or emergency housing solutions.

Table 56 Indicators for social housing – Belyando Shire (2011)

Indicator	Belyando (S)	Queensland
Households in dwellings receiving rent assistance from Centrelink	142	306,187
Total dwellings	3,829	1,547,304
Percentage of households in dwellings receiving rent assistance	3.7	19.8
Dwellings rented from the government housing authority	131	53,887
Total dwellings	3,829	1,547,303
Percentage of dwellings rented from the government housing authority	3.4	3.5

Source: PHIDU, 2013c

4.6 Community health, wellbeing and safety

4.6.1 Health and wellbeing

Selected health and wellbeing data for Clermont SA2 was not available. Data was only available at the SLA level for Belyando Shire. As Clermont is within Belyando Shire this data is still considered relevant for the baseline. The data is presented in Table 57.

The fertility rate in Belyando is higher than the Queensland average. This was also reiterated by stakeholders during SIA consultation – they noted that Moranbah particularly is perceived as a place where couples settle to have families, whilst one parent works in the mining sector.

While the self-assessment of poor health within the former Belyando Shire is lower than Queensland as a whole, the rate of those with at least one of health risk factors of smoking, harmful use of alcohol or obesity is generally comparable to Queensland as a whole.

Table 57 Selected health and wellbeing indicators (2011)

Selected indicator (2007-08)	Belyando (S)	Queensland
Total fertility rate (a)	2.34	1.91
Fair or poor self-assessed health (estimated) persons aged 15 years (b). Rate per 100	11.3	15.5
High or very high psychological distress levels persons aged 18 years and over (estimated) (c). Rate per 100	8.4	11.9
Persons 18 years and over with at least one of four of the following health risk factors –smoking, harmful use of alcohol, physical inactivity, obesity (estimated) (d). Rate per 100	57.1	58.3

(a) Total fertility rate represents the average number of children that a woman could expect to bear during her reproductive lifetime. It is calculated from the age of the female population, the number of births and the age of the mother at birth. (b) Respondents in the 2004-2005 National Health Survey were asked to rate their health on a scale from 'excellent', through 'very good', 'good' and 'fair' to 'poor' health. (c) The data was derived from the Kessler Psychological Distress Scale (K-10) – which is a scale of non-specific psychological distress based on 20 questions asked of respondents about negative emotional states in the 4 weeks prior to interview. 'High' and 'Very High' distress are the two highest levels of distress categories (or a total of four categories). (d) This is based on self-reported data, reported to interviewers including respondents who reported that they had at least one of the following health risk factors – smoking, harmful use of alcohol, physical inactivity, and obesity.
Source: PHIDU, 2013c

4.6.2 Disability prevalence - need for assistance

Table 58 shows the 2011 count of persons with a profound or severe disability in Clermont SA2, who are in need of assistance with self-care, mobility and/ or communication. These are compared with results for Queensland.

At the time of the 2011 Census, there were 97 persons in need of assistance in Clermont SA2, representing 2.6 percent of the total population. It indicates that lower levels of assistance are needed within the local community when compared with Queensland, registering an average of 4.4 percent.

Table 58 Persons in need of assistance in Clermont SA2, 2011

Locality	Need for assistance		No need for assistance	Total (b)
	Number	%	Number	
Clermont	97	2.6	3,388	3,744
Queensland	192,019	4.4	3,880,396	4,332,738
Clermont SA2 as % of Qld	0.1	..	0.1	0.1

(a) Based on place of usual residence; (b) Includes core activity need of assistance not stated; (c) 'In need of assistance' includes people with a profound disability or severe disability. People with profound or severe disability are defined as needing help or assistance in one or more of the three core activity areas of self-care, mobility and communication because of a disability, long term health condition (6 months or more), a disability (lasting 5 months or more) or old age.
Source: OESR, 2011(c)

Discussions with stakeholders during SIA consultation provided insight into some current observed health issues at Clermont. Key points were:

- Drinking and alcohol related problems were identified as issues, noting that this can be a common issue within many townships and is not unique to Clermont.
- Drug abuse was not considered to be a problem in the area.
- Mental health issues are considered to be increasing. Provision of services to assist with mental health is a problem facing the community given that the nearest secure facility is located at Mackay. It was noted that there is a mental health facility located at Moranbah, but this is not secure (meaning people within the facility are able to come and go as they please).

4.6.3 Crime

Current crime data for the former Belyando Shire could not be extracted at SLA level from the QPS database.

In the absence of current data, reference is made to QPS statistics for Belyando and Nebo Shires (2002-2003), which provide some general insight to past crime trends (see Table 59), notably:

- Belyando and Nebo Shires had higher rates of 'offences against the person' than the state average.
- The incidence of 'offences against property' was less than that for Queensland.
- SIA consultation (2011) with the QPS identified that current policing in the area consists of "a small presence in Clermont" and it is noted that "existing resources are stretched". It is expected there will be a need to provide expanded services into the Galilee as mining continues to develop. The police communications at the Project (Mine) site are "virtually non-existent" and would need to be extended into the area.
- Subsequent to this, QPS has advised they have provided additional policing in Clermont which has alleviated issues with stretched resources experienced in 2011.

Table 59 Criminal offences by type in Belyando and Nebo Shires (2002-03)

Locality	Offences against the person	Offences against property	Other offences
Belyando and Nebo	299	382	291
rate per 100,00 persons	2,343	3,168	2,419
Queensland	40,363	283,070	121,099
rate per 100,00 persons	1,110	7,787	3,331

Offences against the person includes homicide, serious assault, other assault, sexual offences, armed robbery, unarmed robbery, extortion, kidnapping etc., and other. Offences against property include unlawful entry with intent (dwelling, shop or other), arson, other property damage, motor vehicle theft, stealing (from dwelling, shop or other), fraud, handling stolen goods. Other offences include drug offences, prostitution offences, liquor (excluding drunkenness), good order offences, and stock related offences.
Source: OESR, 2003

4.6.4 Socio-economic index of disadvantage

As noted previously, socio-economic indexes for areas (SEIFA) is a summary measure of the social and economic conditions of geographic areas across Australia. SEIFA comprises a number of indexes, which are generated at the time of the ABS Census of Population and Housing. On this scale, Quintile 1 refers to 'most disadvantaged' and quintile 5 the 'least disadvantaged'.

As shown in Table 60, in 2011, 0.0 percent of the population in Clermont SA2 were in the most disadvantaged quintile, compared with the 20 percent average across Queensland. Half of the population of Clermont were recorded in Quintile 4 while only 7.5 percent were represented in the least disadvantaged quintile.

Table 60 Social and economic index of disadvantage, 2011

Locality	Quintile 1 % (most disadvantaged)	Quintile 2 %	Quintile 3 %	Quintile 4 %	Quintile 5 % (least disadvantaged)
Clermont	0.0	18.1	23.6	50.8	7.5
Queensland	20.0	20.0	20.0	20.0	20.0

Source: OESR, 2011(c)

4.6.5 Social infrastructure

Existing provision of social infrastructure in the local study area is summarised in Table 61.

Table 61 Provision of social infrastructure

Social infrastructure type	Existing provision
Education and Childcare	As at 28 February 2013, Clermont SA2 had 2 early childhood education and care services including 1 kindergarten and 1 long day care service.
Aged Care	Clermont had one aged-care service provider in 2011, providing 18 community care and 43 residential care places.

Social infrastructure type	Existing provision
Community Services	At 30 June 2010, the following were available in Clermont SA2: • 1 police station • 3 ambulance stations • 1 fire station • 5 schools • 1 hospital
Volunteers	At the time of the 2011 Census, Clermont SA2 had 746 volunteers, representing 25.8 percent of the total persons aged 15 years and over. This was compared with 18.7 percent of persons aged 15 years and over in Queensland.

Source: OESR, 2011(c)

During SIA consultations (2011) in Clermont, the following key concerns and issues were expressed by stakeholders regarding social infrastructure provision and capacity:

- A new mining project could add pressure on a limited base of community infrastructure in the towns.
- Good communication and coordination between agencies/services providers and proponents is critical as part of project planning, to ensure that existing and future populations can be serviced appropriately, with limited impacts to the current resident community.

Stakeholders identified the following issues and needs for social infrastructure in Clermont:

- Temporary population increases and camp accommodation may place pressure on community services.
- A permanent town is preferable to a camp so that the population can be planned for and provided with appropriate and adequate social services given the project's very long term nature.
- Schools in Clermont are believed to have good capacity to cater for population increases.
- There is a lack of emergency housing in Clermont.
- Deficiencies in mental health services, with the closest facility (which is not secure) in Moranbah.
- Support for a medical centre (not just a doctor) to be established at the mine and/or mine village site to service the large workforce and ensure that pressure on town services does not occur.
- Essential infrastructure (such as the wastewater treatment plant) is believed to have some capacity for population increases.

4.7 Land adjoining the Project (Mine and Rail)

Within the local study area, landholders with properties adjoining or directly affected by the proposed mine and rail line are likely to experience most of impacts associated with the project. Therefore, this area will require a particular focus for the local baseline.

It was intended to engage landholders directly and get their specific input to the local baseline for the Project, however despite many months of positive discussions with landholders, only one would commit to undertaking a case study. As a result, the local baseline has been developed at a higher geographic level (former Belyando Shire) and supplemented with information from negotiations between Adani representatives and landholders.

Traditional owners were also included in the local study area to identify any potential impacts directly related to the country from the Project footprint.

4.7.1 Land use and pastoral farming practices

Many of the properties affected by the Project are large landholdings, with the smaller landholdings tending to be within 50 km of Moranbah. The Project (Rail) alignment tends to follow property boundaries along these smaller landholdings significantly reducing the potential for adverse impacts, including land fragmentation.

Pastoral farming is undertaken across the Local Study Area with small areas of cropping to provide cattle fodder. Many properties comprise a mix of productive grazing land used for 'finishing' cattle prior to market sale, and less productive land used for general grazing.

Pastoral farming practices within Australia are generally similar between most areas, however within this area it is important to acknowledge there will be some specific practices which will be impacted and discussed further with each landholder on an individual basis. As negotiations with individual landholders progress, property management practices will be better understood.

Most properties are managed as single production units, some as part of a larger property network elsewhere in Queensland. There are however some properties that are managed as a single production unit for efficiency. These are generally contiguous properties owned by members of the same family.

Properties affected by the Project are predominantly classified as rural leasehold land used for the purposes of agricultural, grazing or pastoral activities. The Project (Rail) traverses 11 leasehold properties and 10 freehold properties and the Project (Mine) affects seven leasehold properties. Quarry developments affect five properties.

Occupied homesteads are present on many of the properties – very few are unoccupied. Those that are unoccupied tend to be the smaller units. In this situation, it is common for a farm manager or landholder to visit the property on a regular basis.

Many of the directly affected properties are vast with cattle grazing spread across expansive areas. Therefore, helicopters are a vital service on many of the properties as mustering on horseback or quad bike would take a considerable amount of time.

The nature of heli-mustering requires pilots to navigate choppers at a very low altitude to direct stock in a desired direction. Many landholders contract these services out and they are undertaken by experienced pilots who specialise in heli-mustering.

At present, there are at present very few aerial impediments to heli-mustering activities in the local study area, such as transmission lines and communication towers.

4.7.2 Demographic characteristics

A snapshot of the demographic profile for landholdings adjacent to the project (mine and rail) has sourced from information compiled by Adani during landholder negotiations:

- The general age range of residents in the area is between 35 to 50 years old, including several households with young families and very few older persons.
- Most residents are second or third generation landholders with very strong ties to the local area.
- Older family members appear to move off the properties and into communities elsewhere in the region to be closer to community and social services, notably health care.
- Of families with primary school aged children, most receive education at home through 'school of the air'. When children reach high school age, it is common for them to leave home and attend boarding school elsewhere. It is understood that for affected properties closer to Moranbah, children have a daily commute into town on the school bus.
- Most of the properties have at least one additional non-family staff member who live permanently on site. Generally, only the larger properties have more than one permanent staff member residing there. Several of the smaller properties do not have resident staff, instead a family member or farm manager visit the property periodically from elsewhere.
- During mustering, additional staff may be contracted to provide temporary assistance and are generally accommodated on the property for the duration of their work.

4.8 Current labour market and skills

The rapid expansion of the mining, energy and resources industry is increasingly dependent on the continuous search for skilled and semi-skilled employees. Meeting labour source needs/gaps through rapid growth in non-resident workers housed in workers accommodation villages in settled rural areas is presenting a new cultural challenge between regional communities and the mining sector.

The most recent data available investigating the labour market within the resources sector in particular is the National Resources Sector Employment Taskforce Final Report produced by the Commonwealth Government in 2010 (The Taskforce Report). This report has been used as the source for information regarding the labour market presented in the SIA and draft SIMP.

The Taskforce Report indicates that although it has become evident that there has been a change in the last three years in terms of available workforce supply, there are still a number of areas where it is expected there will be challenges in recruitment and attraction of the required workforce. Current industry data suggests that in the mining industry 22.9 percent of all employees are aged 50 years or older representing a significant group of employees who will potentially leave the industry in the next 10 years. If the currently planned mine, ports, rail and resources infrastructure projects proceed in parallel with the coal seam methane to liquefied natural gas energy projects, it is suggested that major contractors will need to increase project

staff and construction workers by 120 percent to 23,660 in 2012–2013 (Commonwealth Government, 2012).

The Taskforce Report projected new jobs growth by occupation based on slow, moderate and rapid growth scenarios as shown in Table 62. Based on slow economic growth, this indicates a 157 percent increase in demand for vocational occupation (technical skills) between 2010 and 2015. The Taskforce Report considers it likely there will be two to four new trains operating in Queensland by 2015, creating between 1,200 and 2,500 professional and trade jobs in operations. A similar percentage growth is predicted under a moderate growth scenario, and even higher growth (170 percent) under a rapid economic growth scenario.

Table 62 shows that the supply of technicians and tradespeople in Queensland will grow by 8 percent to 2015 under an average case scenario, and 26 percent under a best case scenario, which is unlikely to be sufficient to meet demand. In Queensland, shortages will depend on the progress of CSG/LNG projects but are likely to include mining production managers, civil, electrical, mechanical, and petroleum engineers. There could also be shortages of fitters, electricians and electrical instrumentation workers, drillers and plant and machinery operators. Skills shortages will be more significant in regions where resources projects are concentrated (such as the Galilee Basin).

The Taskforce Reports notes that construction skills shortages in regional Queensland have been addressed by a FIFO/DIDO workforce for many years and anticipates that further growth in FIFO numbers seems likely with the expansion of resources sector activity. The use of FIFO has been facilitated by increases in flights from other centres, including direct flights from Brisbane into Central Queensland. However, there are other communities with above average unemployment rates, such as Cairns, where FIFO jobs can present important employment opportunities in both construction and operations of new resources developments.

Table 62 Projected supply of technicians and tradespeople by State and Country 2010 to 2015

	2010	2015 best case scenario	2015 average case scenario	2015 worst case scenario
Queensland	337,400	424,625 +87,225 +26%	364,980 +27,580 +8%	304,420 -32,980 -10%
Australia	1,593,000	1,975,502	1,697,372	1,412,668

Source: Commonwealth Government, 2012

Table 63 New jobs growth by occupation, Queensland, projections to 2015[(a)]

Occupational groups by skills and activities	Slow economic growth (4 Trains)			Moderate economic growth (6 Trains)			Rapid economic growth (8 Trains)		
	2010	2015	2020	2010	2015	2020	2010	2015	2020
Engineering (professional and para-professional skills)	**205**	**340**	**373**	**341**	**580**	**630**	**374**	**715**	**756**
Science (professional and para-professional skills)	**73**	**68**	**75**	**109**	**103**	**113**	**124**	**133**	**149**
Vocational occupation (Technical Skills)	**831**	**2,134**	**2,645**	**1,248**	**3,197**	**3,964**	**1,328**	**3,584**	**4,854**
comprising:									
Drilling	476	990	990	715	1,484	1,484	741	1,820	1,953
Electrotechnology (Electrical)	35	146	232	53	218	347	61	253	447
Field construction	24	44	44	36	66	66	43	88	88
Mechanical (Diesel Fitting)	75	201	274	113	301	410	128	309	482
Process plant operations	190	682	1,017	285	1,022	1,525	312	999	1,724
Water Management (Operations)	29	71	88	43	106	132	43	115	160
Vocational occupation (Non-technical Skills)	**205**	**378**	**453**	**306**	**567**	**680**	**198**	**677**	**857**
comprising									
Occupational health and safety	38	84	104	56	126	156	68	154	190
Cultural heritage	67	85	80	100	127	100	82	169	162
Admin / logistics / transport / warehouse	100	209	269	150	314	404	148	354	505
Unskilled labour	**67**	**134**	**147**	**100**	**200**	**222**	**115**	**253**	**284**
Other	**0**	**31**	**58**	**0**	**47**	**86**	**0**	**31**	**91**
Compliance and shutdown teams	**0**	**31**	**58**	**0**	**47**	**86**	**0**	**31**	**91**
TOTAL	**1,381**	**3,085**	**3,752**	**2,104**	**4,694**	**5,659**	**2,239**	**5,393**	**6,991**

(a) This modelling assumes base employment of 1,000 people in all scenarios, that is, there were 1,000 people already employed in the industry in 2009.
Source: Commonwealth Government, 2012

4.9 Summary of impacts of existing mining activity

In order to consider the potential cumulative impacts of the Project, impacts of existing mining activity needs to be understood. There is very limited mining activity in the Galilee Basin at present and the main study undertaken in the Galilee Basin, The Galilee Basin Economic and Social Impact Study (Economic Associates, 2010) focussed on the impacts of four major projects proposed to the north-west and south-west of the township of Alpha. While the impacts identified in the study focus on Alpha, many of the impacts are also relevant to this Project and potential impacts on townships such as Clermont. More research has been undertaken in the Bowen Basin with its long history of mining. An understanding of social impacts of mining activity in the Bowen Basin is also of benefit in understanding potential impacts in the Galilee Basin

A detailed study undertaken by Petrovka et al. (2009) revealed a number of positive and negative impacts associated with mine development in the Bowen Basin region. Positive impacts identified from the studies included:

- Relatively high incomes of people working in the mining industry and of business people servicing the mines
- More employment, business and training
- Population growth and diversification in communities
- Increased financial support in towns through substantial contributions by mining companies to community infrastructure development
- Infrastructure improvements such as roads and communications
- Town development through the renovation and building of housing by mining companies for their employees.

Negative impacts recognised in the study included:

- FIFO workforces and increased mobility of local residents resulting in economic stimulus flowing away from the communities in the immediate vicinity of the mine to other regional centres
- Housing shortages and increased housing prices can limit the positive economic flow on to communities and create pressure on non-mining businesses and local communities
- FIFO workforces can exacerbate or bring problems of fatigue, family isolation, community fragmentation and limit growth in school enrolments and community participation (despite population growth)
- Localised inflation leading to displacement of persons and businesses not benefiting from mining and related businesses
- Higher road trauma as a result of larger numbers of workers driving long distances between work rosters
- Mine workers ‘moonlighting’ on off-rosters (an issue raised by Isaac Regional Council). Problems arise for local businesses, such as electrical contractors, if mine workers offer similar services during their off-rosters at sub-commercial rates.

A number of proponents are currently undertaking feasibility studies and environmental and social impact assessments for developments within the Galilee Basin. The Galilee Basin Economic and Social Impact Study (Economic Associates, 2010) was developed as a preliminary baseline survey of the economic and social opportunities and impacts which may result from the proposed projects in the basin. It raised many issues regarding the current social impacts resulting from mining operations in both the Galilee and Bowen basins.

Non-resident workers were identified by a number of stakeholders as presenting the greatest challenge with social impacts. SIA consultation indicated that Moranbah has experienced problems with the non-resident workforce, and perceptions are that various antisocial behaviours have increased in the host communities, particularly drug and alcohol abuse and creation of various 'good order' disruptions. Available crime statistics do not however support these claims.

Property prices and rent are also of concern and are particularly high in Moranbah due to the pressure of existing mining operations on housing affordability. Housing supply in the locality is also relatively low and new mining projects are apparently placing increasing pressure on near-capacity businesses with local businesses already finding it difficult to identify affordable residential accommodation for new employees. Discussions with Isaac Regional Council noted that BMA has implemented an initiative to put a maximum capped price for rental accommodation which has had positive feedback from Council and other local stakeholders. This initiative appears to have had an immediate impact with more rental properties available in Moranbah.

SIA consultation did not identify similar issues in Clermont, this was considered to be due to it not having a high proportion of non-resident workers, being a smaller centre, and having a strong agricultural connection. It is understood from SIA consultation that a number of workers at the Clermont Coal Mine have a desire to reside locally, and the recent residential development being undertaken in Clermont will provide this choice for workers.

Research of impacts in Clermont showed that mining companies are prepared to make contributions to community funds managed by groups or councils to improve community services and infrastructure. Annual contributions have been provided for improvement works in the town. Also, direct contributions have been made for specific projects and purposes (e.g. tree planting, water supplies and sporting events).

The cumulative effects of new and continuing mining projects have put increasing pressure on transport networks, emergency services and health care in the locality. Traffic is a particular issue for public safety.

There are a number of project proponents investigating the establishment of mines in the northern Galilee Basin, namely Vale, Macmines and Resolve. Hancock and Waratah are located further into the south Galilee with more influence on towns including Alpha and Emerald. Adani is discussing opportunities for joint infrastructure to address cumulative impacts of projects in the northern Galilee with some proponents. However, these discussions are voluntary and non-binding. Some proponents are not yet in a position to discuss their plans with Adani as they are still very much in the preliminary investigation and planning phase.

5. Policy and planning context

5.1 Introduction

State and regional policies and plans provide important context to how potential social impacts may manifest, as well as setting out priorities and existing programs of action for the region that are critical in determining appropriate and effective management responses to potential social impacts.

5.2 Queensland state policies and plans

The SIA has been prepared in accordance with the ToR for the EIS. The following policies and plans served as a context in the early development of the SIA and SIMP:

- Shaping Tomorrow's Queensland
- Queensland Regionalisation Strategy
- Sustainable Resource Communities Policy
- Major Resource Projects Housing Policy

Besides addressing the ToR, the development of this section also draws upon the OCG's new approach and *Social Impact Assessment Guidelines* (July, 2013) to focus on addressing the direct social impacts arising from the Project and participating in relevant processes to address cumulative effects to which the Project may contribute.

5.2.1 CoalPlan 2030

The Queensland CoalPlan document examines the potential growth for Queensland's coal industry and details infrastructure requirements to support the growing industry. CoalPlan 2030 identifies the higher costs of transport to port, the development of additional rail capacity that does not affect the use of existing infrastructure and difficult access to terminal capacity at existing or expanded coal ports as key challenges to mining and exporting coal from the Galilee basin. Other challenges identified for the Galilee Basin that have implications for potential social impacts or their management include the need to develop access to water and key water infrastructure and the need for additional electricity supplies to support mining.

5.2.2 Coal Infrastructure Program of Actions

In 2005, the Queensland Government, with the support of the Queensland Resources Council, developed the Coal Infrastructure Program of Actions (CIPA) (DIP 2009) to ensure that the infrastructure needs of the coal industry would continue to be met. The strategy addresses physical infrastructure needs as well as 'soft' infrastructure including skills and housing provision and recognising the vital role of social infrastructure in the sustainable growth of the coal industry.

An audit of the program in 2008 identified completed, committed and planned projects including $20 million for skills programs and $28.5 million for housing and planning, primarily for acquisition of houses and construction of new houses to provide additional social housing the Bowen Basin, Mackay/Whitsunday region and the Rockhampton/Livingstone area. Programs completed excluded the Galilee Basin.

The CIPA stipulates that the Queensland Government will continue to support sustainable development by (among other things):

- Continuing to provide additional social housing in coal mining regions
- Undertaking a range of planning studies to provide demographic and social data upon which government agencies can make informed and robust decisions in respect to the social infrastructure needs of coal mining communities
- Completing the Bowen Abbot Point Accommodation and Community Infrastructure Study which aims to ensure the supply of community infrastructure can meet population growth as a result of the potential industrial development in the region (Bowen).

5.2.3 Priority Development Areas

The Priority Development Areas (PDAs) formerly known as the Urban Development Areas facilitate the delivery of affordable housing, including facilitating the availability of land, the provision of infrastructure and greater diversity in housing, in priority greenfield areas, recognising that communities need to discuss what level and type of growth may be appropriate for their region. These are facilitated by the Economic Development Queensland (EDQ) formerly known as Urban Land development Authority (ULDA).

The two closest PDAs to the Carmichael Coal project area are at Blackwater and Moranbah.

The Moranbah PDA was declared on 30 July 2010 and is a 1,218 hectare area comprising land within the existing Moranbah town and a large site to the west of Goonyella Road. It includes large areas of vacant land, part of the golf course and a small amount of residential and industrial land. The development of this area aims to ease pressures on housing expected from growth in the resource sector by bringing land to the market quickly and delivering a diversity of housing to suit the needs of the growing Moranbah community. To allow further consideration for improved planning for accommodation villages, mining camp applications will not be considered within certain areas of the Moranbah PDA during the 12 months of the Interim Land Use Plan (ILUP).

Notwithstanding changes to EDA announced in July 2012, discussions with the EDA confirmed that development in Moranbah will continue to be delivered in accordance with the currently agreed plan as construction contracts have been awarded.

5.2.4 ClimateQ

The ClimateQ strategy builds on ClimateSmart 2050 and positions Queensland's coal and power generation industries for a low-carbon future, including outlining conditions for coal-fired power generation and links power generation with Queensland's commitment to carbon capture and storage. It provides a policy environment that support low-emission coal technologies.

5.2.5 Queensland Land Access Policy Framework

The Queensland Land Access Policy Framework aims to foster improved relationships between the agriculture and resource sectors. These laws came into effect from mid-December 2010 for the minerals and coal exploration sector and provide landowners with greater protection and security about their rights related to land access by resource companies. The framework also sets out a standard for conduct and compensation and provides landholders with a clear framework for negotiated compensation.

Resource companies must comply with the Land Access Code which includes guidelines and requirements relating to:

- Communication between parties and notice of entry and conduct of activities
- Orientation and induction training for people entering site
- Access points, road and tracks
- Treatment of livestock and property
- Pest management
- Camps
- Items brought onto property
- Gates, grids and fences.

The policy recognises that access to agricultural land for the purposes of exploration and related project development activities such as environmental surveys can cause a range of disruptions to agricultural activities as well as affecting the privacy and amenity of landholders. These disruptions can in turn can affect productivity and lead to additional costs for landholders. The policy also creates stronger compliance and enforcement powers for government where breaches occur.

This policy is an important recognition of the effects of development of resource projects on landholders and puts measures in place to minimise these impacts.

5.3 Local and regional policies and plans

5.3.1 Mackay, Isaac and Whitsunday Regional Plan

The MIWRP has been prepared for the purposes of managing growth and change within the MIW region in the most sustainable manner (Queensland Government, 2012). This statutory plan is developed under the Sustainable Planning Act 2009 and provides a policy framework to guide decision making for managing the region's growth and management until 2031 (Queensland Government, 2012). The MIWRP must be considered in development and planning approvals under the Sustainable Planning Act 2009.

The MIWRP describes the region as a significant growth area, having the fastest growing economies in Queensland. These economies include mining, agriculture and tourism. Tourism activities are most dominant within the Whitsunday Regional Council, with key tourist and service centres of Airlie Beach and Cannonvale area providing access to the Whitsunday Islands. Due to the presence of the nation's largest coal deposit, Bowen Basin, coal mining is the major industry and largest employer in the region (Queensland Government, 2012). Sugar, horticulture and grazing industries are spread throughout the region.

The MIWRP aims to help the region meet the opportunities and challenges associated with population growth and change. It will plan for essential infrastructure services, particularly transport, and all forms of community requirements including accommodation, education, health and community and social services. The MIWRP will also identify land intended for future residential development, in the context of other environmental and industrial land use.

5.3.2 Regional Development Australia Mackay Whitsunday Regional Roadmap (2011)

Regional Development Australia (RDA) is an Australian Government initiative that brings together all levels of government to enhance the growth and development of Australia's regions. A national network of RDA committees has been established to achieve this objective. RDA in Queensland is a partnership between the Australian and Queensland Governments and involves a network of 12 RDA committees. The key functions of RDA Committees are to:

- Consult and engage with the community
- Inform regional planning
- Engage in whole of Government activities
- Provide advice on priorities for government funding to assist the region in maximising and leveraging government programs and funding opportunities
- Promote whole of government programs policies and initiatives
- Guide community and economic development.

The Mackay/Whitsunday RDA Committee supports the regional council areas of Mackay, Isaac and Whitsunday and has produced the first Regional Roadmap for the Mackay-Isaac-Whitsunday Region through research, consultation, engagement and listening to the community (Regional Development Australia, 2011). The Committee will conduct consultation processes annually to inform its actions in these roles.

In summary, the Mackay Whitsunday Regional Roadmap identifies the following challenges for the region:

- Infrastructure needs relating to water, sewerage, power, affordable housing and road infrastructure. This is exacerbated by government service provision and funding being aligned to regional statistics that exclude transient workforce and visitors, who further increase the need for infrastructure and the geographic spread of population increasing the cost of services and infrastructure provision
- Securing and retaining skilled and semi-skilled staff
- Lack of tourism product outside the coastal Whitsundays
- Poor service standards
- Need for coordinated regional leadership and consistent boundaries across agencies
- Need for more services including child care, youth facilities and public transport system
- Over-reliance on bulk primary commodities such as sugar and heavily reliance on coal mining.
- Cumulative impacts of mining including the population growth impacts.

Projects that RDA Mackay Whitsunday is promoting include:

- Infrastructure to support growth
  - Clermont to Alpha Road (Councils, Mackay Whitsunday Regional Economic Development Corporation (MWREDC) Department of Transport and Main Roads)

  - Mackay by-pass ('ring road') (Mackay Regional Council, Department of Transport and Main Roads)
  - Telecommunications and high-speed broadband (MWREDC)
  - Multi-cargo port facility and SDA Abbot Point (North Queensland Bulk Ports Corporation, State Government, Whitsunday Regional Council, Enterprise Whitsundays).
- Economic diversification and value-adding to the region's industries (RDA Role)
- Tourism product development (RDA role)
- New and emerging industries (Possibilities include – Recycling, clean coal, bio fuels, knowledge precincts, innovation, financial services, food processing, marine industry support services, government administration and agencies)
- Sustainable resource communities – mining companies are considered to be the partners in addressing the pressures on infrastructure created by transient populations and supporting sustainable communities by contributing to the development of infrastructure and the conversion of FIFO to permanent residents within communities (as opposed to FIFO)
- Partnerships in regional planning
- Leadership development program
- Regionalisation/futures strategy for Mackay-Isaac-Whitsunday Region
- Strong and connected communities reducing siloed approaches to addressing the issues of affordable housing, education, training, youth care and healthcare, we can achieve more for our communities
- Infrastructure to support communities – this includes roads, water, sewerage, coastal management, community services, affordable housing
- Places for people – such projects include: town centre revitalisations, entertainment precincts and exhibition areas, main street projects, community and sporting facilities, green spaces, parks and gardens
- Enhanced landscape sustainability –- this includes: protecting bio-diversity, building the identity of communities, smarter use of limited resources such as water and energy, maintaining liveability factors, land-use planning and development aligned with community expectations.

5.3.3 Isaac Region 2020 Vision 2009-2019 (Community Plan)

The *Isaac Regional 2020 Vision* (Isaac Region Community Plan) is a long-term, strategic planning document prepared under the *Local Government Act 2009*. The Isaac Region Community Plan identifies values, existing assets and resources and prioritises opportunities and challenges the Isaac region community has identified as important. The following list is a sub-set of actions identified as priorities in the Isaac Region Community Plan to be considered when formulating social impact management strategies for the Project:

- Affordable and available housing

- Safe roads and transport (including signage, impact of heavy industry on Peak Downs Highway and other local roads)
- Maintaining a safe community, especially for children, youth and the aged
- Conserving natural environment and build places for recreation
- Fast tracking the development and implementation of Clean Coal Technology
- Minimising cumulative impacts of coal mining (including improved monitoring and management by proponents)
- Managing integration of FIFO workforce and camps into local communities or supporting local migration into the communities
- Integrating mine closure planning into decision making about community relations investments and implementation of social impact management strategies (to contribute to town sustainability when mining industry or project changes or is impacted by factors such as global markets)
- Provision of transport and power supply infrastructure.

5.3.4 Charters Towers Our Region Our Future 2035 (Community Plan)

The *Charters Towers Our Region Our Future 2035* (Charters Towers Community Plan) document represents the CTRC's vision for the Charters Towers community in accordance with the *Local Government Act 2009.* It addresses all areas of community life which affect the lifestyle of the Charters Towers regional population over time, with sustainability, health, economic development, education, safety and security as key focal areas. The community plan identifies the key issues and concerns of the Charters Towers regional community, regardless of which levels of the public, private or community sectors are ultimately responsible for delivering programs and services (CTRC, 2011).

The following list is a summary of the key opportunities identified in the Charters Towers Community Plan that may be relevant in formulating social impact management strategies:

- Provision of mining services and facilities
- Education, training and skills development through key projects such as the Dalrymple Trade Training Centre
- Airport development to stimulate increased business, passenger and regional access
- Integrated approach between government agencies and the private sector to encourage business to the region
- Providing safe and effective integrated network services and choices, comprising:
  - transport (road, rail and air services) and cycle and pedestrian infrastructure
  - essential services including water, sewerage, waste and communications
  - community and environmental services, facilities and resources
- Developing highly skilled workforce and diverse population base which is seen as integral to the delivery of a truly integrated and sustainable future for the region

- Focusing on maximizing opportunities from the resource sector in the short- medium term and at the same time planning for continued economic growth beyond the resource boom is critical to delivering a vibrant, resilient and diversified economy
- Promoting and developing the region as a leading services and technology solutions provider, supported by a highly skilled and locally trained workforce, dedicated to research, development and innovation.

5.3.5 Tomorrow's Mackay – A vision for the community – Community Plan 2011 – 2031

The *Tomorrow's Mackay – A vision for the community 2011 – 2031* (Mackay Community Plan) document sets out a long term vision, together with actions and strategies to achieve the vision for the community. The plan was developed in accordance with the *Local Government Act 2009* and is focused on nine planning themes.

The Mackay Community Plan identifies a number of opportunities and strategies based on the nine planning themes to assist in achieving the community vision. Some key opportunities that were relevant to consider in developing the SIMP for the Project include:

- The importance of developing and maintaining strong relationships between major stakeholders in the economy
- Goal to be a region renowned as a leader in research and development, and skills and training attract and develop a skilled workforce by promoting the region as a lifestyle destination with quality education facilities
- Importance of all sectors of the community being informed and engaged and given the opportunity for their views to be considered in important decisions that affect them (MRC, 2011).

5.3.6 Central Highlands: Visions for Our Community, Our Region 2022

The *Central Highlands – Visions for Our Community, Our Region 2022* (Central Highlands Community Plan) document is a region-wide plan which sets out plans and goals for 13 communities within the Central Highlands region.

The Central Highlands Community Plan identifies priorities for each community to achieve the regional vision. Some key priorities identified for the Capella and Emerald communities that were relevant to consider in developing the SIMP for the Project include:

- Deliver appropriate regional education and training that is linked to business and industry development and employment
- Support regional business through networking, information and resource sharing
- Attract investment and develop business in the Capella community
- Plan, develop and expand facilities and infrastructure to meet current and future growth, especially transport systems and housing (CHRC, 2011).

5.3.7 Townsville Community Plan 2011 - 2021

The *Townsville Community Plan 2011 – 2021* has been prepared in line with the requirements of the *Local Government Act 2009* to establish goals and strategies for achieving the vision for

Townsville by 2021. The following key goals were relevant to consider in developing the SIMP for the Project:

- Building a dynamic economy
- Promoting the city's role as the service centre for the greater North Queensland region
- Promoting a cost-competitive business environment and encouraging new investment
- Developing infrastructure that supports and stimulates economic development
- Supporting businesses and jobs for the benefit of Townsville and the region
- Proactively planning present and future transport linkages to ensure they allow efficient movement of people and products
- Ensuring that air, rail, road and sea transport movements are protected and enhanced (TCC, 2011).

5.3.8 Local planning schemes

Local government planning schemes provide the framework for assessing development, with a particular focus on land use planning and achieving desired outcomes at a local level. Table 64 lists the planning schemes applicable to each LGA within the Regional Study Area. Planning schemes in place relate to former local government areas prior to amalgamation of local governments into regional councils in 2008. The planning schemes identified were created under the *Integrated Planning Act 1997* and will remain effective under the *Sustainable Planning Act 2009* until new planning schemes are developed in accordance with the *Sustainable Planning Act 2009*.

Table 64 Local Government Planning Schemes

LGA	Planning Schemes
Isaac Regional Council	Belyando Shire Planning Scheme 2008 Broadsound Planning Scheme 2005 Nebo Shire Planning Scheme 2008
Charters Towers Regional Council	Charters Towers City Council Planning Scheme 2011 Dalrymple Shire Council planning Scheme 2008
Central Highlands Regional Council	Bauhinia Planning Scheme 2011 Duaringa Planning Scheme 2011 Emerald Planning Scheme 2011 Peak Downs Planning Scheme 2011
Mackay Regional Council	Mackay City Planning Scheme 2006 Mirani Shire Plan 2007 Sarina Shire Planning Scheme 2005
Townsville City Council	City of Thuringowa Planning Scheme 2003 Townsville City Plan 2005
Whitsunday Regional Council	Bowen Shire Planning Scheme 2006

LGA	Planning Schemes
	Whitsunday Shire Planning Scheme 2009

The majority of Project-related activities will take place in the area covered by Belyando Planning Scheme, with some works taking place in Charters Towers planning scheme area. Note that activities authorised under a mining lease are not subject to local government planning approvals, however local planning schemes can still provide important information and context in relation to compatibility with adjacent land uses and desired outcomes for development.

5.3.9 Clermont Preferred Futures Project

This community economic development initiative is a joint project between IRC and Rio Tinto Coal Australia. The strategy aims to empower the local community and includes a jointly funded position to help implement the plan. The activity constitutes Rio's own managing of its relationship with the local community, maintaining its licence to operate and a belief that the success of the mine relies on a positive relationship with the community.

This document reflects the priorities identified by the IRC specifically in conjunction with activities of Rio Tinto Coal and is unique because of the proximity of Rio Tinto's operations to the town of Clermont. However, in the context of this SIA, this document provides an insight into the nature of the Clermont community (as a community in the regional study area) and its desire for a dynamic and liveable community with a strong sense of self determination and self-reliance

"..Clermont's preferred future is one of a dynamic, vibrant and well-connected community of high liveability, demonstrated by a strong sense of self determination and self-reliance, and which is underpinned by a diverse and robust economy."

Actions and priorities include cultural history, education, tourism, aged and green facilities and programs. More detail about the nature of actions being implemented is required to determine its implications (if any) for the SIMP in terms of social impacts identified for the Project.

The relationship between this document and government-initiated plans and policies (e.g. the Isaac Region Community Plan) is not stipulated.

5.3.10 Isaac Affordable Housing Trust

The Isaac Affordable Housing Trust (IAHT) has been formed to allow access to affordable housing in the Isaac Region to persons who by age, employment, income or other disadvantage, who are unable to source and maintain medium to long term tenancies in rental accommodation in the Isaac Region.

The IAHT is a not-for-profit organisation run independent of the IRC. The IAHT has received land and monetary contributions from both Council and other organisations, including mining companies in the region, to develop affordable housing is in the process of developing additional accommodation in Clermont, Dysart and Nebo.

5.4 Conclusion

Policies and plans developed at various levels of government for Queensland and the regional study area reflect an identified need to manage the adverse effects of resource projects as well as maximising opportunities for local residents and build diverse, self-sufficient and resilient

communities. In addition to imposing some formal compliance requirements on proponents of resource projects, these policies and plans provide important frameworks both for identifying and assessing impacts of projects, and developing management and mitigation strategies that are consistent with local and regional aspirations and initiatives.

The policies and plans discussed above provide the following linkages with the impact assessment and management for this Project:

- Infrastructure – Queensland Government, IRC and regional planning structures recognise the need for infrastructure to support growth and communities in this region. Infrastructure provision for resource projects needs to be efficient and not compromise end users
- Regionalisation – Queensland Government has a policy commitment to regionalisation and IRC and regional planning groups have expressed a preference for permanent residents compared with FIFO workforces
- Housing availability and affordability – The chosen workforce accommodation strategy may have implications for housing affordability and the impact assessment must consider impacts of a local workforce and use of a non-resident workforce. A range of initiatives are in place in relation to affordable housing, including UDA housing affordability programs in Moranbah and Blackwater and the IAHT. These provide a framework for mitigation and management of housing affordability issues
- Economic Development – the councils within the regional study area are committed to maximising opportunities with major industry sectors in their regions to attract investment and support local businesses to promote economic growth. There is also a significant focus across the LGAs on the delivery of education and training to develop a diverse and skilled workforce to service key industries within the region and facilitate sustainable economic growth. This links with studies highlighting potential shortages in key skill areas required for mining and construction projects (see also Section 4.8)
- Consultation – consultation supporting the SIA should take into account consultation processes running at the same time or in the recent past to support the development of the MIWRP, the Mackay Whitsunday Regional Roadmap and the Isaac Regional 2020 Vision. Opportunities to use information gathered through these processes or to dovetail consultation activities should be explored. Management strategies should be devised in consultation at least with Local Leadership Groups and the Queensland Partnership Group established under the SRC Policy. Plans and strategies in place highlight the need for consultation and information provision, but care may also be needed to avoid consultation fatigue among the public, and avoid creating additional workload for State and local government officers
- Land access and acquisition – should be consistent with Code of Conduct and compliance has implications for potential social impacts on individual landowners.

6. Workforce profile

6.1 Introduction

Details of the Project workforce are of particular relevance to the SIA given the size of the Project and the remoteness of the Project (Mine) location. The information contained in this section forms the basis for assessment of potential impacts described in Section 1.

It should be noted that the Project is in its conceptual design stage, and while it is possible to predict the skills required in both construction and operation workforces, workforce requirements for both construction and operation are indicative only. Workforce numbers were developed to enable the development of the SIA at this early stage of the project. Changes in workforce requirements are not likely to affect the overall conclusions of this SIA, but the magnitude of some impacts may change with increases or decreases in workforce numbers.

6.2 Total Project workforce (Mine and Rail)

It is anticipated that the Project (Mine and Rail) construction will commence in 2014, with operations activities commencing in 2015 and first coal expected in 2016. It is expected that the Project will reach peak workforce in 2016 with approximately 4,158 workers as a result of some overlap between construction workforce and operations workforce.

Operations activities will commence in 2015 with a workforce of approximately 800 workers. It is expected that the Project will reach peak operational workforce in 2024 with approximately 3,945 workers, including corporate office support. There will be a small ongoing construction component of the workforce as there will be new infrastructure to be constructed as the Mine develops. The workforce drops significantly from 2015 – 2018 as the scale of construction activities reduces, particularly the rail construction. The total anticipated workforce for the Project in its initial years up until 2028 is shown Figure 18 with the skills breakdown in Figure 19.

The Mine is expected to reach full production of 60 Mtpa from 2022 onwards and, for the purposes of the SIA, it is assumed that workforce numbers will be relatively consistent after this time, ranging between 3,500 – 3,900 workers. As noted in Section 2.11, it is not considered valid to assess social impacts of workforce after this time due to likely changes in demographic and socio-economic characteristics of local and regional populations, as well as changes in government policies and planning frameworks, mining technology and other factors out of the sphere of Project influence. Detailed workforce data is presented in Appendix B.

Figure 18 Total anticipated project workforce

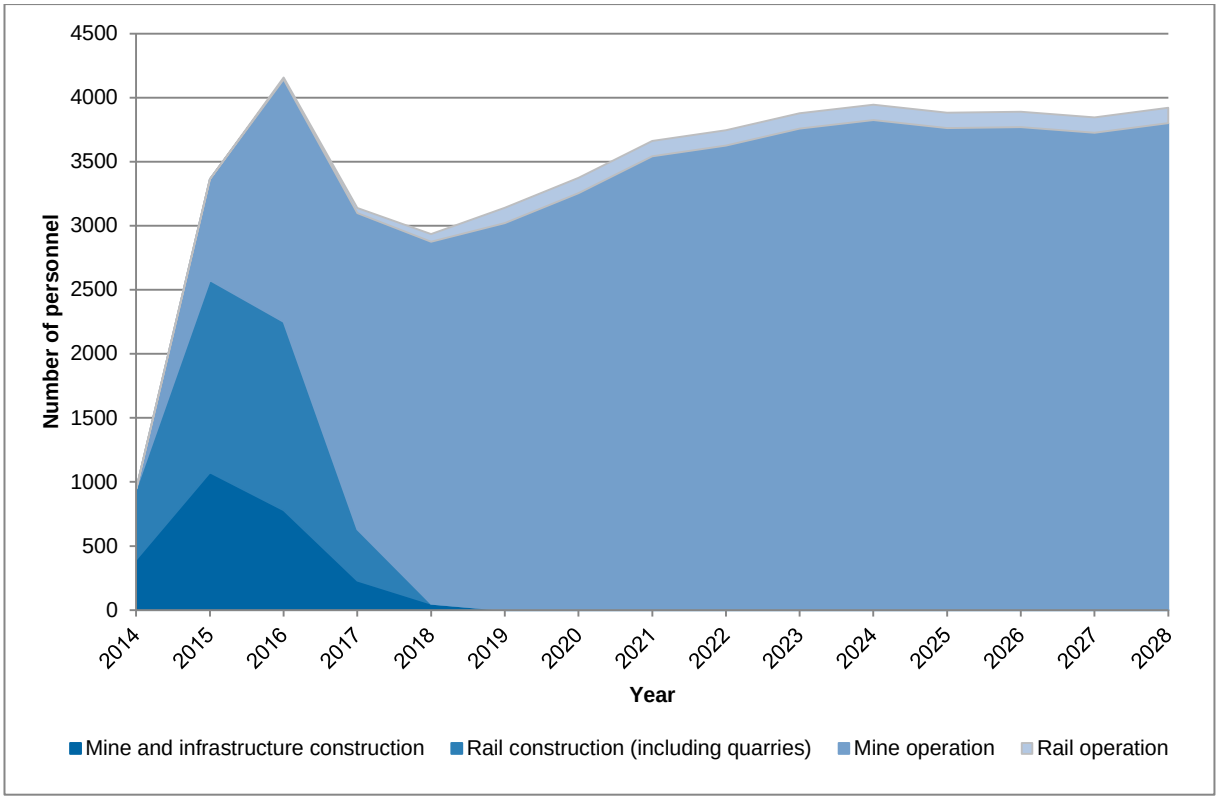
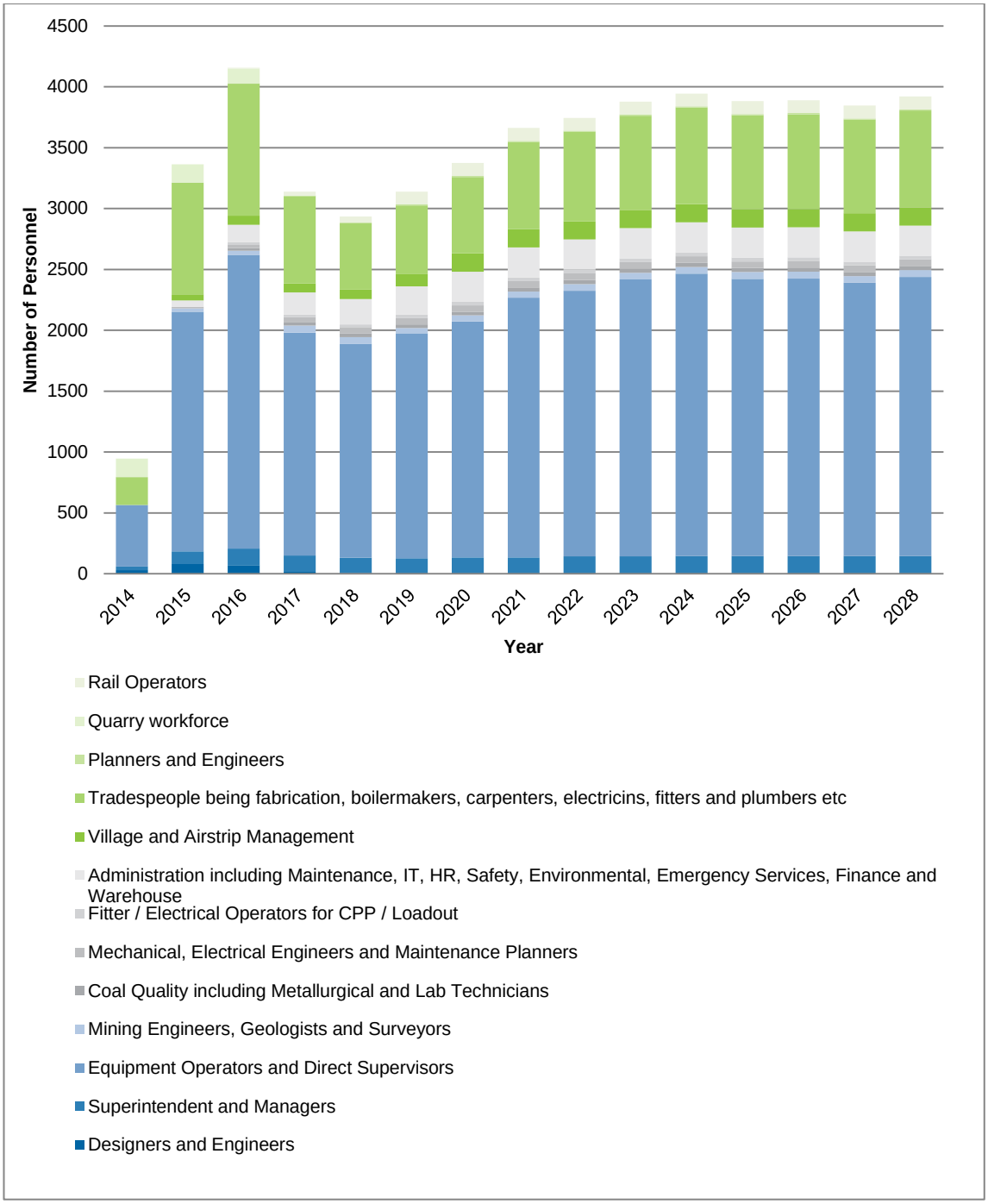


Figure 19 Project total workforce skills



6.3 Carmichael Coal Mine

6.3.1 Construction workforce

Construction of the Project is scheduled to commence in 2014 following receipt of environmental approvals and land acquisition processes. Initial construction activities will relate to off-site infrastructure such as road upgrades, the new airstrip and water storages and water supply pipelines and the workers accommodation village as well as on-lease infrastructure

required to commence mining activities. Construction activities on-lease will then continue to develop infrastructure to meet requirements of the staged development of the Mine. There will be an overlap between construction and operational workforce at the Mine site for a number of years until all stages are constructed, and an ongoing requirement for a small construction workforce to construct infrastructure required as the Mine expands.

The construction phase for the Project (Mine) will include works such as construction of the open cut and underground mining operations, haul roads, train load out and coal handing processing plant (CHPP), conveyors, feeders, workshops, equipment storage, administration building, and other components within the mine infrastructure area.

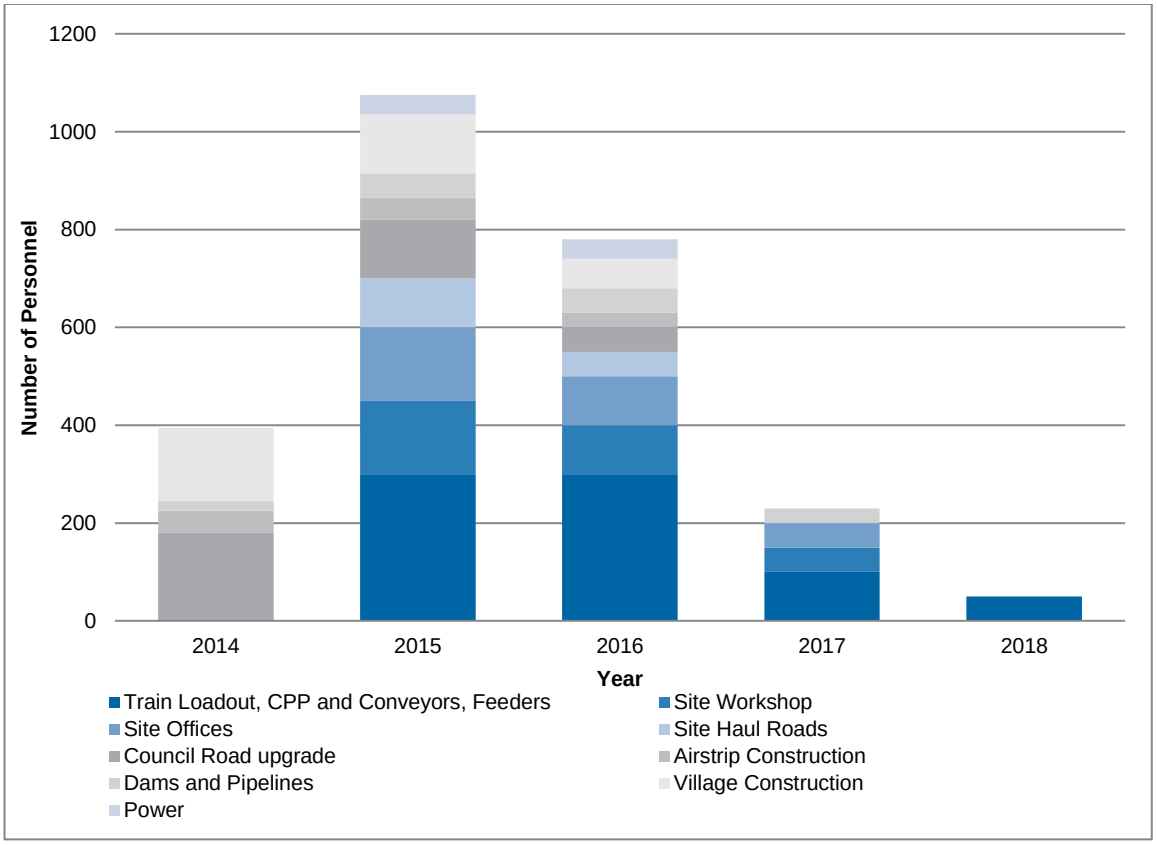
Construction workforce accommodation (Mine)

Construction of the Project's (Mine) workers accommodation village is anticipated to commence in 2014 to accommodate mine construction workers. Until then the Project (Mine) construction workforce will be based in the existing temporary workers accommodation which is currently on the Project (Mine) site.

Construction workforce numbers (Mine)

An initial workforce of 395 persons is anticipated for the pre-construction phase. Figure 20 shows the workforce numbers for the construction period with details of the number of personnel required for each different component of construction (onsite and offsite infrastructure).

Figure 20 Mine Construction workforce by year



Construction workforce recruitment and source (Mine)

During the construction phase, recruitment and management of the workforce will largely be the responsibility of contractors and subcontractors appointed to undertake various components of the project. As these contractors are not yet appointed, it is not possible to provide details on where workforce may be sourced.

Due to the remote location of the Project (Mine) site, it is expected that most construction workers will be on a fly in/fly out (FIFO) basis. Based on similar projects in Queensland, workers would be collected from one or more population centres on the east coast of Queensland and flown to the proposed airstrip adjacent to the proposed mine. Collection points may include South East Queensland, Rockhampton, Mackay, Whitsunday (Proserpine airport), Townsville and Cairns.

This may mean that FIFO construction workers reside at this nominated point, or will travel from their place of residence, which could be anywhere in Australia, to this point to commence travel to the mine. Optimal collection points will be determined after full consideration of:

- Skilled workforce availability in the immediate vicinity of airports
- Airport capacity and flight schedule performance
- Surrounding infrastructure such as public transport and parking
- Training facilities to ensure long term efficient and reliable transit for workers.

While it is not currently intended to recruit workers from overseas, it is likely that a small number of overseas workers will be required from time to time when particular specialist skills or experience not available in Australia are required, or to assist with installation or commissioning of plant or equipment manufactured overseas. This is likely to make up only a very small proportion of the overall workforce. Should overseas workers be required to supplement the local workforce, Adani will consult with the Queensland Government in regard to the number, occupation and migration program under which they would be sourced.

The remoteness of the site and short term nature of most construction work positions will tend to limit opportunities for local recruitment during the construction phase. The distance from Clermont to the proposed mine by road is about 200 km, with driving times varying depending on road conditions. Due to these distances, drive in/drive out (DIDO) or bus in/bus out (BIBO) on a shift basis (that is, where workers return to their usual place of residence after each shift) is unlikely to ever be considered feasible as the travel times would exacerbate risk of fatigue which can be a significant cause of workplace accidents and injuries. DIDO or BIBO on a roster basis (that is, where workers live at accommodation facilities for a set roster, then return to their place of residence once this roster is complete) can be considered once a reliable, all weather access road is available, between the Gregory Developmental Road and the Project (Mine) site.

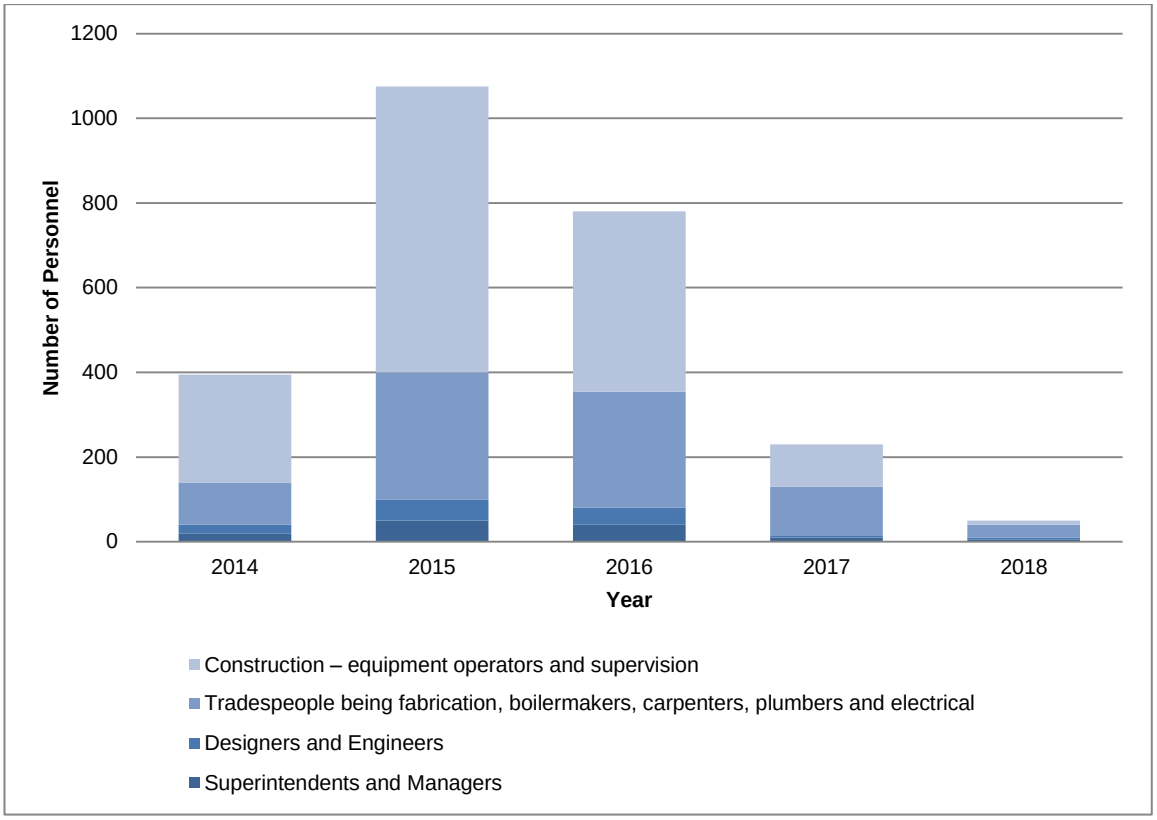
Adani has entered into an agreement with the IRC about the maintenance of the Moray-Carmichael Road to support mine exploration and investigative activities.

Adani is finalising discussions with the IRC about upgrading and realigning the road to support the construction and operation of the Project. These discussions are likely to result in a formal agreement between the IRC and Adani.

Construction skills base (Mine)

Skills required for the construction of the Project (Mine) are shown in Figure 21. Construction operators and supervisors are the skills with the largest requirement followed by tradespeople.

Figure 21 Project (Mine) construction skill requirements



Construction workforce rosters (Mine)

A number of roster configurations are currently under consideration for both construction and operation and are yet to be finalised. In any event, rosters will generally be at the discretion of contractors undertaking construction works. It is expected they will be consistent with current industry standards, with particular regard to managing fatigue of workers.

Construction workforce training (Mine)

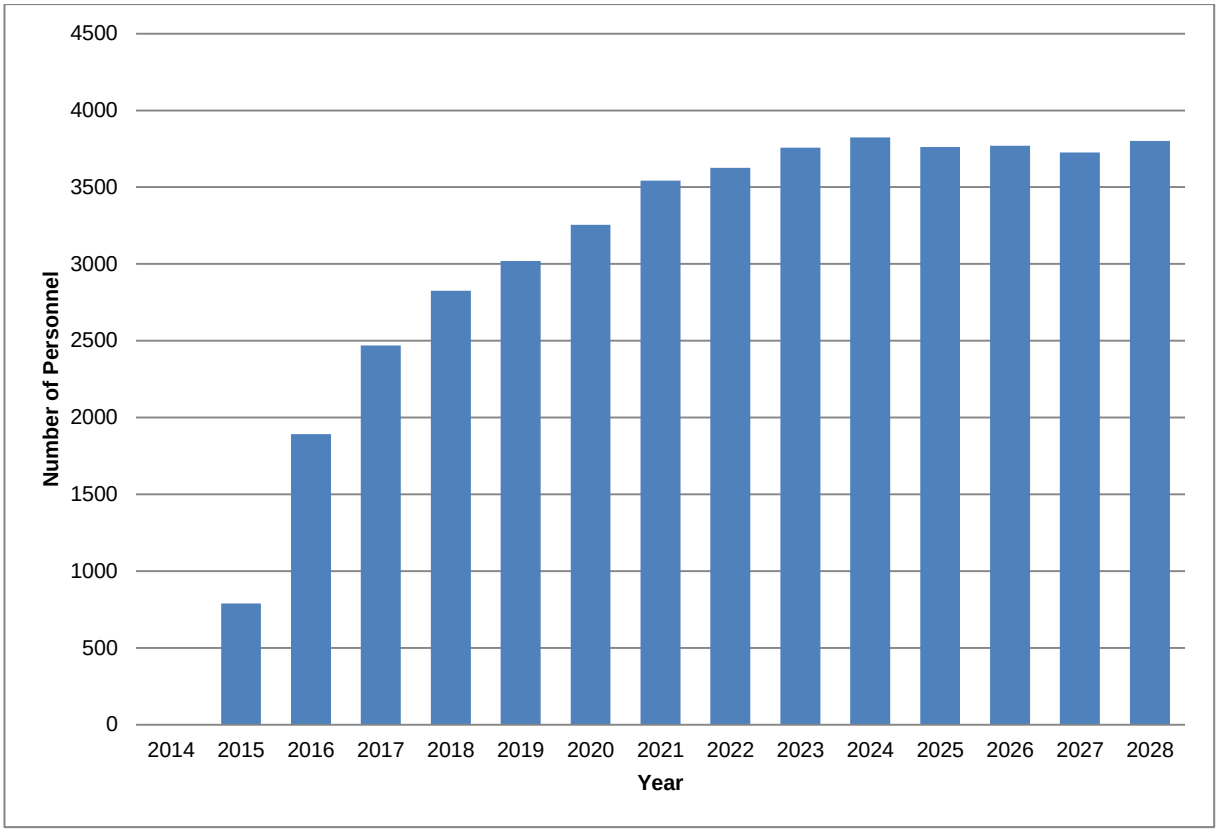
As most workers involved in the construction phase will be employed by contractors and subcontractors, training of workers will be the responsibility of these employers. Given current and predicted skill shortages in many areas of construction, most contractors already have training programs in place to address potential shortfalls. Notwithstanding this, Adani is developing a number of programs addressing workforce education and training. Further information on these is provided in section 8.6.3.

6.3.2 Operational workforce numbers

First coal production from the Project (Mine) is expected in 2016. However, preliminary operational activities will commence in 2015. The operations workforce will ramp up from 789 in 2015 to a peak of approximately 3,800 by 2024. It is expected that the workforce will remain above 3,400 from 2022 til 2048.

The workforce will drop to over 2,400 when underground mining ceases production by 2059, and will gradually reduce from year 2062 as the production slows and the Project (Mine) ceases production.

Figure 22 Project (Mine) total operational workforce



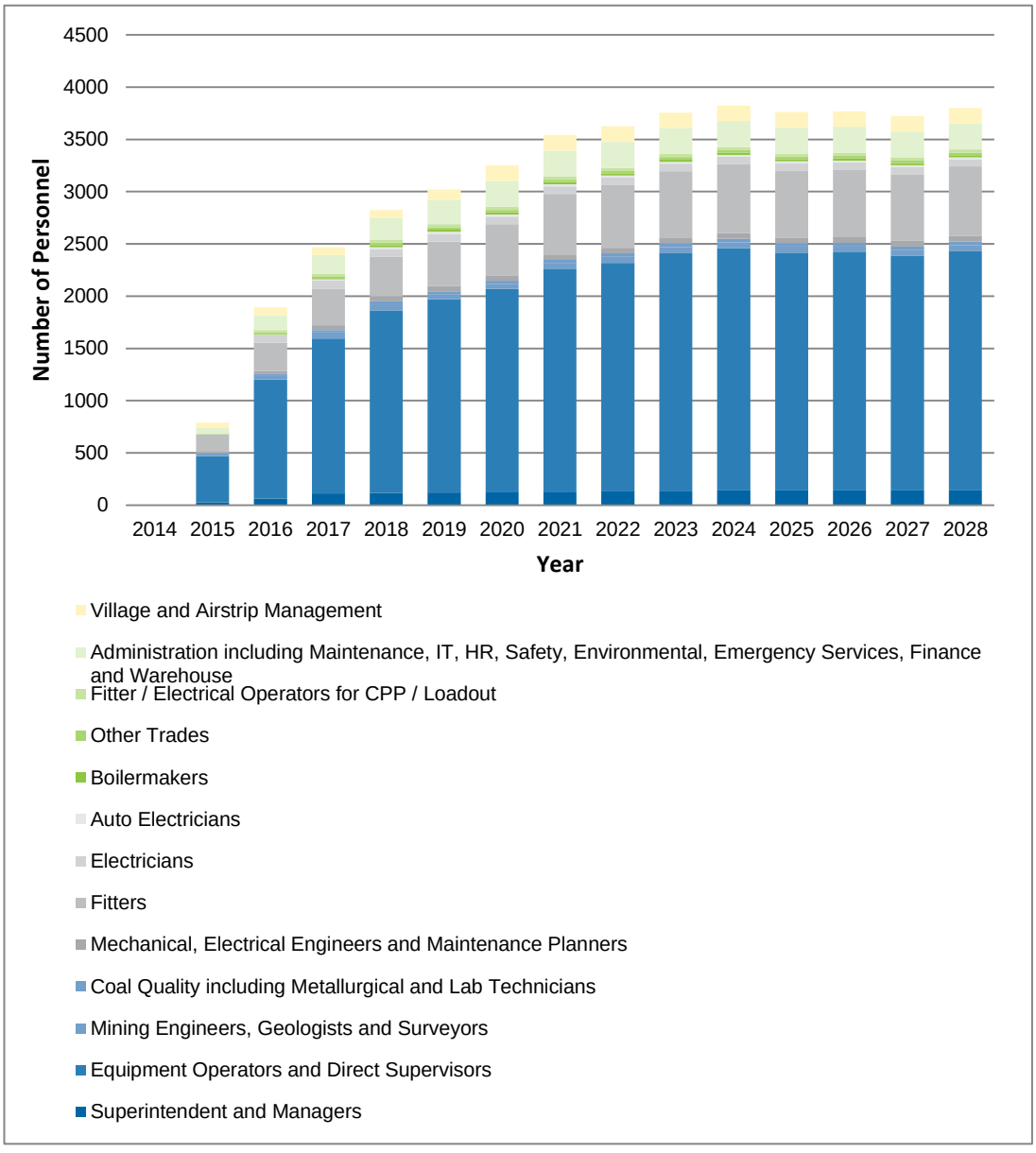
Operations workforce skills base (Mine)

Operation of the Project (Mine) will require workers in the following categories:

- Open cut and underground mine operators including operation of excavators, dozers, drag lines and longwall mining equipment
- CHPP operators
- Tradespeople including diesel fitters and electrical tradespeople and mechanical fitters
- Technical services and support including: geological, engineering, health safety and environment services and laboratory and quality control.
- Machinery operation and maintenance workers
- Managers and production supervisors
- Administrative and support areas such as office staff, catering, cleaning and transportation.

The proportion of skills required for Project (Mine) operation is shown in Figure 23.

Figure 23 Project (Mine) operation skill requirements



Operations workforce source (Mine)

During the operations phase, recruitment and management of the workforce will be a combination of responsibility between Adani and contractors and subcontractors appointed to undertake specific components of the project. Given the size and scale of activities, a definitive strategy for the operational workforce will be developed once an assessment of contractor capabilities has been undertaken. As these contractors are not yet appointed, it is not possible to provide details on where workforce may be sourced, but an indication of Adani's intent of potential source regions is provided below.

Adani proposes to utilise a FIFO operations workforce due to its remote location and to minimise the potential impact of the Project on regional communities (such as increased housing prices). FIFO operations will fly between nominated collection points along the east coast to the private airstrip located within the offsite infrastructure area. This does not mean that

workers will have their permanent residence at these locations. Workers may reside elsewhere in Queensland or Australia and travel independently to the nominated collection point, from where transportation to the proposed mine will be undertaken by Adani. Workers and their families may choose to relocate to the collection points, but this would be at the worker's discretion and not directed by Adani.

Optimal collection points will be determined after full consideration to skilled workforce availability in the immediate vicinity of airports, airport capacity and flight schedule performance, surrounding infrastructure such as public transport, parking and training facilities to ensure long term efficient and reliable transit for workers.

Adani is committed to providing flexibility for its workforce such that workers from the regional study area have access to employment opportunities. However, the proposed mine is more than 200 km by road from the nearest settlement of Clermont and over 300 km from the larger towns of Emerald to the south and Charters Towers to the north.

Adani is committed to considering DIDO or BIBO arrangements out of regional centres including Clermont, Emerald and Charters Towers subject to availability of suitable workforce in the region (particularly based on the fact that there is low unemployment in the region) and subject to road infrastructure is improvement, with consideration for the potential traffic volumes, reliable all-weather access roads, including access between the Gregory Developmental Road and the Project (Mine) site. Any DIDO or BIBO arrangements would require workers to stay at the accommodation village during their rosters due to the remote location of the Mine. Therefore, DIDO or BIBO from the local community is unlikely to be feasible until such time road access between the Gregory Developmental Road and the Project (Mine) site is more resilient and to a standard that permits all weather access.

Given the remoteness of the mine site from the nearest population centres, and the proposed travel arrangements, it is unlikely that people will relocate to the nearest regional centre to work at the proposed mine. In terms of recruitment, the preference will be to source as many personnel from within Queensland and Australia first, including training programs to up skill those in the Australian labour market to meet the needs of the Project. Alternative sources of the required workforce, such as personnel from overseas, will be considered only where the Australian labour market cannot meet the needs of the Project and it is not possible to address shortages through training programs. It is not currently anticipated that any operational workforce requirements will be sourced from overseas. In case it is required to source workforce from overseas suitable management measures will be put in place and are outlined in the Workforce Management Plan (refer to Section 8.6)

Operations worker accommodation village and airstrip (Mine)

A worker accommodation village will be constructed approximately 15 km east of the Project (Mine) site with access from the Moray Carmichael Road. Once completed, the workers accommodation village will accommodate up to 3,800 rostered persons (3,500 beds) to fully meet the requirements of the operational workforce. The camp will be developed as a series of accommodation unit clusters to promote a community environment, with each cluster having access to its own recreation and other facilities. Further details of the workers accommodation village are included in SEIS Volume 2, Section 2, Project Description (Mine).

The accommodation village will include facilities such as:

- single rooms with ensuite bathrooms

- reception / site management offices
- kitchen and dining areas
- Recreational facilities including gymnasium, pool, multi-purpose fields, soccer fields, barbecue areas, a tavern and landscaped areas
- medical clinic
- Water supply and treatment
- laundry facilities including commercial laundry and linen stores
- sewage treatment
- power infrastructure
- water tanks
- hazardous materials and chemical storage
- wireless internet and mobile communications

An airstrip will be developed between the Project (Mine) accommodation village and the Project (Mine) site to meet the requirements of a FIFO workforce. It is anticipated that workers will travel from the workers accommodation village and temporary construction camps to the Project (Mine) and Project (Rail) sites via buses or 4WDs.

Operations workforce rosters (Mine)

As per the other components of the Project, rosters will be determined after further consultation and determination of personnel requirements.

Operations workforce training (Mine)

Adani is in the early stages of developing a workforce training and development policy and program for its Australian operations. As there are current and predicted skill shortages in engineering and technical disciplines required for mine operation, Adani is aware that a focussed training and development program will be required to sustain its workforce. Further information on Adani's proposed training and development programs is provided in Section 8.6.3.

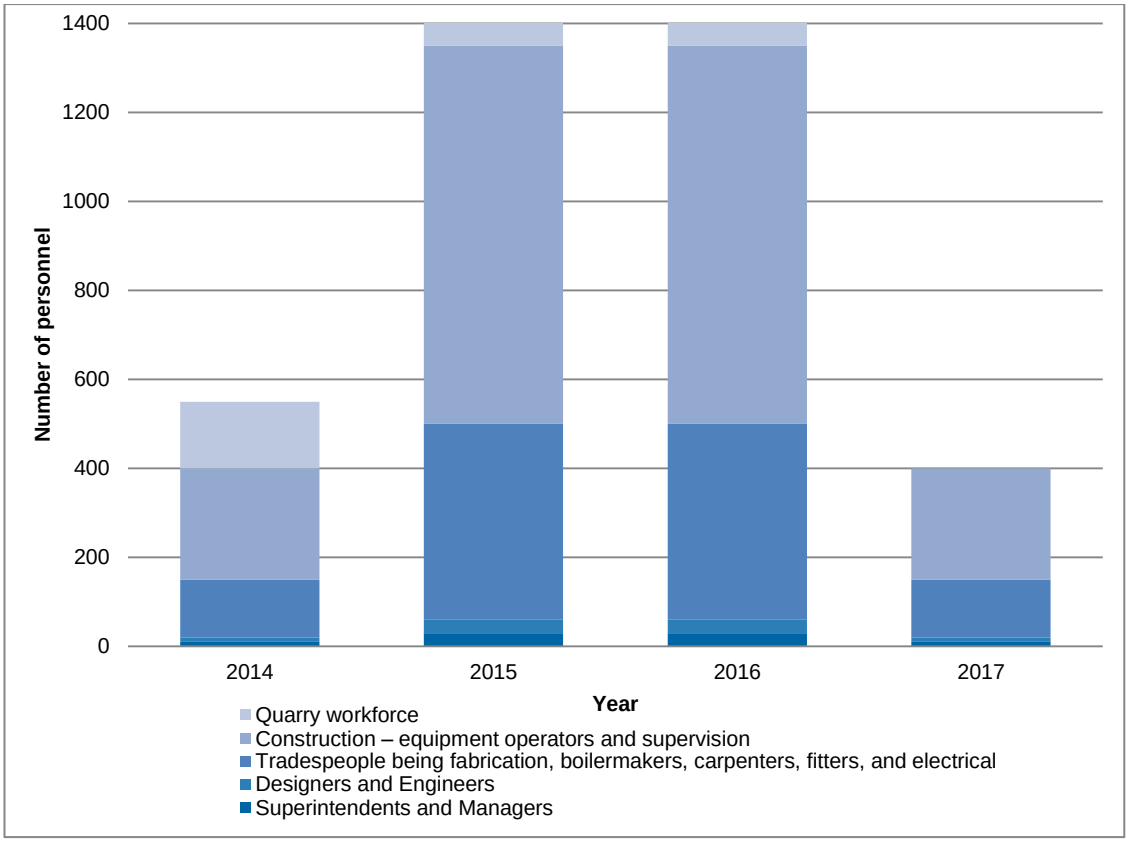
6.4 Carmichael Rail Line

6.4.1 Construction workforce

Workforce requirements

Estimations for the construction workforce numbers are based on a benchmarking exercise undertaken by Aarvee Associates (2011) with previous similar projects to identify the likely level of construction workforce required for the Project (Rail). However, as discussed in Section 6.1, the project is at a conceptual stage, and hence workforce estimates are indicative only at this stage. During construction a variety of skills will be required to complete the Project. This includes labourers, tradespeople, machinery operators, engineers, surveyors and site supervisors. The overall number of construction workers and range of skills required for the construction of the Project (Rail) are shown in Figure 24.

Figure 24 Project (Rail) construction skill requirements



Origins of construction workforce

During the construction phase, recruitment and management of the workforce will largely be the responsibility of contractors and subcontractors appointed to construct the railway line and associated facilities. As these contractors are not yet appointed, it is not possible to provide details on where workforce may be sourced.

Due to the remote location of much of the proposed railway alignment, and the short term nature of construction activities at any one location, it is expected that most construction workers will be on a FIFO basis. Based on similar projects in Queensland, workers would be collected from one or more population centres on the east coast of Queensland and flown to the nearest airport and then transferred to temporary construction camps by bus. Collection points may include South East Queensland, Rockhampton, Mackay, Whitsunday (Proserpine airport), Townsville and Cairns. This may mean that FIFO construction workers reside at this nominated point, or will travel from their place of residence, which could be anywhere in Australia to this point to commence travel to the construction site.

Recruitment of workers from overseas is not expected as most skills required to construct the railway line are available within Australia. A small number of technical specialists may be required for short term assignments.

The remoteness of much of the alignment and short term nature of most construction work positions will tend to limit opportunities for local recruitment during the construction phase. Due to large travel distances, particularly at the western end of the railway alignment, any workers recruited locally would most likely still be required to reside in the temporary construction camps

when on roster as fatigue management requirements will prevent long drives at either end of a shift. Short term employment opportunities for local residents may include working in the camps as well as equipment operation and labour for construction of the railway line and bus drivers. As construction work opportunities are short term, it is also unlikely that workers will relocate to the region with families.

Accommodation

Temporary construction camps (includes the workers accommodation village) will be developed to house construction workers for the Project (Rail) and at the western end of the alignment, rail construction workers will be housed at the mine workers accommodation village. The temporary construction camps will be relatively evenly spaced along the rail alignment approximately 60 km apart reducing the distance construction teams need to travel to a maximum of about 30 km from each camp to the furthest work point. The temporary construction camps are intended to cater for a capacity of 400 persons per camp for the rail construction workforce. The quarry workforce will be accommodated in rail camp 2.

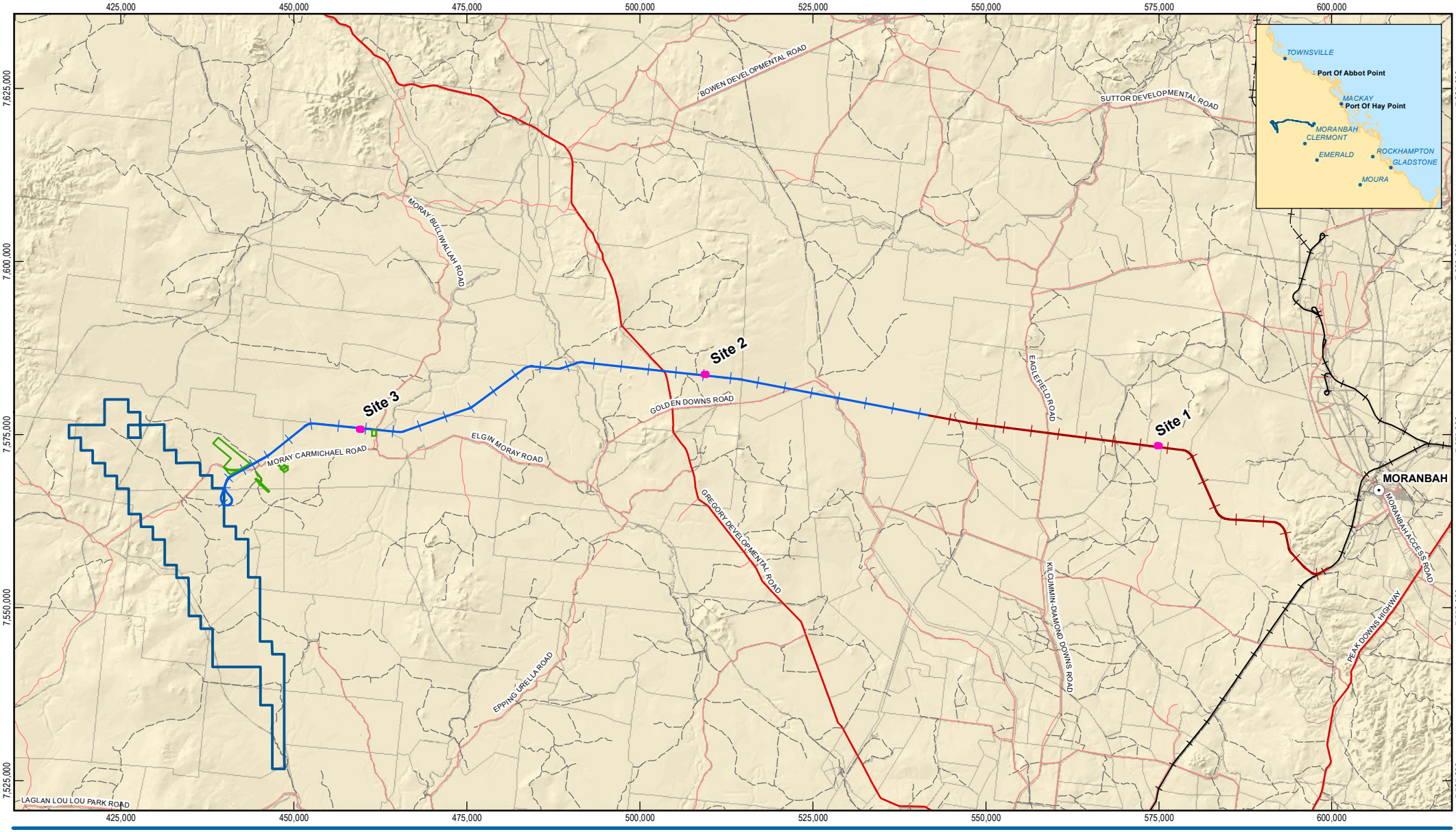
The temporary construction camps will be located as close to the proposed alignment as possible. A construction access road will be built along the proposed alignment and will provide access from the temporary camps to construction areas. Buses and four wheel drives will be used to transport workers from the temporary construction camps to the work areas for each shift. Indicative locations for the temporary construction camps have been identified and are shown in Table 65 and Figure 25.

Table 65 Location and capacity of temporary construction camps

Camp	Location (east-west)	Capacity	Lot on plan
1	Rail (East) (35.0 km)	400	Lot 7 on SP233102
2	Rail (west) (101 - 102 km)	400	Lot 4 on SP116046
3	Rail (west) (154 km)	400	Lot 662 on PH1491
4	Rail (west)	400	Lot 662 on PH1491 (co-located with the Project (Mine) workers accommodation village on Moray Downs)

Camps will require the following services:

- potable water
- sewage and wastewater collection and treatment/disposal facilities
- electricity
- communications
- laundry facilities
- solid waste management



1:750,000 (at A4)

0 5 10 15 20 25

Kilometres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 55

N

LEGEND

- Town
- Temporary Construction Camp
- Existing Railway
- State Road
- Local Road
- Track
- Rail (West)
- Rail (East)
- Mine (Onsite)
- Mine (Offsite)
- Cadastral Parcel

Adani Mining Pty Ltd

Carmichael Coal Mine and Rail Project SEIS

Estimated Location of Rail Temporary Construction Camps

Job Number 41-26422
Revision B
Date 14-10-2013

Figure 25

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Level 9, 145 Ann St Brisbane QLD 4000 T +61 7 3316 3000 F +61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data source: DERM: DEM (2008), DCDB (2010), Physical Road Network (2011); DME: EPC1690 (2010), EPC1080 (2011); © Commonwealth of Australia (Geoscience Australia): Localities, Railways (2007); Adani: Alignment Opt9 Rev3 (SP1&2) (2012), Construction Camps (2011); Gassman/Hyder: Mine (Offsite) (2012). Created by: BW, jvc

Rosters

- Rosters for rail construction are still being developed and a number of roster arrangements are being considered. Adani is seeking to implement rosters that facilitate strong productivity and a lifestyle balance that will appeal to potential employees.
- Training
- As most workers involved in the construction phase will be employed by contractors and subcontractors, training of workers will be the responsibility of these employers. Given current and predicted skill shortages in many areas of construction, most contractors already have training programs in place to address potential shortfalls.

6.4.2 Rail operational workforce

Operations workforce requirements (Rail)

Rail operations are anticipated to commence in 2016. The railway is anticipated to serve the Project for the life of the Project (Mine). The operational workforce will comprise personnel to operate the rail services and maintain the engines and rolling stock, rail lines and rail facilities. It is expected that maintenance activities will be undertaken by a specialist contractor with only train crew being employed by the Project (Mine).

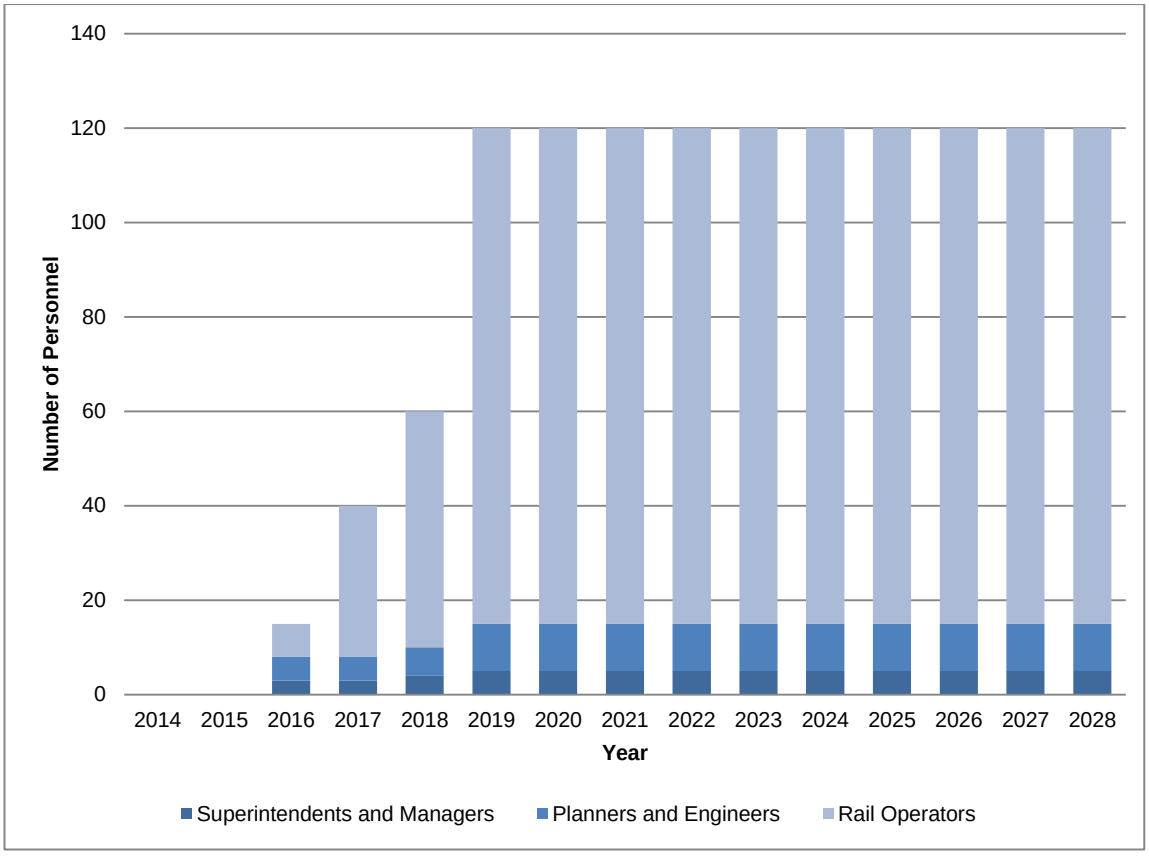
The Project (Rail) will reach its peak 120 person operational workforce by 2019. It is anticipated that the majority of the operational rail personnel will be based out of Bowen and Mackay and will work shifts.

Driver crews, consisting of a driver and co-driver will take empty trains from the East coast to the Project (Mine) where they will rest before returning to Dudgeon Point Coal Terminal or Abbot Point Coal Terminal with full trains. In any 24 hour cycle, three crews (six workers) will be required. Maintenance crews will be based at Mackay or Bowen with a smaller crew at the Mine site. The estimates of the operational workforce and skills for the Project (Rail) are shown in Figure 26.

Operations workforce training (Rail)

Adani is in the early stages of developing a workforce training and development policy and program for its Australian operations. As there are current and predicted skill shortages in engineering and technical disciplines required for mine operation, Adani is aware that a focussed training and development program will be required to sustain its workforce. Further information on Adani's proposed training and development programs is provided in Section 8.6.3.

Figure 26 Project (Rail) operational workforce



7. Potential social impacts and opportunities

7.1 Introduction

This section addresses Part B, Section 4.2 of the ToR and assesses and describes the type, level and significance of the Project's potential social impacts - both beneficial and adverse - on the local and cultural area based upon the community engagement processes and the social baseline study.

Potential impacts have been identified through SIA consultations, desktop review of literature, and information from discussions with landholders held by Adani personnel. As outlined in Section 2.7, a social impact is described by van Schooten et al. (2003) as something that is actually experienced by humans in either a corporeal (physical) or cognitive (perceptual) sense and results directly from the social change processes that are invoked by a project (direct social impacts). Indirect social impacts are a result of changes in the biophysical environment. Further discussion regarding the mitigation and management measures to reduce the impacts are discussed in Section 8.

7.2 Significance of social impacts

The significance of social impacts has been identified using a risk matrix as shown in Table 66 taking into consideration the likelihood and consequence of impacts, feedback from stakeholder groups, duration of the impact, spatial extent of the impact and stakeholder importance of the impact. The risk ratings are also based on experience from similar assessments. Appendix A provides more detail on the significance assessment methodology.

Social impacts and their significance were identified based on the Project information at the time of writing the SIA report and takes into consideration the information provided by landholders, feedback during the EIS public consultation process, regional councils and comparative studies.

Given the potential nature of social impacts during the construction and operational stage of the Project, GHD has adopted relevant International Principles for Social Impact Assessment developed by the International Association for Impact Assessment. This includes the precautionary and uncertainty principle when predicting social impacts. The predicted social impacts and their significance may change as more information about the Project is known (during detailed design, etc.) and the Project is being constructed and operated. Therefore actual social impacts of the Project cannot be known for certain when completing this SIA.

Table 66 Assessment of likelihood and consequence of identified social impacts

Likelihood of social impact	Consequence of social impact				
	1 = Insignificant	2 = Minor	3 = Moderate	4 = Major	5 = Extreme
6 = Almost Certain	Medium	Medium	High	Excessive	Excessive
5 = Very Likely	Low	Medium	High	High	Excessive
4 = Likely	Low	Low	Medium	High	Excessive
3 = Possible	Negligible	Low	Medium	High	High
2 = Unlikely	Negligible	Low	Low	Medium	High
1 = Very Unlikely	Negligible	Negligible	Low	Medium	Medium

7.3 Housing and accommodation demand

7.3.1 Overview of issues

At the time of the EIS and SIA consultations, a concern for the regional community was that the cumulative effects of mining development will exacerbate shortages in housing supply and decrease housing affordability. This leads to higher living costs for everyone, and particularly affects those not employed in the mining sector. The construction and operational workforce will be primarily FIFO with self-contained accommodation, with the potential for BIBO or DIDO depending on whether workers are recruited from regional communities.

These effects have been observed in locations such as Moranbah, where mining takes place in close proximity to the town. Housing prices and rental costs have increased as a result of demands from mining activity as discussed in Section 3.6.

The recent downturn in the mining sector has resulted in the slowing down of economic activities in the Project area and has resulted in workers leaving the area, affecting the housing situation with higher vacancy and a degree of more affordability.

However, there is a strong desire from local communities to attract mine and rail and associated support industry workers and their families into the community. While SIA consultation indicated that land development in Clermont is slow, there has been considerable investment in residential development in the town with 80 townhouses, being the first stage of a multiple stage residential development in Clermont nearing completion. It is understood that all homes in stage 1 are sold, with 50 percent having been secured by Rio Tinto. As outlined in Section 5.3.10, Council is also progressing the development of affordable housing on an existing block in Clermont through the Isaac Affordable Housing Trust. It is intended that this development cater to retirees as well as individuals and families that meet the requirements of the National Rent Affordability Scheme[6].

[6] Established in July 2008, this Australian Government scheme provides financial incentives for investors to purchase new affordable housing that must be rented at a minimum of 20% below the market rent. For more information - http://www.communities.qld.gov.au/housing/housing-services/renting-in-the-private-market/national-rental-affordability-scheme

High costs of housing and rent has potential to disadvantage individuals and families not engaged in the mining sector which is resulting in a 'two-speed' economy. Consultation indicated that there are some concerns regarding lower income individuals and families leaving towns such as Moranbah.

7.3.2 Potential impacts - construction

As outlined in Section 1, construction workforces for both the mine and rail will be provided by contractors and subcontractors and will be on a FIFO basis, staying in purpose built workers accommodation facilities. There will be no requirement to house construction workers in existing accommodation in the region as the workers accommodation village and temporary construction camps will be provided for all workers.

The eastern end of the rail alignment is in closer proximity to larger settlements such as Moranbah, and there is potential for existing residents in these locations to be employed during construction. However these workers will already be living in the area and will not increase demand for accommodation. Given the short term nature of the construction activities and the requirement for workers to utilise the workers accommodation village and temporary construction camps when on-roster, it is not likely that significant numbers of workers will relocate their families to communities in the region such as Clermont or Moranbah.

As noted in Section 6.3, the Project (Mine) construction workforce is proposed to be FIFO, flown directly from a base, or bases, outside of the regional area to the Mine site. The workforce for two of the rail construction camps is also to be flown directly to the Mine site and bussed to camps. The workforce for the two eastern most rail camps is to be flown into Moranbah and bussed to the rail site (refer Section 6.4).

Increased economic activity associated with the construction activities may attract some people to the area, for example to work in local businesses servicing construction activities. This may affect Clermont and Moranbah but is not likely to lead to population growth in excess of that already forecast for these towns, as forecasts undertaken by OESR factor in effects of construction projects. In the larger centres of Emerald, Charters Towers, Mackay and Bowen, additional residents would only be a very small proportion of existing population.

7.3.3 Potential impacts – operation

Mine

As outlined in Section 1 all mine workers will be employed on a FIFO basis and will be accommodated at the mine workers accommodation village. Due to travel distances, it is not proposed to accommodate FIFO workers in Clermont or other regional centres. As workers will be required to stay at the workers accommodation village while on roster and will not be permitted to travel home during shifts, it is unlikely there will be an incentive for workers to relocate their families to towns such as Clermont.

There may be potential in the future, once road infrastructure is improved, to operate BIBO from Clermont and other centres such as Emerald and Charters Towers if existing residents seek employment at the mine but due to travel distances, all workers will be required to live in the mine workers accommodation village when on roster, and will not be able to return home between shifts.

On this basis, it is unlikely that the direct mine workforce will create any additional population increase or pressure on housing in the region.

Increased economic activity associated with the proposed mine may create additional employment opportunities in local and regional businesses which provide support services to the proposed mine. Adani has already engaged some local businesses to provide goods and services to the Project, and it is expected that local businesses will continue to be engaged to provide goods and services during operation of the mine and rail, which may lead to an increased requirement for local business employees and consequently housing. This may also contribute to the cumulative impacts on housing in the region.

Adani is actively engaged with IRC and the community and will continue to work with IRC and the Clermont Preferred Futures group to address affordable housing within Clermont in accordance with current plans and strategies developed through the IAHT. Through membership of Clermont Preferred Futures and other north Galilee Basin or regional industry networks, Adani will monitor impacts of the Project on the regional housing situation and co-operate with the State Government who will be playing a more active role in addressing cumulative impacts in regional resource towns. For the larger population centres such as Emerald, Charters Towers and Mackay, any population increases associated with the proposed mine will be well within forecast population growth and not likely to cause any significant impacts on housing availability and affordability.

Rail

As the rail terminates at Abbot Point or Dudgeon Point, the majority of workers can be expected to be based out of Bowen or Mackay. Rail workers will work shifts, either driving trains or undertaking maintenance activities. Drivers will rest at the Mine workers accommodation village with some rail workers being able to return home between shifts. A small number of rail workers will be required at the western end of the rail operation and will be on a FIFO basis, accommodated at the Mine workers accommodation village.

Bowen and Mackay are both large regional centres with significant labour forces and some labour requirements for the rail component of the project are likely to be met from this existing labour force. Some additional workers and families will potentially be attracted to Bowen or Mackay by employment opportunities but given that the total rail operational workforce is anticipated to be only 120 persons, this is not likely to lead to any significant population increase in proportion to the existing population of these regional centres. Population growth is not likely to exceed forecast growth, and increased pressure on housing availability and affordability is not expected.

7.3.4 Summary of potential impacts on housing and accommodation

Table 67 shows the potential impacts in housing and accommodation.

Table 67 Potential Impacts on Housing and Accommodation

Impact	Timing	Likelihood	Consequence	L/C rating	Impacted party	Status of impact
Mine						
Higher cost of living in Clermont as a result of	Operation	Possible	Moderate	**Medium**	Local community	Negative

Impact	Timing	Likelihood	Consequence	L/C rating	Impacted party	Status of impact
higher housing prices, rental prices as workers in support industries seek to reside in the local community						

7.4 Workforce management

7.4.1 Overview of issues

During the EIS, SIA consultations identified that communities have concerns regarding the presence of non-resident workers. These workforces are predominantly male and stakeholders expressed some concerns regarding behaviour of non-resident workers in towns. As non-resident workers are only present while on roster, there are limited opportunities for integration with the local community and stakeholders raised concerns regarding differences between residents and non-resident workers in terms of aspirations, values and behaviour.

Available crime data does not point to higher incidence of crime in towns such as Moranbah where there is a very high proportion of non-resident workers, however anti-social behaviour and disturbances may not necessarily result in actual criminal charges and hence, statistics may not reveal the full extent of behavioural problems.

However, during the SEIS phase, regional consultations held for other Adani projects revealed that anti-social behaviour from workers in camps was not an issue as a result of improved workforce management and minimal opportunities for workers to interact with communities.

In contrast to these issues, stakeholders also noted that there are benefits in having non-resident workers visit towns, particularly in relation to expenditure at local businesses.

Another emerging issue relating to non-resident workforces is associated with effects on the families of these workers. The absence of one parent while on roster places additional pressure on the other parent who effectively becomes a sole parent during the worker's absence, and also means that the parent working remotely may miss a number of important family events such as birthdays and anniversaries. Parents working away from home may also find it difficult to adjust to the very contrasting environments of life in a workers accommodation village and life in the family home. Even where there are no children at home, the extended absence of one partner can also cause stress in adult relationships. Equally for singles, reintegrating with friends when off roster and back home can be difficult, particularly where social activities at the home base are organised around traditional weekends rather than rosters.

7.4.2 Potential impacts

Local community impacts

The workforce profile in Section 1 provides a description of the anticipated characteristics of the workforce. The data is based on a probable scenario and may be different when actual contracts are negotiated. Construction and operations workforce is proposed to be engaged on a 100 percent FIFO basis, with limited or no opportunity for DIDO or BIBO as outlined in Section 1. It is not proposed to locate any workers in towns such as Clermont due to the travel distances and any workers recruited from Clermont or other regional centres will be required to stay at the workers accommodation village while on roster.

During operations, workers will generally not travel to the site in their own vehicles and, given that the nearest towns are several hundred kilometres by road from the proposed mine, workers are not expected to have the opportunity to travel to these towns while on roster. This is in contrast to towns such as Moranbah where workforce accommodation is often within or in close proximity to the town, allowing workers the opportunity to visit the town for groceries or socialising.

If workers are recruited from towns such as Clermont, Charters Towers or Emerald for example, these workers will return to these towns when off-roster. However, as these towns are the workers' home towns, the sorts of behavioural issues associated with non-resident workers are not likely to emerge.

During construction, some workers on the proposed rail line will be located at temporary construction camps closer to Moranbah. A small number of construction workers may be likely to use their own vehicles to travel to the temporary construction camps, particularly where the workers have specialist tools and equipment to transport. Workers will therefore have some opportunity to visit these towns on rest days. Worker numbers at these temporary construction camps will be smaller than traditional mine operational workforces, and will not significantly increase the proportion of non-resident workers to residents. Nevertheless, there will be a need for construction contractors to develop and implement workforce behaviour management programs to:

- Educate workers on behavioural expectations, including in relation to the consumption of drugs and alcohol
- Provide for discipline of workers involved in anti-social behaviour or disturbances.

Overall, it is unlikely that there will be significant non-resident workforce presence in any of the towns in the study area. Hence, impacts associated with behaviour of workers, and poor integration of workers into local communities are not expected. While adverse impacts on local communities are therefore not expected, the negative aspect of this is that there will be limited opportunity for workers to utilise local businesses. While this is unlikely to result in a downturn in local business, it will also not contribute to faster growth. Potential impacts associated with community values and changes are outlined in Section 7.9.

Family stresses

While it is not possible or practical to relocate workers families to the mine site to keep families together, it is recognised that stress may occur in worker's families and some workers may also suffer from effects of isolation from social and support networks.

Adani is aware of the potential impacts of a large FIFO workforce located a considerable distance from the nearest town and is developing workforce management plans which seek to address these issues, both for workers at the camp, and families. For the operational phase, it is recognised that health and safety encompasses the health and wellbeing of workers. Strategies are outlined in Section 8.6.5 and will include programs in relation to individual health and wellbeing including management of medical conditions when away from home, maintenance of physical fitness, management of stress and isolation, healthy eating and alcohol consumption.

Other workforce issues

As employment in the mining sector tends to pay above the average wage, even relatively young people employed in the mining sector are earning high salaries. During consultation,

some stakeholders noted that many young people employed in the mining sector appear to not have the skills to manage high incomes. As such, there is a perception that many young people employed in the mining sector are financially irresponsible or do not make sound financial decisions.

Table 68 identifies the impacts on workforce and families. Looking to the future Adani will need to develop new roles and ways of working to achieve sustainability. It is clear from the sector and supporting statistical data that there is a need to ensure that the workforce is more flexible.

Table 68 Potential impacts on workforce and families

Impact	Timing	Likelihood	Consequence	L/C rating	Impacted party	Status of impact
Mine						
Physical and mental health isolation, separation from families, etc.)	Construction and Operation	Possible	Moderate	**Medium**	Workforce	Negative
Impacts on families in source communities through separation	Construction and Operation	Possible	Moderate	**Medium**	Workforce and families	Negative
Rail						
Physical and mental health isolation, separation from families, etc.)	Construction and Operation	Possible	Moderate	**Medium**	Workforce	Negative
Impacts on families in source communities	Construction and Operation	Possible	Moderate	**Medium**	Workforce and families	Negative

7.5 Economic growth and regional development

7.5.1 Overview of the issues

Through SIA consultation stakeholders have identified that the proposed mine and rail project may give rise to economic and employment benefits. These can generally be classified into three areas:

- Provision of goods and services to the project from local businesses
- New employment opportunities, apprenticeships and training resulting in long term career pathways for residents of the local and regional study areas
- Flow on benefits in terms of employment and business activity at a regional level from increased economic activity.

7.5.2 Opportunities for local and regional businesses

The proposed mine and associated infrastructure will require a range of goods and services which will be supplied by contractors. Requirements during both construction and operations may include routine and non-routine maintenance of mine plant, civil and structural engineering works, equipment and vehicles, supply of food and other consumables to the workers accommodation village, laundry services, transportation services and services associated with environmental monitoring and rehabilitation. Local and regional businesses may be able to supply some of these services.

Local individuals and businesses have expressed a desire to register their interest for the Carmichael Coal project in relation to employment and the supply of goods and services. Currently, there are a number of businesses within the Clermont locality that service the two existing coal mines in the area, as well as other projects in the region. The following businesses/activities occur in the Clermont locality and are currently involved with mining projects:

- Auto electrical services and mechanical workshop services
- Building construction
- Pipe supplies
- Concrete batching
- Plumbing services
- Electrical contracting
- Road construction and earth moving
- Food supplies
- Steel fabrication
- Fuel supplies transport – overnight and general freight
- Heavy diesel fitting
- Tyre repair services
- Industrial equipment hire
- Waste recycling (specialist services for mines).

Both Mackay and Bowen are large regional centres and as such, there are local businesses in operation which would be able to supply goods and services to the rail operations.

The extent to which local and regional businesses will be able to supply goods and services to the Project will depend on a number of factors including the ability of the business to meet demand. In stakeholder consultation, local businesses reported that they find it difficult to compete with mining jobs in terms of pay, and that attracting and retaining apprentices is also a problem as apprentices tend to move into the mining sector. Local businesses, and to a lesser extent regional businesses in Mackay and Bowen may therefore be limited in their ability to expand to meet increased demand from a new mine.

Local businesses are generally quite small in size, and while many will have the advantage of reduced costs due to proximity to the proposed mine and rail, some may also struggle to compete with larger business located in larger centres. A local industry participation plan is proposed to establish linkages between the project and local and regional businesses, and the project. Further information on the local industry participation plan is provided in Section 8.7.

7.5.3 Employment opportunities in the Study Area

As outlined in Section 1, there is a considerable construction and operational workforce required for the project. Demographic analysis indicates that there are already a number of people in the study area with suitable skills for working on construction and mining projects. Unemployment is

very low in the IRC LGA, and thus, there may not be a large pool of available workers. Unemployment is higher in the CTRC LGA.

Construction workforce for the mine and rail will generally be provided by contractors and subcontractors working on the construction project, and any opportunities for local employment is likely to be through these contractors and subcontractors. As construction work is temporary in nature, study area residents looking for long term job opportunities would need to be prepared to move with the contractor to its next project, either on a permanent or FIFO basis. This may limit the attractiveness of construction work for local residents.

The workforce strategy for mine operation is based on recruiting workers from across Queensland and Australia on a FIFO basis. As noted in Section 1, until road infrastructure is improved, opportunities for residents from the local study area to gain employment at the proposed mine are likely to be limited. However, it is expected there will be a demand from local businesses to increase their workforce to meet the demands of the project. This will require additional apprentices, trainees and skilled staff. As noted previously, there are difficulties recruiting and retaining staff in areas other than the mining sector already and a cooperative approach to ensuring local businesses can meet the needs of the project will be required. SIA consultation identified that some Clermont businesses have workers on '457' sub-class visas[7]. Businesses have purchased houses and furnished them for overseas workers. It is understood that businesses have been using '457' workers for some years and it has been working very well. The opportunity to expand business and take on apprentices or trainees is welcomed by local business.

For the rail operation, employment opportunities will be much lower than for the mine, with around 120 workers required. Jobs will be centred on Bowen or Mackay and it is expected that workers for the rail operations will either be recruited locally or move to Bowen or Mackay. Rail operations work will involve shift work, but due to the proximity to major towns, workers will be able to return home between shifts and there will not be a requirement to be located in a workers accommodation village when on-roster.

7.5.4 Indigenous employment and business opportunities

According to Lockie et al. (cited in ELH, 2012) economic development has had considerable negative impacts on traditional owners in the Bowen Basin region. Lockie et al also argue however, that the potential for improved outcomes for Indigenous people as a result of mining development is better than that which followed pastoral development which took place in an earlier era. Positive opportunities which have been identified during consultation with traditional owners groups include:

- A range of sustainable employment options for Indigenous people, not "just dump truck operators". To make employment options sustainable, it was suggested that accommodation for families in the mining camps be provided to enable family units to remain together
- Increased employment opportunities within the 'local' area which may entice Indigenous people who are already working in the mining sector in Western Australia back to country enabling them to be closer to their families

[7] The subclass 457 visa is for skilled workers from outside Australia who have been sponsored and nominated by a business to work in Australia on a temporary basis. A business can sponsor a skilled worker if they cannot find an appropriately skilled Australian citizen or permanent resident to fill a skilled position.

- Bursaries/scholarships for indigenous trainees who attend TAFE, with payments linked to successful completion of courses
- Joint venture agreements with Adani or contractor to provide training in heavy machinery and equipment use.

Accommodation was also raised as an issue through indigenous consultation, where differing opinions were expressed. The Jangga representatives prefer that Indigenous people be integrated with non-Indigenous people in the camps, while the Barada Barna representative preferred separate camps to mitigate currently experienced on-going problems with racism in large mining camps.

Adani has commenced engagement with traditional owners and Indigenous groups through the cultural heritage management plan and native title processes and through stakeholder consultation activities. Adani will continue to work with traditional owners and Indigenous groups to further develop and agree indigenous business and employment opportunities.

7.5.5 Flow-on benefits to the regional and state economies

The EconSearch (2011) report which was undertaken at the ABS Mackay Statistical Division level states that for the construction and operation of the Project (Mine) and Project (Rail), direct and flow-on Gross Regional Produce (GRP) in the Mackay region are positive.

The Economic Assessment of the Project (refer EIS Volume 4 as Appendix H and SEIS Volume 1 Section 8) states that the potential of the Project to produce significant positive impacts on the local and State economies is substantial. In order to ensure the range and extent of positive impacts can be achieved, a number of measures to mitigate negative impacts will need to be put in place, including strategies such as an increase in local participation of regional and Queensland based industry as well as encouraging the participation and up-skilling of disadvantaged groups such as indigenous communities. Such strategies will require assessment frameworks to be developed that should include a mix of project specific indicators as well as quantitative statistics well proven in tracking the success of strategies and policies.

7.5.6 Summary of potential impacts on the local economy

Table 69 shows the potential impacts on local economic growth and regional development.

Table 69 Impacts on economic growth and regional development

Impact	Timing	Likelihood	Consequence	L/C rating	Impacted party	Status of impact
Mine						
Employment, apprenticeships, training associated with local businesses to attract and retain people within the local community working for local businesses	Construction and operation	Possible	Major	**High**	Local community	Positive

Impact	Timing	Likelihood	Consequence	L/C rating	Impacted party	Status of impact
Provision of goods and services to the project from local businesses in Clermont increasing the ability of local business to remain stable or grow	Construction and operation	Likely	Moderate	**Medium**	Local community	Positive
Providing employment and training opportunities for Indigenous people	Construction and operation	Possible	Moderate	**Medium**	Indigenous community	Positive
Difficulties with integration of indigenous people in accommodation villages.	Construction and operation	Possible	Moderate	**Medium**	Indigenous Community	Negative
Development of the local and parts of the wider regional area through Royalties for the Region	Operation	Very likely	Moderate	**High**	Local and parts of the regional community	Positive
People move from being employed in local business into the mining sector reducing the ability of local business to meet demands for goods and services	Construction and operation	Possible	Moderate	**Medium**	Local community	Negative
Rail						
Employment, apprenticeships, training within local businesses in Clermont and Moranbah supplying the rail construction	Construction	Possible	Major	**High**	Local community	Positive
Provision of goods and services to the project from local businesses in Clermont increasing the ability of local business to remain stable or grow	Construction	Likely	Moderate	**Medium**	Local community	Positive
Providing employment and training opportunities for Indigenous people	Construction and operation	Possible	Moderate	**Medium**	Indigenous community	Positive
People move from being employed in local business to take advantage of potential higher paid construction work reducing the ability of local business to meet demands for goods and services	Construction	Possible	Moderate	**Medium**	Local community	Negative

7.6 Roads, traffic and road safety

The Mine site is located just off the Moray Carmichael Road accessed via the Gregory Developmental Road. The Mine will generate an increase in vehicle traffic along the route with

the transport of equipment and supplies from both the north (Townsville) and the south (Moranbah, Clermont, Mackay) particularly during construction. With the workforce being FIFO, traffic is expected to be predominantly generated by the transport of goods and services, with fewer personnel movements.

There will be a higher number of personnel movements by road during construction as people are transported via bus or 4WD to and from construction camps and construction locations. With much of the transport of equipment to site being via road, there is a high risk of damage to the road infrastructure, especially the local roads which are not designed for heavy and wide traffic. Disruption to traffic can be expected during construction as equipment and materials are transported to site, especially along the Gregory Developmental Road. Transport of materials associated with the rail construction will also have an impact on the road network with an increased number of heavy vehicles transporting equipment and supplies to various locations along the rail alignment. Increased pressure on Police for over-dimensional permitting and escort on roads is a concern for QPS.

The Gregory Developmental Road is a significant tourist route for the Isaac Region and an increase in heavy traffic will have an impact on tourists, especially 'grey nomads' towing trailers who are not used to encountering large, heavy and often wide vehicles on regional roads.

At this stage, DIDO options are not being considered for the Project (Mine). The risk of driver fatigue increases with people driving to and from site before and after rosters. Driver fatigue and speed have both been identified as issues by QPS during SIA consultation.

The rail line will also require the construction of level crossings along the route resulting in potential conflicts between rail and road traffic that will need to be managed by the installation of appropriate safety warning measures.

SIA consultation identified that during operation, the rail may result in delays to emergency services, school bus routes, stock movements (vehicle and foot), and local traffic at intersections that are not grade separated. The nature of the delay has been estimated in the EIS Transport Report (EIS/SEIS Volume 3, Section 11). This report estimates a maximum of six vehicles will impacted by train movement during the peak hour at grade crossings. These vehicles would be required to wait for a maximum of four minutes and 30 seconds.

A number of mitigation measures are proposed to manage roads, traffic and safety to be incorporated into traffic management plans for the project. Mitigation and management measures are outlined in Section 8.

Table 70 shows the impacts on roads, traffic and safety.

Table 70 Impacts on roads, traffic and road safety

Impact	Timing	Likelihood	Consequence	L/C rating	Impacted party	Status of impact
Mine						
Traffic disruption along the Gregory Developmental Road, Peak Downs Highway (from Mackay), and the Flinders Highway (from Townsville) during construction	Construction	Almost certain	Minor	**Medium**	Road users	Negative

Impact	Timing	Likelihood	Consequence	L/C rating	Impacted party	Status of impact
Increased traffic during operation on the Gregory Developmental Road, including safety of tourist traffic not familiar with large heavy vehicles on narrow roads	Operation	Almost certain	Minor	**Medium**	Road users	Negative
Increased maintenance requirements on local and state roads as a result of mine construction and operation	Construction and operation	Possible	Moderate	**Medium**	Road users, IRC and Transport and Main Roads	Negative
Rail						
Traffic disruption along the Gregory Developmental Road, Peak Downs Highway (from Mackay), and the Flinders Highway (from Townsville) during construction	Construction	Almost certain	Minor	**Medium**	Road users	Negative
Delays to traffic, including emergency services as a result of level crossings along the rail corridor	Operation	Possible	Moderate	**Medium**	Road users	Negative

7.7 Landholder and amenity impacts

Land currently utilised for agricultural purposes will be converted to a mine site and railway line. Some landholders will have their property (or properties) split by the mine site and/or the railway line. Adani is the leaseholder for the main property affected by the proposed mine and off-site infrastructure, Moray Downs.

This will create property management issues for landholders, particularly in relation to movement of stock and equipment across and between properties. Wait times for stock on foot or in trucks due to rail movements or project related road traffic may cause distress to cattle. Wait times will generally be in the order of five to ten minutes and hence not be long enough that cattle will lose condition. Time taken for landholders to complete tasks such as stock movement will potentially increase.

As the life of the project is 60 years, this effectively sterilises land within the project footprint. Further consultation will be undertaken with landholders as part of detailed land acquisition discussions to identify optimal locations for stock and occupational crossings of the railway line that minimise impacts on property management practices while also meeting safety requirements. Where possible, grade separation will be provided, otherwise, gates and fencing will be required to prevent interactions with trains.

The Project will also cause changes to the natural environment, as identified in other technical studies within the EIS, and changes to the landholders living environment may be experienced. Both construction and operation may give rise to noise and dust emissions and detailed

assessments of these potential impacts have been undertaken for the mine and rail, and are presented in EIS Volumes 2 and 3, Sections 7 (Air Quality) and 9 (Noise and Vibration) of the EIS. Landholders have raised concerns about health impacts of coal dust from trains. Noise and dust levels meet Queensland environmental protection objectives at the majority of residential locations and health impacts are therefore not expected. Adani will develop a Coal Dust Management Plan along the railway line, which will comply with standards set by Aurizon in its Coal Dust Management Plan (QR Network, February 2010).

Landholders have also mentioned potential impacts on agricultural activities such as damage or disruption to irrigation systems and poly pipes, loss of access or damage to watering points, or loss or damage to cattle due to paddock gates being left open or intentionally open gates being closed by Project workforce accessing the properties.

It is noted that cattle and other animals may be disturbed by noise and activity from construction and operation of the Project, particularly the rail project. However, observations indicate that cattle in paddocks bordered by rail lines or main roads appear to adapt to the disturbance.

Components of the mine and rail will also be visible from residences and from other locations on properties. A visual impact assessment has been undertaken and is presented in EIS Volume 4, Appendix K - Mine Landscape Visual Assessment, and Appendix X – Rail Landscape Visual Assessment. The assessment concluded that there were minimal impacts on visual amenity.

Processes relating to land access and land acquisition for major projects can be time consuming and stressful for landholders. This stress may cause or exacerbate personal and interpersonal issues and negative behaviours. While landholders will be compensated for loss of land and earnings, there may be a residual sense of loss associated with changes to the land. Adani will seek to minimise stress to landholders through its processes during land negotiations. Statutory requirements for land acquisition processes also allow landholders to access information requirements independently and get independent support from legal advisers, land valuers and other professionals during the process.

Issues associated with water ponding and flooding due to the rail formation impacting existing overland flow paths are also a concern for landholders. This issue is being addressed through detailed local flooding studies and adoption of design measures to convey flood flows through the rail line as outlined in SEIS Volume 4 Appendix S1 – Rail Flood Modelling and SEIS Volume 4 Appendix K5 – Mine Hydrology Report.

With the presence of trains, construction and rail maintenance workforce and vehicles on properties, landholders are concerned about an increased risk of fire. The consequences of fire can be extreme to families and businesses that rely upon their properties for their livelihoods. Landholders may find themselves burdened with increased demands to respond to fires. Adani will adopt current industry standards in relation to minimising fire risk from rail construction and operation.

Table 71 shows the potential impacts on landholders and amenity.

Table 71 Potential impacts on landholders and amenity

Impact	Timing	Likelihood	Consequence	L/C rating	Impacted party	Status of impact
Mine						
Changes to the living environment from	Construction and	Likely	Moderate	**Medium**	Landholders	Negative

Impact	Timing	Likelihood	Consequence	L/C rating	Impacted party	Status of impact
increased noise and dust and reduced visual amenity	operation					
Disruption to cattle operations and increased labour requirements	Construction and operation	Almost certain	Minor	**Medium**	Landholders	Negative
Rail						
Changes to the living environment from increased noise and dust and reduced visual amenity	Construction and operation	Likely	Moderate	**Medium**	Landholders	Negative
Changes to the natural environment from changes to overland flow paths with potential for increased ponding	Construction and operation	Very likely	Minor	**Medium**	Landholders	Negative
Disruption to cattle operations and increased labour requirements	Construction and operation	Almost certain	Minor	**Medium**	Landholders	Negative
Increased fire risk along the rail corridor	Construction and operation	Possible	Extreme	**High**	Landholders	Negative

7.8 Social services and infrastructure

7.8.1 Potential demographic changes

Major projects such as the Project under consideration can result in significant demographic changes due to influx of workers. Increased populations of resident and non-resident workers can place pressure on social and community services and infrastructure.

However, the workforce recruitment and accommodation strategy proposed by Adani will limit changes to populations in existing towns.

During both construction and operation, it is anticipated that the large majority of workers will be sourced on a FIFO basis, and, when on roster, will reside in a large permanent workers accommodation village at the proposed mine site and, during construction, temporary construction camps along the rail alignment. It is not intended to house any workers in existing housing or accommodation facilities in Clermont, Moranbah or other locations and an influx of workers and families is therefore not expected. Existing residents of the local and regional study areas may be recruited by Adani or its contractors but this will not change the demographic profile of either of the study areas.

Approximately 120 rail operators are required and recruitment may include both recruitment from existing local population and relocation of workers from other locations. It is expected that rail operators will be based in the larger population centres of Mackay and Bowen. As the number of workers required is small compared to the populations of Bowen and Mackay, it is unlikely to have a significant impact on the populations beyond that already factored into population forecasts.

The only other source of demographic change in the project area may arise from stimulation to the local and regional economy which in turn may lead local businesses to expand in order to be able to supply goods and services to the proposed mine and rail project. This may require recruitment from outside the local and regional study areas and, in this case, it is likely that workers and families would relocate to the area. Associated population changes would be gradual and may not be discernible in larger centres of Emerald and Charters Towers.

7.8.2 Potential impacts

Concerns were raised during SIA consultation regarding the current capacity of health and emergency services in the study area. Pressures on telecommunications, particularly in Moranbah where there are existing problems accessing the internet at peak times, were also identified. Stresses placed on workers and their families as a result of FIFO can lead to an increased demand for social services, especially emergency (social) housing which is under pressure in Moranbah in particular. SIA consultation noted that there have been instances where FIFO workers have had to be temporarily removed from camps as a result of anti-social behaviour which may be attributable to family stress. In this instance, local support services have provided assistance. Other government agencies and services such as education and police are also already reported to be under considerable stress in the study area and stakeholders indicated that for some services, capacity does not seem to be expanding in response to an increase in mining activity across the region.

QPS has raised the issue of increased resourcing required for the management of incidents and emergencies on and off the proposed mine site and along the railway line. QPS indicated in July 2012 that Clermont has received additional Police resourcing in anticipation of mining activity in the wider area. Through its submissions QPS has also identified lack of affordable housing for their staff as an issue which hinders attracting and retaining staff I the region. Adani has engaged with QPS to further discuss a way forward to address project related impacts.

Non-resident workers tend to have a very low participation rates in community service organisations and sporting clubs as they are not present in the community when off-roster. Despite large apparent populations, communities can sometimes find it difficult to field a sporting team when many team members are ‘on roster’ and volunteer organisations find it difficult to provide services to the community. By not participating in these sorts of activities, non-resident workers can be disconnected from the community and are not seen to contribute to vibrancy and social sustainability within the community.

As identified in Sections 1, 7.3 and 7.4, the proposed workforce management and accommodation strategy for both the construction and operation phases of the mine and rail project will minimise presence of non-resident workers in existing communities. Distances from the mine and western end of the rail alignment, and the intention to fly workers directly to a purpose built airstrip near the proposed workers accommodation village will preclude workers being able to travel to Clermont or other local or regional centres to access community services and infrastructure.

The workers accommodation village at the mine site is intended to be self-sufficient with regard to communications infrastructure, recreational facilities and medical services and there will be no or very limited demand on government or private sector services provided in Clermont or other population centres. Security services will be provided, but in the event that a serious crime

is committed, local police will need to attend to undertake a formal investigation and, if appropriate, make arrest(s).

Construction camps for the rail construction will be temporary and have smaller capacity, as such, will not have the level of services proposed for the mine workers accommodation village. Further, construction workers may be utilising their own vehicles to travel to the workers accommodation village and construction site, particularly where they have specialised tools and equipment. Hence, during the construction period, workers at the workers accommodation villages may access towns such as Moranbah and make use of services available in the towns. However, the number of workers present is relatively small and construction is short term in nature, and hence, exacerbation of existing issues in towns such as Moranbah is not expected.

Overall, the construction and operation activities from the Project are not expected to directly exacerbate existing issues in relation to social services and infrastructure, although emergency services and health services will be accessed when required.

An emergency management plan (refer to EIS Volume 2, Section 12 and SEIS Volume 4 Appendix V) will be developed for all components of the project and this will include response to injuries and medical evacuations as well as fire response and response to road accidents. However, it is likely that local fire, police and ambulance services may also be required to respond, particularly to accidents on access roads, in the event of a suspected crime, and to large fires that extend beyond the project area.

Adani will consult further with emergency service providers during the pre-construction, construction and operation phases in relation to emergency management and response such that response can be coordinated and impacts on emergency service providers minimised. There may also be some opportunities for medical facilities at the mine site to be available to nearby residents, and for the airstrip to be utilised by others such as in the event of emergencies requiring evacuation. Further detail regarding the provision of medical and other emergency services is included in Section 8.9.

Those employed directly by the mine and rail construction are not expected to increase the demand on social services during construction. Due to the remoteness of the mine site in particular, the management of workforce health and wellbeing is particularly important and personnel are expected to have access to counselling and support services at the accommodation facilities, rather than rely on service providers in Clermont or other population centres.

Some population growth may occur in Clermont and, to a lesser extent other communities in the study area as a result of increased economic stimulation. Growth is likely to be gradual and within population growth forecasts developed by OESR as these growth forecasts factor in known major projects in the region. SIA consultation indicated that such population growth can have both positive and negative impacts. Stakeholders felt that an increased population base would increase the vibrancy and social sustainability of the town, and also provide increased participation in community and sporting activities. Demand for social and community services and infrastructure would increase and may lead to pressure on these services. Stakeholders felt that such population growth would potentially contribute to cumulative effects from a number of developments in the region on critical and already stressed services such as health and medical services and emergency services.

Population growth involving relocation of workers and their families to take part in local businesses is not likely to cause the types of impacts seen in communities where there is an influx of non-resident workers. There would be an increased demand for community and social services and infrastructure but as changes would be gradual, it should be possible for this to be accommodated within normal planning processes for service provision.

The Clermont Preferred Futures Group is looking to understand the potential impacts of mining activity on the community and develop a plan to accommodate this while maintaining the community values and aspirations for the town. Adani will continue to work with the IRC and the Clermont Preferred Futures Group to monitor population and demographic changes in Clermont and the former Belyando Shire area and develop responses as required to address any emerging social issues.

As outlined in the Carmichael Rail Line Concept Design (Aarvee Associates, 2011) site communications during construction will be generally UHF/VHF radio while on site, with a mix of Next G, satellite and existing hard asset communication technology for the operation of site administration facilities within the camps. One or more of these technologies is expected to be implemented at each campsite to suit to conditions. SIA consultation raised concerns about the capacity of the existing 3G network and its ability to cater for an increased load.

Table 72 shows potential impacts on social services and infrastructure.

Table 72 Potential impacts on social services and infrastructure

Impact	Timing	Likelihood	Consequence	L/C rating	Impacted party	Status of impact
Mine						
Increased demands on emergency services, including police, as well as health and education services as a result of an increased population at the mine site	Construction and operation	Likely	Moderate	**Medium**	Government agencies and services	Negative
Increased demands on social services to respond to the needs of the FIFO population	Construction and operation	Possible	Moderate	**Medium**	Service providers in communities	Negative
Rail						
Increased demands on emergency services, including police, as well as health and education services as a result of populations in construction camps	Construction	Likely	Moderate	**Medium**	Government agencies and services	Negative
Increased demands on social services to respond to the needs of construction workers	Construction	Possible	Moderate	**Medium**	Service providers in communities	Negative

7.9 Community values and change

There is concern amongst landholders and the wider community regarding the behaviour of the non-resident workforce and their impact on the community. These concerns are most likely based on previous experiences, either of the individuals or of those in their social networks and are related to violence, anti-social behaviour, and drug and alcohol abuse and the safety issues posed to local communities. QPS has raised similar concerns with potential for an increase in rural crime, including illegal hunting, trespass, 4WD damage to properties, theft, and break-ins. A further concern of social support agencies is that accommodation camps have the potential to be isolated during the wet season and limit employees' access to services (if they are provided locally) which may cause anxiety and stress. QPS also identified the potential for the mine activity to increase undesirable activities such as gangs, prostitution and drug use.

Available crime statistics do not point to significantly higher crime levels in areas impacted by mining and non-resident workforces and it is not anticipated this will occur for this Project either, particularly given the proposed workforce accommodation strategy. However, it is also recognised that the presence of a largely male non-resident workforce can generally lead to a reduced sense of security and comfort for local residents, particularly women and older residents who may feel more vulnerable.

The mine site is relatively remote from local communities, along with several of the rail camps. Workers for the mine and two of the rail camps are to be flown directly from a FIFO base to the mine site and bussed to the camps resulting in no opportunity for workers to enter local communities and engage in antisocial or criminal behaviour. All workers, including contractors will be required to abide with a Code of Conduct regarding behaviour.

Table 73 shows the potential impacts on community values and change.

Table 73 Potential impacts on community values and change

Impact	Timing	Likelihood	Consequence	L/C rating	Impacted party	Status of impact
Mine						
Increased crime and antisocial behaviour within the local communities from the FIFO workforce	Construction and operation	Unlikely	Moderate	**Low**	Local communities	Negative
Rail						
Increased crime and antisocial behaviour within the local communities from the construction workforce	Construction	Unlikely	Moderate	**Low**	Local communities	Negative

7.10 Summary of potential unmitigated impacts

A summary of impacts and their significance rating is presented in Table 74. Residual impact levels after mitigation and management measures have been implemented are included in Section 8.

Table 74 Summary of unmitigated impacts and significance rating

Impact	Timing / Project Phase	Status of impact	L/C rating	Impacted party

Impact	Timing / Project Phase	Status of impact	L/C rating	Impacted party
Housing and accommodation demand				
Mine				
Higher cost of living in Clermont as a result of higher housing prices, rental prices as workers in support industries seek to reside in the local community	Operation	Negative	Medium	Local community
Workforce management				
Mine				
Physical and mental health (isolation, separation from families, etc.)	Construction and operation	Negative	Medium	Workforce
Impacts on families in source communities through separation	Construction and operation	Negative	Medium	Workforce and families
Rail				
Physical and mental health (isolation, separation from families, etc.)	Construction and operation	Negative	Medium	Workforce
Impacts on families in source communities	Construction and operation	Negative	Medium	Workforce and families
Economic growth and regional development				
Mine				
Employment, apprenticeships, training associated with local businesses to attract and retain people within the local community working for local businesses.	Construction and operation	Positive	High	Local community
Provision of goods and services to the project from local businesses in Clermont increasing the ability of local business to remain stable or grow	Construction and operation	Positive	Medium	Local community
Providing employment and training opportunities for Indigenous people	Construction and operation	Positive	Medium	Indigenous community
Difficulties with integration of indigenous people in accommodation villages.	Construction and operation	Negative	Medium	Indigenous Community
Development of the local and parts of the wider regional area through Royalties for the Region	Operation	Positive	High	Local and parts of the regional community
People move from being employed in local business into the mining sector reducing the ability of local business to meet demands for goods and services	Construction and operation	Negative	Medium	Local community
Rail				
Employment, apprenticeships, training within local businesses in Clermont and Moranbah supplying the rail construction	Construction	Positive	High	Local community
Provision of goods and services to the project from local businesses in Clermont increasing the ability of local business to remain stable or grow	Construction	Positive	Medium	Local community

Impact	Timing / Project Phase	Status of impact	L/C rating	Impacted party
Providing employment and training opportunities for Indigenous people	Construction and operation	Positive	Medium	Indigenous community
People move from being employed in local business to take advantage of potential higher paid construction work reducing the ability of local business to meet demands for goods and services	Construction	Negative	Medium	Local community
Roads, traffic and safety				
Mine				
Traffic disruption along the Gregory Developmental Road and Flinders Highway (from Townsville), Peak Downs Highway (from Mackay), during construction	Construction	Negative	Medium	Road users
Increased traffic on the Gregory Developmental Road, including safety of tourist traffic not familiar with large heavy vehicles on narrow roads	Operation	Negative	Medium	Road users
Increased maintenance requirements on local and state roads as a result of mine construction and operation	Construction and operation	Negative	Medium	Road users, Council and Transport and Main Roads
Rail				
Traffic disruption along the Gregory Developmental Road and Flinders Highway (from Townsville), Peak Downs Highway (from Mackay), during construction	Construction	Negative	Medium	Road users
Delays to traffic, including emergency services as a result of level crossings along the rail corridor	Operation	Negative	Medium	Road users
Landholder and amenity				
Mine				
Changes to the living environment from increased noise and dust and reduced visual amenity	Construction and operation	Negative	Medium	Landholders
Disruption to cattle operations and increased labour requirements	Construction and operation	Negative	Medium	Landholders
Rail				
Changes to the living environment from increased noise and dust and reduced visual amenity	Construction and operation	Negative	Medium	Landholders
Changes to the natural environment from changes to overland flow paths with potential for increased ponding	Construction and operation	Negative	Medium	Landholders
Disruption to cattle operations and increased labour requirements	Construction and operation	Negative	Medium	Landholders
Increased fire risk along the rail corridor	Construction and operation	Negative	High	Landholders

Impact	Timing / Project Phase	Status of impact	L/C rating	Impacted party
Social services and infrastructure				
Mine				
Increased demands on emergency services, including police, as well as health and education services as a result of an increased population at the mine site	Construction and operation	Negative	Medium	Government agencies and services
Increased demands on social services to respond to the needs of the FIFO population	Construction and operation	Negative	Medium	Service providers in the local and source communities
Rail				
Increased demands on emergency services, including police, as well as health and education services as a result of populations in construction camps	Construction	Negative	Medium	Government agencies and services
Increased demands on social services to respond to the needs of construction workers	Construction	Negative	Medium	Service providers in the local community as well as source communities
Community values and change				
Mine				
Increased crime and antisocial behaviour within the local communities from the FIFO workforce	Construction and operation	Negative	Low	Local communities
Rail				
Increased crime and antisocial behaviour within the local communities from the FIFO workforce	Construction	Negative	Low	Local communities

8. Mitigation and management strategies

8.1 Introduction

This section contains details of the mitigation and management strategies to address potential impacts described in Section 1. Besides addressing the ToR, the development of this section also draws upon the OCG's new approach and *Social Impact Assessment Guidelines* (July, 2013) to focus on addressing the direct social impacts arising from the Project and participating in relevant processes to address cumulative effects to which the Project may contribute.

Given the socio-political and economic dynamics in the region and other factors outside of Adani's influence it is not possible to predict social impacts of the project for the life of 60 years. The SIA and the SIMP therefore adopts an adaptive management approach by which impacts and management strategies will be reviewed, monitored and updated on a regular basis. Based on advice from OCG the impacts and the SIMP will be reviewed and reported to the OCG on an annual basis during construction and for the first two years of operations. Thereafter the review, monitoring and updating process will be included in Adani's annual review and reporting process.

In summary, strategies include:

- Project design
- Landholder agreements
- Stakeholder Engagement
  - Engagement Plan
  - Membership of the Clermont Preferred Futures Group
- Housing and Accommodation
- Workforce management
  - Workforce behaviour
  - Recruitment, education and training
  - Safety and wellbeing
- Local Industry Participation Plan
- Community health and safety
- Emergency services planning and consultation
- Community development initiatives

Other technical study management plans that will also influence the management of potential social impacts are opportunities include:

- Environmental Management Plan (construction and operation)
- Cultural Heritage Management Plan
- Traffic Management Plan
- Emergency Response Plan.

Table 75 provides a matrix indicating how the various management and mitigation strategies work to address the impacts.

Table 75 Impacts and key mitigations matrix

Impacts	Mitigation strategies										
	Project design	Landholder agreements and land management	Stakeholder engagement	Housing and accommodation	Workforce management - behaviour	Workforce management – recruitment, education and training	Workforce Management Health, Safety and Wellbeing	Local Industry participation plan	Community health and safety	Emergency services planning and consultation	Community development
Housing and accommodation											
Increased cost of housing			✓	✓				✓			✓
Workforce management											
Physical and mental health isolation, separation from families, etc.)						✓	✓				
Impacts on families in source communities							✓				
Economic growth and regional D\development											
Employment, apprenticeships, training			✓			✓	✓	✓			
Local business supply of goods and services			✓	✓				✓			
Retention of staff in local businesses			✓				✓	✓			✓
Indigenous employment			✓			✓	✓	✓			✓
Community health, safety and security											
Road, traffic and safety											
Traffic disruption during construction	✓	✓	✓						✓	✓	
Increased traffic during construction and operation	✓	✓	✓						✓	✓	
Increased maintenance requirements for roads	✓		✓								✓

Impacts	Mitigation strategies										
	Project design	Landholder agreements and land management	Stakeholder engagement	Housing and accommodation	Workforce management - behaviour	Workforce management – recruitment, education and training	Workforce Management Health, Safety and Wellbeing	Local Industry participation plan	Community health and safety	Emergency services planning and consultation	Community development
Delays to emergency services at rail crossings	✓		✓						✓	✓	
Landholder and amenity											
Increased noise and dust and reduced visual amenity	✓	✓	✓								
Changes to overland flow paths and increased flooding	✓	✓	✓								
Disruption to cattle operations and increased labour requirements	✓	✓	✓								
Increased fire risk along the rail corridor	✓	✓	✓							✓	
Social infrastructure and services											
Increased demands on emergency services, health and education			✓				✓			✓	✓
Increased demands on social services			✓	✓			✓				✓
Community values and change											
Increased crime and antisocial behaviour			✓		✓						✓

8.2 Project design

Impacts of the Project on landholders and the community have already been considered in project design and development to date. Design aspects incorporated to date include:

- Alignment of the rail corridor to follow property boundaries as far as practicable to reduce the impact on landholdings
- Alignment of the rail corridor to avoid dwellings, other farm buildings, stock yards and other farm infrastructure, wherever possible.
- Location of off-site mine infrastructure to minimise impacts on nearby homesteads
- Grade separation between rail and existing roads at major intersections:
  - Gregory Developmental Road
  - Kilcummin Diamond Downs Road
  - Amaroo Road
  - Avon Road
- Design of the railway line to manage stream and overland flows such that ponding and exacerbation of flooding is controlled
- Fencing of the alignment
- Installation of stock and occupational crossings (see also Section 8.4)
- Consistency with the approaches to rail dust issues set out in the Aurizon Coal Dust Management Plan
- Upgrade of Moray Carmichael Road and intersection with Gregory Developmental Road.

As design progresses to detailed design, further opportunities to minimise project related impacts may include:

- Further optimisation of the rail alignment within the nominated corridor
- Location of construction camps and construction infrastructure

  Adani is actively working with potentially affected landholders and IRC regarding the location of the construction camps to reduce the significance of the potential impacts. In some locations along the rail corridor there will be a need for additional construction infrastructure. Adani is working with landholders on the location of the laydown areas and concrete batching plants.
- Construction access routes to minimise impacts on local road users
- Road and intersection upgrades as required.

8.3 Land access and landholder management

Adani is committed to resolving land access and land acquisition through amicable negotiation processes. A statutory process exists for this under the *Land Act 1994* and, depending on the final mechanism for establishing the corridor, the *State Development and Public Works Organisation Act 1971*. For the mine, the *Mineral Resources Act 1989* also sets out requirements in relation to the grant of the mining lease. As part of this negotiation:

- Landholders will be able to retain independent legal advisors and land valuation specialists
- Locations and design for stock and vehicle/equipment crossings of the rail line will be agreed based on minimising impacts on access to bisected properties and taking into account engineering design constraints
- A combination of in-kind and/or monetary compensation for land value and value of affected improvements will be agreed. Where the rail alignment renders portions of a property unfeasible for the current use, the compensation agreement will reflect this and may include measures to retain productivity
- Temporary access requirements and any laydown areas and associated compensation will be agreed
- Any access restrictions or critical timing issues will be resolved
- Ongoing management aspects during operation of the rail line will be documented. These matters will be covered on a case by case basis, and may include access for maintenance, management of coal dust, management of noise and visual impacts, agreements regarding purchase of water and minimisation of fire risk.

Negotiations in relation to land acquisition are advanced with most landholders, however as the agreements are private agreements between Adani and the landholder; details are not disclosed within the SIA.

Project design measures discussed in Section 8.2 will also address minimisation of impacts on landholders. Land access protocols are also a critical aspect of minimising impacts on landholders and maintaining good ongoing relationships. The Land Access Protocols will include but not limited to:

- Protocols for communication and permissions to access the property
- Driving speed limits while on property
- Protocol for opening and closing of fence gates
- Vehicle wash down

In relation to the Mine, it should be noted that Adani is the leaseholder for the Moray Downs property, which underlies much of the proposed mining lease area and on which the off-site infrastructure is located.

An element of the Stakeholder Engagement Strategy will be ongoing relations with landholders, including mechanisms for complaints and inquiries.

8.4 Stakeholder engagement strategy

Engagement with stakeholders is an important component to managing and monitoring the potential social impacts and opportunities of the Project. Stakeholder consultations will continue throughout the Project. Outlined below is a framework which is being used to guide the development of the strategy.

8.4.1 Goal and objectives

The development of the strategy will seek to achieve the following goal and objectives.

Goal

To establish and maintain a social licence to operate where the community respects and trusts Adani through:

- Building awareness, understanding, and acceptance of the project by community stakeholders
- Establishing and maintaining community partnerships that benefit a range of stakeholders
- Enhancing Adani's understanding of stakeholder needs, issues and expectations.

Objectives

- Identify and inform stakeholders about the project's scope, timing and potential impacts and benefits
- Engage stakeholders through a variety of channels and capture their concerns and opinions about the Project to inform the project team's decision making process
- Ensure early identification of potential stakeholder issues and implement timely and appropriate mitigation strategies
- Create awareness and acceptance of the project with stakeholders
- Manage land access and acquisition processes to minimise project delays
- Position Adani as a good corporate neighbour that values community input.

8.4.2 Communication and engagement approach

The communication and engagement approach has and will be guided by the core values and principles of the International Association for Public Participation (IAP2). From an engagement perspective, a core principle will be to clearly communicate the level of involvement stakeholders and the community will have in the various aspects of the project.

IAP2 has developed a spectrum to define the level of public participation as shown in Figure 27. In most cases the level of participation for this project is anticipated to be Inform and Consult; however it is expected that through memberships of groups such as the Clermont Preferred Futures Groups and others, that a level of Involve will be incorporated.

Figure 27 IAP2 Spectrum of engagement

	Inform	Consult	Involve	Collaborate	Empower
Public participation goal	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solutions.	To place final decision-making in the hands of the public.
Promise to the public	We will keep you informed.	We will keep you informed, listen to you and acknowledge concerns and aspirations and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.
Example techniques	▪ Fact sheets ▪ Website ▪ Open houses	▪ Public comment ▪ Focus group ▪ Surveys ▪ Public meetings	▪ Workshops ▪ Deliberative polling	▪ Citizen advisory committees ▪ Consensus-building	▪ Ballots ▪ Citizen juries ▪ Delegated decision ▪ Referendum

Source: International Association for Public Participation (www.iap2.org)

8.4.3 Strategic approach

The strategy will focus on developing and maintaining partnerships.

Relationships developed during the EIS will be further developed with a view of taking a partnership approach to many relationships. Adani is going to be a member of the Isaac and wider community for many years and will seeking to establish itself as a responsible corporate member of the community through a partnership approach. Adani is now a member of the Clermont Preferred Futures Group in line with IRC's preference for this group to represent the Northern Galilee Basin. Adani is also a member of the Whitsunday Industry Workforce Development (WIWD) Steering Group, whose activities are now incorporated into Whitsunday Marketing and Development Ltd. Adani is at present also exploring membership of a range of other groups within the wider region for strategic partnerships.

Engagement undertaken and relationships developed during the EIS stage of the project will continue and all conditions within the EIS approval will be incorporated into the strategy/plan.

Adani will work in partnership with affected landowners and develop individual communication approaches to suit both parties. All contact with landholders will be coordinated and a single point of contact for landholders will be provided. All communication with landholders, not already agreed, will be through that single contact.

Collaboration

Adani is actively in discussions with other mining proponents in the Galilee Basin to discuss potential for a coordinated approach to a range of infrastructure. These discussions are

preliminary only and the outcome will depend upon the commercial decision of each of the proponents, however the relationships have been established and the discussions will continue.

8.4.4 Key principles of engagement

The following key principles of engagement will be included in the strategy:

- Be accessible to stakeholders and the community
- Be responsive and provide information in a timely manner
- Be open and honest to develop trust and respect, communicate to the public what you are doing and where possible show them.

8.4.5 Communication tools and techniques

The following tools and techniques are to be considered, but not limited to, in the strategy:

- Membership of relevant community development groups (such as Clermont Preferred Futures Group) - The proposed adoption of the Claremont Preferred Futures Group to provide the function of the Northern Galilee Consultative Group for all north Galilee mining proponents and other key stakeholders (note this will be subject to the agreement of the existing groups membership)
- Community Liaison - A full-time Community and Landholder Liaison role, based within the region
- Visitor Centre/Shop front or virtual portal - A fixed presence in the regional area, possibly as space within an existing community premise where people can come to view more information about the project and at set times possibly meet with and speak to a representative. Alternatively, given distances between centres, a virtual portal to Adani and the Project may be more practical
- 1800 enquiry line A 1800 telephone number has been established by Adani for the duration of the Project
- Stakeholder meetings and agency briefings - Face-to-face stakeholder meetings and agency briefings will be conducted as required
- Notification letters - A range of notification letters will be prepared and distributed to stakeholders as required throughout the project
- Email updates - Updates on the project's key milestones will be regularly emailed to key stakeholders
- Stakeholder database - A stakeholder and consultation database will be maintained for the project
- Records of contact - Records of contact will be prepared when meeting with or speaking to a stakeholder and entered into the consultation database
- Protocol documents - A series of protocol documents will be prepared identifying Adani standards and guidelines relating to stakeholder interactions, land access and any other relevant issues as they arise. The purpose of these documents is to ensure a consistent, professional representation of Adani in the public arena and ensure staff are aware of

what is and is not acceptable when on private property. These documents will be distributed to field staff and other relevant staff at tool box talks

- Email enquiry address - An email enquiry address will be established for the duration of project
- Reply paid postal address - A reply paid postal address will be established, where required and based on stakeholder feedback
- Public displays - Public displays will be conducted as required
- Presentations - Presentations will be provided to a range of key stakeholder groups at key milestones throughout the project, and on request when possible
- Newsletters - Project newsletters will be developed on a regular basis. In addition to reporting on activities at the mine, upcoming events, etc., the newsletter can also provide a snapshot of KPIs as they relate to mine operation with the intention of providing up-to-date, realistic information on forecasts for mining operations, workforce (including contractors) and project changes
- Fact sheets and posters - Project fact sheets and posters will be developed for key milestones
- Website and text updates - Website text will be prepared for the project
- Public notices - Public notices will be developed at key milestones
- Frequently Asked Questions (FAQs) - An FAQ document will be prepared and uploaded to the website.

8.5 Housing and accommodation

The proposed worker accommodation strategy set out in Section 6.3 and 6.4 and in the Integrated Housing Strategy for construction and operation minimises potential impacts on housing and accommodation in the region.

A Draft Integrated Housing Strategy has been developed and included in the Draft SIMP Appendix B (SEIS Volume 4 Appendix D2). The accommodation strategy includes proposed accommodation options for workers within:

- Workers Accommodation Village at the mine site for mine construction and operation workforce.
- Temporary construction camps along the rail alignment during construction.

Given the remote location of the project site it is anticipated that all of the project workforce while on roster will be accommodated in one of the above mentioned accommodation options and there will be no requirement to locate workers in existing housing or accommodation in regional communities.

At this stage, as no direct housing impacts on local communities are expected, Adani has not included any measures in relation to housing in nearby communities in its Integrated Housing Strategy. Through membership of the Clermont Preferred Futures Group and the IAHT, Adani will assist in monitoring trends in population and housing in regional communities, to capture any direct, indirect and cumulative effects of the Project on local and regional housing market. If there is a clear correlation between the Project and housing stress, Adani will work with key

stakeholders such as Clermont Preferred Futures Group , IAHT, IRC, Townsville, Charters Towers, Whitsunday, Mackay and Central Highlands Regional Councils and industry networks in the region to develop solutions. More information on community development initiatives is provided in Section 8.10.

8.6 Workforce management

8.6.1 Overview

During mine and rail operations, Adani's approach to workforce management is three-pronged:

- Behaviour of the workforce in the accommodation facilities, while travelling between the point of origin and the workplace and when in local and regional communities will be managed through a code of conduct and ongoing awareness raising activities
- A recruitment, education and training plan will be developed and implemented to maximise training and development opportunities and provide a sustainable skilled workforce
- Worker health, safety and wellbeing will be addressed in the Workplace Health and Safety Plan.

Construction contractors and subcontractors will be required to put in place equivalent programs in relation to worker behaviour and management.

8.6.2 Workforce behaviour

Adani will develop a code of conduct setting out its expectations for workforce and contractor behaviour during mine and rail operations. This will cover:

- Equal opportunity in the workplace
- Tolerance of and respect for race, gender, religious views, political views and sexual preferences
- Bullying, stalking or harassment
- General behaviour, including aggressive and threatening behaviour
- Behaviour when travelling between the place of residence and the workers accommodation village / temporary construction camps
- Use of facilities and services and respect for property of Adani and individuals
- Zero tolerance of alcohol when in the workplace
- Responsible consumption of alcohol
- Zero tolerance of illegal drugs in the workplace or accommodation village / temporary construction camps
- Possession of guns and other weapons
- Compliance with all Adani policies, for example, health, safety, environmental, cultural heritage and quality control.

The code of conduct will be explained to workers in inductions and there will be an ongoing program to maintain awareness of requirements and encourage worker commitment to

establishing a positive culture at the mine and workers accommodation village / temporary construction camps. Employment agreements will include consequences for not following the code of conduct. Opportunity will also be given to workers to participate in reviews of the code of conduct and health, safety and wellbeing programs to emphasise the need for all parties to collaborate in this regard.

Contractors involved in the construction phase will also be required to manage workforce behaviour.

8.6.3 Recruitment, education, and training

The continued expansion of the mining, energy and resources industry is increasingly dependent on the continuous search for skilled and semi-skilled employees. Given identified skill shortages (refer section 7.4), recruitment, education and training programs are critical for:

- Maximising project benefits to the community, through employment and skills enhancement
- Ensuring a sustainable supply of well qualified and skilled workers.

Recruitment and management of the workforce during the construction phase will largely be the responsibility of contractors and subcontractors appointed to undertake various components of the project. As stated in Section 6.3.2, recruitment and management of the operations workforce will be a combination of responsibility between Adani and contractors and subcontractors appointed to undertake specific components of the project. The contracting strategy for the operation phase will be developed once the contractor capabilities have been assessed. However if Adani is not directly responsible for recruitment and training, Adani will require contractors to have recruitment and training programs in place.

Given the rapidly changing nature of the labour force and market, and lag between this SIA and commencement of construction and operations, it is not appropriate to set employment and training related targets at this time. Adani will continue to work with key government agencies, DETE in particular and training providers in the development of its workforce education and training program. By Financial Investment Decision and more specifically by the time of contract allocation Adani will have in place revised workforce data and specific targets and timeframes in place for skills development through its traineeship and apprenticeship programs. Targets will be set for both contractors and Adani workforce.

Adani's approach to employment, recruitment and training will focus on the following programs currently under development:

- Programs for recruitment of existing skilled workers from throughout Queensland and Australia. Should there be a need to source skilled workforce from overseas Adani will work with Skills Queensland to provide information on the type of skills, numbers and migration program under which they will be sourced.
- A New Entrant Program, specifically designed for those with no prior experience in the mining industry
- A structured apprentice and trainee program to work with existing training providers to employ and train apprentices and trainees. The first stage of that plan has been implemented with Adani having made a commitment to commence with a total of 6

apprentices by early 2013 through programs such as the “Unified to Qualified” program based in the Whitsunday region.

Given the remoteness of the site from training providers, there may also be potential to establish a training facility at the proposed mine, or in the vicinity, and discussions have taken place with a number of agencies that could contribute to such a facility. Some general strategies that Adani is developing to assist with retention of those new to mining and from groups more specifically women, indigenous and PWD, whom are traditionally under-represented in mining workforces may include:

- Mentoring programs to provide workplace support
- Enforcement of the code of conduct to create a culture of tolerance, fairness and equity at work and in the workers accommodation village
- Links with existing training providers and recruitment programs, including those with an indigenous focus
- Ongoing programs of on-the job training, skills development, graduate development program and career path development within the workforce.

Adani will continue to work collaboratively with government agencies and training organisations such as DETE, Whitsunday Marketing and Development Ltd, Clermont Preferred Futures and engage with FIFO Coordinators at the councils at Cairns, Gold Coast and Wide Bay to develop and finalise the recruitment, education and training component of the Workforce Management Plan. This will include consideration of maximising employment opportunities and improving skill levels in the community. In the final Workforce Management Plan, Adani will develop measurable targets for its training programs.

In addition, Central Queensland University (CQU) is presently looking at a dual-sector model through a proposed merger with Central QLD Institute of TAFE. This will be an amalgamation of TAFE and University and presents a possible opportunity for Adani to become involved in supporting the initiative of a tertiary provider that offers all types of post-school education - from certificates and diplomas to bachelor and post-graduate degrees. Adani is continuing to monitor progress in this regard and will be seeking to engage with CQU to discuss opportunities once further progress has been made.

8.6.4 Indigenous participation

Indigenous participation in the Project is a key consideration for Adani. Adani will provide and will require its contractors to provide employment opportunities for Indigenous persons, with particular focus on the local Indigenous populations.

In an endeavour to offer Indigenous persons opportunities to meet their cultural needs in relation to employment, Adani and its contractors will support and implement initiatives (specifically attraction, selection, training and development activities) to assist Indigenous persons to be employed by Adani and contractors.

Adani has in place signed Cultural Heritage Management Plans (CHMPs) with the four traditional owner groups impacted by the Project, and is at present working to complete Indigenous Land Use Agreements (ILUAs) which will address, among other things, indigenous employment, education and training initiatives.

Adani has commenced engagement with Department of Aboriginal and Torres Strait Islander and Multicultural Affairs (DATSIMA) to develop an appropriate Indigenous Participation Plan, including specific participation and training initiatives and performance indicators for contractors. Indigenous participation may be modelled on the QRC and Bowen Basin Indigenous Participation Partnership.

8.6.5 Health safety and wellbeing

Adani will be subject to the health and safety requirements of the *Coal Mining (Safety and Health) Act 1999* and *Work Health and Safety Act 2011*. This will require development of comprehensive, risk based health and safety plans for the Mine and the off-site infrastructure. Health and safety plans will also be required for all aspects of construction.

For the operational phase, it is recognised that health and safety encompasses the health and wellbeing of workers. Accordingly, these plans will include:

- Requirements in relation to safe work practices and fitness for work (fatigue, drugs and alcohol)
- Induction, other training and awareness programs to maintain a strong focus on health and safety and a high level of awareness of responsibilities for health and safety
- Programs in relation to individual health and wellbeing including management of medical conditions when away from home, maintenance of physical fitness, management of stress and isolation, healthy eating and alcohol consumption
- Programs in relation to financial planning.

8.7 Local industry participation plan

A Local Industry Participation Plan (LIPP) will be prepared in accordance with the Queensland Resources Council's (QRC), Queensland Resources and Energy Sector Code of Practice for Local Content 2013 and associated implementation guidelines. Adani will work with local Councils, the Clermont Preferred Futures Group, and local businesses in conjunction with the Queensland Government (Office of Advanced Manufacturing) and the Industry Capability Network (ICN) in developing the LIPP to provide robust, integrated and sustainable local business participation opportunities. The LIPP will integrate with the Recruitment and Training Program to provide businesses with the best opportunity possible to participate in the Project.

Local buying policy

To ensure the success of the Project in Australia, Adani understands and is committed to the engagement, advancement and development of both the industry and the people in the communities in which it works. To build on this commitment and to maximise local content, Adani is committed to procuring from Australian suppliers where possible and will endeavour to maximise local content on the Project where it is capable and competitive.

A number of suppliers in the local and wider region have already been engaged by Adani to provide goods and services. In order to continue to engage within the local and regional community, Adani has developed a local buying policy and has committed to implementation of its Australian Industry Participation Plan and the Code.

8.8 Community safety

The construction and operation of the Project (Rail) poses some risk to members of the community in terms of vehicle and person interactions with trains, either on private land or at road crossings (see SEIS Volume 4, Section 12). Where possible, this risk has been addressed through design, in particular:

- Fencing of the alignment wherever practicable
- Grade separation of crossings at all but minor intersections
- Provision of stock and occupational crossings in consultation with landholders
- Management of public stock routes where these cross the proposed alignment
- Adherence to Australian standards and all legislative requirements in relation to safe operation of the rail component.

A traffic management plan and a road use management plan will also be required during rail construction as there will be increased numbers of light and heavy vehicles on a number of local roads and there may also be intermittent road closures or delays. An initial traffic assessment has been undertaken as part of the EIS (EIS/SEIS Volume 2, Section 11 and Volume 3, Section 11), and will be further developed during the detailed design stage, in consultation with Queensland Department of Transport and Main Roads and relevant local governments.

During rail operation, passive and active controls will be in place to manage community interactions with trains in accordance with Australian Standards and legislative rail safety requirements.

A legislative requirement for the management of risk and rail transport operations is Railway Safety Accreditation as a Railway Infrastructure Manager and a Railway Operations Manager under the provisions of the Transport (Rail Safety) Act 2010 of Queensland. Adani was granted Railway Safety Accreditation on 31 July 2012. The issuing of this accreditation under the Act provides an assurance that Adani has the necessary competence and capacity to carry out particular railway operations safely.

Under the provisions of the Act and the granting of Railway Safety Accreditation, Adani must establish and maintain a comprehensive Safety Management System. The establishment and implementation of interrelated safety plans and programs provides the approach to the management of risks to safety arising from:

- Railway operations and management
- The existence of level crossings
- The operation of trains and on-track vehicles including those of third parties
- The carting of dangerous goods
- Security matters
- Emergencies and other occurrences
- Rail safety worker fitness and health including fatigue, drug and alcohol matters
- Asset management including rolling stock and infrastructure maintenance
- Design, construction and de-commissioning

- Rail safety worker competence and resource availability
- Interface management and coordination.

An assurance that Adani is maintaining its comprehensive Safety Management System is provided through regulatory scrutiny by the Queensland Rail Safety Regulator, Department of Transport and Main Roads. This scrutiny includes planned safety systems audits, occurrence investigation, monitoring of operations occurrence data and provision of annual Adani safety performance review and reporting.

During mine construction and operation, there is very limited potential for members of the community to come into contact with any hazards associated with the operation. Traffic on public roads remains the main risk to community safety. As for the rail construction, a traffic management plan will be developed for the construction and operation of the proposed mine.

Adani has entered into an agreement with the IRC about the maintenance of the Moray-Carmichael Road to support mine exploration and investigative activities.

Adani is finalising discussions with the IRC about upgrading and realigning the road to support the construction and operation of the Project. These discussions are likely to result in a formal agreement between the IRC and Adani.

Once more detailed and accurate operation traffic volumes are available; Adani will negotiate further road and intersection upgrades as required. However, the strategy of flying the majority of workers in to a dedicated airport at the off-site infrastructure will minimise the need to utilise local and regional roads.

The Project proposes impacts to four (4) stock routes, one due to the Project (Mine) and three (3) due to the Project (Rail).

Stock route U385 crosses the northern part of the Project (Mine) site, and is categorised by the Department of Natural Resources and Mines as having a low rates of use. Adani previously proposed in the EIS that this stock route be closed. Due to submissions about the proposed closure of the stock route and changes to the Project (Mine) where the northern pits are now proposed to include underground activities, the stock route is proposed to be moved further north through the Project (Mine) site and fenced. Adani is in discussions with DNRM and IRC about the proposed route, and the final location of the stock route will be finalised after a site visit.

The Project (Rail) proposes impacts to three (3) stock routes. These are:

- Kilcummin Diamond Downs Road) at chainage 51.22
- Amaroo Road at chainage 82.15; and
- Mistake Creek at chainage 120.46.

These stock route crossings are being discussed with DNRM and IRC. Options include using reinforced concrete box culverts, realigning the stock route to run aside the rail to bridges with holding yards at crossings and grade separations, where practical. The final treatments for these stock routes will be finalised after a site visit and further discussions with DRNM and IRC. Discussions are also being held with land holders in the area about all changes to stock routes.

8.9 Community health and emergency services planning

8.9.1 Mine

In accordance with the *Queensland Coal Mining Safety and Health Act 1999* and *Queensland Coal Mining Safety and Health Regulation 2001*, Adani must have Health and Safety Plans and Emergency Management Plans in place for all aspects of construction and operation of the proposed mine. Adani must also meet building regulations in relation to fire prevention and fire fighting equipment.

Given the remoteness of the mine site, and the nature of activities to take place, Adani will seek to be self-sufficient in relation to:

- First aid, paramedic and basic medical services
- Fire fighting
- Security.

However, there will be instances where Adani will have to rely on emergency services providers, including where patients are required to be transported to a hospital or where a crime is suspected and police presence required.

The SIA has identified that emergency services are under some pressure in the region and that the large distances make it difficult for these services to perform their functions. Adani is therefore committed to working closely with emergency services in the development and implementation of emergency management plan and procedures. This will include:

- Initial and ongoing consultation with Queensland Ambulance Service, Queensland Fire and Rescue Service and Queensland Police Service in relation to emergency response planning
- Involvement of emergency services in the development of the site emergency management plan, including evacuation procedures, collaboration between site and emergency services personnel, patient transport and emergency response
- Provision of information regarding workforce size, activities being undertaken and emergency response services and facilities at the mine site
- Ongoing consultation and information updates
- Making resources available to emergency service providers when at the mine site, ranging from office space to use of equipment
- Registration of the proposed airstrip with the Royal Flying Doctor Service.

The SIMP will provide the framework for establishing, maintaining and monitoring this ongoing relationship.

The emergency management plan will include procedures in relation to determining whether injured or ill workers require hospital treatment and patient transport protocols.

Should injured or ill workers require hospital treatment; the destination hospital will depend on the nature of the injury or illness. It would be expected that this would occur on a cost recovery basis through compulsory workplace insurance cover schemes. As resources at Clermont hospital are limited, Adani will seek to enter into a memorandum of understanding with Queensland Health regarding instances where treatment at Clermont hospital is required. Adani

will engage with Queensland Health and relevant industry networks to monitor the Project's contribution to potential cumulative effect on regional health facilities and services.

8.9.2 Rail

In accordance with the Work Health and Safety and Transport (Rail Safety) legislations, Adani must have Health and Safety Plans and Emergency Management Plans in place for all aspects of rail construction and operation.

Adani will consult with emergency services providers regarding the development of these plans and ensure that emergency service providers have up to date information. This will be particularly important during construction where emergency services need to be aware of the location and timing of construction activities and in particular, road closures and delays.

During rail construction, Adani will seek regular interaction with emergency services within the region so that this information provision can be achieved. A lower level of interaction is likely to be required during operation, and will be combined with ongoing interaction for the mine.

8.10 Community development

Adani recognises that:

- There is significant potential for the Project to provide benefits to the local and regional community, however this will require some targeted strategies and interaction with community representative bodies
- While the project is not predicted to have significant adverse impacts on the local and regional community, Adani must take responsibility for avoiding, minimising and mitigating adverse impacts that may emerge as part of its role as a corporate member of the community
- Proponents such as Adani has a responsibility to make positive contributions to the community in which they operate
- Proactive and positive community relations provide benefits for both Adani and the local and regional community.

In addition, Adani will develop a strategy whereby it can participate actively within the local and regional community. This strategy is likely to incorporate:

- Developing a Community Development Plan and establishing a community development fund provide financial support targeting community activities, capacity and services. The fund would support local events, programs, sponsorship, financial contributions, and scholarships through applications from the community. To date Adani has provided support to the Twin Hills races in 2011, and intends to continue to provide support to local community events. Adani will provide guidelines and criteria for the manner in which the funds will be allocated and the process by which applications can be made. Details on the community development plan are provided in the draft SIMP
- Working collaboratively with IRC and other representative bodies, including the Clermont Preferred Futures Group or other groups that may evolve, to provide strategic direction and investment for whole community benefit. This investment will seek to build upon existing success and clearly understand infrastructure/service gaps and needs and

respond accordingly. Potential investments may include preparation of community development plans for selected regional centres

- Working with Clermont Preferred Futures Group and IRC to track demographic changes and any related impacts on housing or services that may be attributable to the Carmichael Coal project. Where adverse impacts appear to have occurred, Adani will develop responses in collaboration with the relevant stakeholders. The SIMP provides details on the community development strategies and also provides a mechanism for monitoring and reporting project related changes in the community.

8.11 Other technical study management strategies

There are other technical study management strategies which will address some of the potential social impacts during the construction and operation of the Project, these include:

- Environmental Management Plan
- Cultural Heritage Management Plan
- Traffic Management Plan
- Emergency Management Plan.

8.12 Residual impact rating

Following implementation of mitigation strategies outlined above, the likelihood and consequence rating for the potential impacts has been reassessed and is presented in Table 76.

Table 76 Summary of mitigated impacts and significance rating

Impact	Timing / Project phase	Status of impact	Unmitigated L/C rating	Impacted party	Mitigated L/C rating
Housing and accommodation					
Mine					
Higher cost of living in Clermont as a result of higher housing prices, rental prices as workers in support industries seek to reside in the local community	Construction and operation	Negative	Medium	Local and regional communities, and smaller centres in the regional area	Low
Workforce management					
Mine					
Physical and mental health isolation, separation from families, etc.)	Construction and operation	Negative	Medium	Workforce	Low
Impacts on families in source communities through separation	Construction and operation	Negative	Medium	Workforce and families	Low
Rail					
Physical and mental health isolation, separation from families, etc.)	Construction and operation	Negative	Medium	Workforce	Low
Impacts on families in source communities	Construction and operation	Negative	Medium	Workforce and families	Low
Economic growth and regional development					
Mine					
Employment, apprenticeships, training associated with local businesses to attract and retain people within the local community working for local businesses.	Construction and operation	Positive	High	Local community	High
Provision of goods and services to the project from local businesses in Clermont increasing the ability of local business to remain stable or grow	Construction and operation	Positive	Medium	Local community	Medium
Providing employment and training opportunities for Indigenous people	Construction and operation	Positive	Medium	Indigenous community	Medium

Impact	Timing / Project phase	Status of impact	Unmitigated L/C rating	Impacted party	Mitigated L/C rating
Development of the local, district and parts of the wider regional area through Royalties for the Region	Operation	Positive	High	Local and parts of the regional community	High
People move from being employed in local business into the mining sector reducing the ability of local business to meet demands for goods and services.	Construction and operation	Negative	Medium	Local community	Low
Rail					
Employment, apprenticeships, training within local businesses in Clermont and Moranbah supplying the rail construction	Construction	Positive	High	Local community	High
Provision of goods and services to the project from local businesses in Clermont increasing the ability of local business to remain stable or grow	Construction	Positive	Medium	Local community	Medium
Providing employment and training opportunities for Indigenous people	Construction and operation	Positive	Medium	Indigenous community	Medium
People move from being employed in local business to take advantage of potential higher paid construction work reducing the ability of local business to meet demands for goods and services	Construction	Negative	Medium	Local community	Low (no DIDO)
Roads, traffic and safety					
Mine					
Traffic disruption along the Gregory Development Road and Flinders Highway (from Townsville), Peak Downs Highway (from Mackay), during construction	Construction	Negative	Medium	Road users	Medium
Increased traffic on the Gregory Development Road, including safety of tourist traffic not familiar with large heavy vehicles on narrow roads	Operation	Negative	Medium	Road users	Medium
Increased maintenance requirements on local and state roads as a result of mine construction and operation	Construction and operation	Negative	Medium	Road users, Council and Transport and Main Roads	Low
Rail					
Traffic disruption along the Gregory Development Road and Flinders Highway (from Townsville), Peak Downs Highway (from Mackay),	Construction	Negative	Medium	Road users	Medium

Impact	Timing / Project phase	Status of impact	Unmitigated L/C rating	Impacted party	Mitigated L/C rating
during construction					
Delays to traffic, including emergency services as a result of level crossings along the rail corridor	Operation	Negative	Medium	Road users	Low
Landholder and amenity impacts					
Mine					
Changes to the living environment from increased noise and dust and reduced visual amenity.	Construction and operation	Negative	Medium	Landholders	Low (bought property)
Disruption to cattle operations and increased labour requirements	Construction and operation	Negative	Medium	Landholders	Low (landholder agreements in place)
Rail					
Changes to the living environment from increased noise and dust and reduced visual amenity	Construction and operation	Negative	Medium	Landholders	Low (design located away from homesteads)
Changes to the natural environment from changes to overland flow paths with potential for increased ponding	Construction and operation	Negative	Medium	Landholders	Low
Disruption to cattle operations and increased labour requirements.	Construction and operation	Negative	Medium	Landholders	Medium
Increased fire risk along the rail corridor.	Construction and operation	Negative	High	Landholders	Medium
Impacts on social services and infrastructure					
Mine					
Increased demands on emergency services, including police, as well as health and education services as a result of an increased population at the mine site.	Construction and operation	Negative	Medium	Government agencies and services	Low
Increased demands on social services to respond to the needs of the FIFO population.	Construction and operation	Negative	Medium	Service providers in the local community	Low

Impact	Timing / Project phase	Status of impact	Unmitigated L/C rating	Impacted party	Mitigated L/C rating
				as well as source communities	
Rail					
Increased demands on emergency services, including police, as well as health and education services as a result of populations in construction camps	Construction	Negative	Medium	Government agencies and services	Low
Increased demands on social services to respond to the needs of construction workers	Construction	Negative	Medium	Service providers in the local community as well as source communities	Low
Impacts on community values					
Mine					
Increased crime and antisocial behaviour within the local communities from the FIFO workforce.	Construction and operation	Negative	Low	Local communities	Low
Rail					
Increased crime and antisocial behaviour within the local communities from the FIFO workforce.	Construction	Negative	Low	Local communities	Low

9. Monitoring and reporting

A monitoring and reporting mechanism is critical to ensuring that the social impacts are identified and measured and the mitigations are implemented. A monitoring program will be developed in consultation with the key stakeholders during the finalisation of the SIMP; however the action plans outline preliminary performance and monitoring indicators for each of the mitigation strategies.

Further information regarding monitoring and reporting is included in the Draft SIMP (see SEIS Volume 4, Appendix D2).

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http://www.barrierreef.tafe.qld.gov.au/

http://cq.tafe.qld.gov.au/

https://www.qrc.org.au/

[8] Individual websites may have been accessed on multiple occasions. Dates of access are noted where data is presented in the SIA

Appendices


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Appendix A Impact Significance Assessment Methodology


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Significance Assessment Methodology

A social impact significance matrix was employed as the main tool for assessing the significance of the potential social impacts. The matrix is a table which lists and describes the various impacts that have been identified as possibly resulting from the proposed project. The table does not weight impacts against each other, rather they are displayed and assessed individually, to paint a picture of the impacts and allow an overall discussion regarding the proposal. The purpose of the significance matrix is also to identify priority areas for mitigation and management actions.

It is acknowledged that assessing the significance of social impacts involves subjective judgements on behalf of the assessor (Stanley, Clouston and Binney 2004, Lawrence 2007). Social impacts are felt or experienced by stakeholders, and different stakeholders may therefore assign differing significances to the same impacts, depending on their particular situation. Two strategies have been used to manage and reduce the subjective nature of the assessment process:

- By clearly outlining the assessment processes, criteria and arguments the SIA team have used to assign significance a larger degree of transparency in the process is achieved.
- By basing the assessment on a variety of sources, including extensive consultation with directly impacted stakeholders, the robustness of the significance assessment is augmented.

All the data sources used throughout the previous steps in the SIA have been analysed to determine impact significance.

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

- Identification of impacted stakeholders
- Likelihood/consequence rating
- Status of impact
- Duration of impact
- Spatial extent of the impact
- Stakeholder importance.

The process of assessing the significance of the social impacts is undertaken for the current project design. Based on this, a social impact management plan is developed, involving impact mitigation and enhancement. A second assessment is then carried out taking proposed mitigation and enhancement measures into account, identifying whether there is a risk of a residual impact.

Significance Assessment Process

Step 1: Identification of Impacted Stakeholders

This considers the stakeholders likely to be impacted by the proposed project. The stakeholder groups are not ranked but used for descriptive purposes only. Each impact is linked to at least one stakeholder group.

Step 2: Stakeholder importance

The stakeholder importance describes how important an impact is to the affected stakeholders. Establishing the importance of an impact complements the significance determination as it allows the affected stakeholders themselves to describe how important an impact is to them. A social impact identified as being non-significant by the SIA practitioner may be very important to the affected stakeholders, and vice versa. Information regarding stakeholder importance has been gathered solely during consultation. Importance ratings are provided in Table 1.

Acceptability of the Social Impact

Rating	Proposed Description
High	A majority of the affected stakeholders have indicated that the social impact is very important to them.
Medium	Some stakeholders have indicated that the social impact is important to them, some have indicated it is of little importance.
Low	A majority of affected stakeholders have indicated that the impact is of little importance to them. Few stakeholders have indicated it is important.

Step 3: Likelihood/Consequence Rating

This step involves, first, assessing the likelihood that the impact will occur (refer to Table 2). Second, it involves assessing the consequence of each of the identified social impacts. The consequence refers to the consequence *on the impacted stakeholder*. As the consequence refers to the consequence on the impacted stakeholder, it is not possible to provide an exhaustive definition for each rating and for all stakeholders. Rather the proposed descriptions consist of indicative criteria for a number of stakeholder groups.[9] Table 3 and Table 4 show indicative criteria for assessing the consequences on the stakeholders. The results are then combined into a likelihood/consequence matrix, assigning a significance rating to the social impact (refer to Table 5).

Descriptions of Likelihood

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

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

Indicative Criteria for Negative Social Impacts Consequences

Rating	Indicative criteria
Extreme	Individuals and families: Death and serious injury, disability, personal bankruptcy, severe stress and mental illness, severance of strong connections to places and communities.
	Businesses: bankruptcy, close down of business.
	Communities: Tensions leading to widespread violence, rapid geographic change of large proportion of local area, rapid large scale population changes such as relocation of majority of population, destruction of cultural objects of large significance.
	Project proponent: multiple fatalities caused by project, serious nation-wide impact to projects reputation, media coverage at the state level by more than one source.
Major	Individuals and families: Injury, serious illness, severe financial hardship, long term unemployment, severance of connections to places and communities, severe stress.
	Businesses: Severe financial hardship, large noticeable impact to business in terms of changing revenue, number of employees .
	Communities: Large scale social tensions, rapid geographic and social change to a significant proportion of area or population, rapid change to way of life or, profanation of important cultural objects and geographical areas.
	Project Proponent: Single fatality or permanent major disability of a member of the public or construction workforce, improvement or damage to the project's reputation at the local level, media coverage at the state level by one source or local level by more than one source. A proliferation of calls from dissatisfied or supportive stakeholders.
Moderate	Individuals and families: Recoverable but long term illness, severe nuisances and disruptions, short term financial hardship, short term unemployment, disruption to family life, stress.
	Businesses: Short term financial hardship, noticeable impacts to business in terms of changing revenue, number of employees.
	Communities: localised or occasional social tension, geographic change to part of the area, social change to small proportion of community such as relocation of a minority of community, loss of some important areas/buildings such as parks and meeting places.
	Project proponent: Recoverable accidents, improvement or damage to the project's reputation, media coverage at the local level by more than one source, several calls from dissatisfied or supportive stakeholders.
Minor	Individuals and families: Short term recoverable illness, manageable nuisances and disruptions, changing employment situations (but not deteriorating), easily manageable stress.
	Businesses: Changing but not deteriorating business conditions, practical challenges with minor financial implications.
	Communities: Social tension between individual members of community, social or geographic change to small part of community.
	Project proponent: Incident leading to medical treatment, improvement or damage to the project's reputation within industry, media coverage at the local level, calls from a few dissatisfied or supportive stakeholders.
Insignificant	Individuals and families: minor nuisance or disruptions, no accidents or illness.
	Businesses: Practical challenges, no financial implications.
	Communities: harmoniously managed social changes, localised (very small proportion of community) change to geographic or social set up.
	Project proponent: On site first aid incident, improvement or damage to the project's reputation, no media coverage, no calls from dissatisfied or supportive stakeholders.

Indicative Criteria for Positive Social Impacts Consequences

Rating	Indicative criteria
Extreme	Individuals and families: Significantly increased health and social and emotional wellbeing. Sustainable increase in economic prosperity, such as long term employment opportunities and career prospects to men and women. Significantly increased access to training and education. Significantly increased access to services.
	Businesses: Significantly increased business opportunities and profits for the long term.
	Communities: Significantly increased general community wellbeing. Significant and sustainable reduction in violence and crime, and positive changes to community aspirations. Recognition of, support for and long term preservation of cultural objects, artefacts and practices.
	Project proponent: Very strong and widespread community support for project. Sustained positive nationwide media coverage.
Major	Individuals and families: Increased health and social and emotional wellbeing. Widespread employment opportunities. Increased access to training and education.
	Businesses: Noticeable increase in business opportunities, increased profits.
	Communities: Strongly increased community wellbeing, significant reduction in crime and violence, positive changes to community aspirations. Recognition of and support for cultural practices, objects and artefacts.
	Project Proponent: Strong support for the project. Nationwide positive media coverage.
Moderate	Individuals and families: Increase to health and wellbeing for some individuals. Some employment, training and education opportunities.
	Businesses: Increased revenues and profits.
	Communities: Increased community wellbeing, reduction in crime and violence. Recognition of cultural practices, objects and artefacts.
	Project proponent: Some local support for the project, some local, regional and nationwide positive media coverage.
Minor	Individuals and families: Increased access to services, short term employment opportunities. Some training opportunities.
	Businesses: Business conditions changing slightly to the positive.
	Communities: Slightly increased community wellbeing.
	Project proponent: Occasional local and regional positive media coverage.
Insignificant	Individuals and families: Some short term employment opportunities. Health and social wellbeing virtually unchanged.
	Businesses: Practical benefits, no financial implications.
	Communities: Community wellbeing virtually unchanged. Some changes (not negative) to cultural practices, objects and artefacts.
	Project proponent: Localised neutral media coverage.

Assessment of likelihood and consequence of social impact

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

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

Step 4: Status of Impact

The status of the impact considers whether the impact is positive, negative or neutral. It is important to remember that the same impact can have a different status for different stakeholders.

Step 5: Duration

The duration of the impact refers to for how long the social impact will potentially occur, refer to Table 6.

Duration of the Social Impact

Rating	Description
Long	Lasting beyond the construction phase of the project (or operation/maintenance).
Medium	Lasting for the full duration of the construction phase of the project.
Short	Less than the full duration of the construction phase of the project.

Step 6: Spatial Extent

This considers the geographical scale of the proposed impact. The social impacts of the project may be felt within the physical extent of the project, or at the local, regional, or state/national level, refer to Table 7.

Spatial Extent of the Social Impact

Rating	Proposed Description
State/National	In all levels of study areas
Regional	In both the local and Regional Study Areas
Local	In the Local Study Area
Project footprint	Only within the physical footprint of the project

Appendix B Project Workforce Data

Table 1 Construction phase workforce profile - Mine

Construction phase workforce profile - infrastructure					
	2014	2015	2016	2017	2018
Train Loadout, CPP and Conveyors, Feeders	0	300	300	100	50
Site workshop	0	150	100	50	0
Site offices	0	150	100	50	0
Site Haul Roads	0	100	50	0	0
Council Road upgrade	180	120	50	0	0
Airstrip Construction	45	45	30	0	0
Dams and Pipelines	20	50	50	30	0
Village Construction	150	120	60	0	0
Power	0	40	40	0	0
TOTAL	**395**	**1,075**	**780**	**230**	**50**
Occupation *composed of:*					
Superintendents and managers	20	50	40	10	5
Designers and engineers	20	50	40	5	5
Tradespeople being fabrication, boilermakers, carpenters, plumbers and electrical	100	300	275	115	30
Construction – equipment operators and supervision	255	675	425	100	10

Table 2 Operational phase workforce profile[10] - Mine

Operational phase workforce profile - Mine															
	2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
Total Headcount	**0**	**789**	**1893**	**2469**	**2825**	**3020**	**3254**	**3542**	**3626**	**3758**	**3825**	**3762**	**3770**	**3726**	**3801**
Occupation *composed of:*															
Superintendent and Managers	0	25	64	112	118	122	129	129	139	139	141	141	141	141	141
Equipment Operators and Direct Supervisors	0	443	1136	1481	1745	1849	1939	2135	2180	2273	2319	2276	2279	2244	2293
Mining Engineers, Geologists and Surveyors	0	26	34	58	58	44	49	49	56	56	56	56	56	56	56
Coal Quality inclusing Metallurgical and Lab Technicians	0	2	23	25	30	30	30	34	34	34	34	34	34	34	34
Mechanical, Electrical Engineers and Maintenance Planners	0	12	25	45	45	52	52	52	54	54	54	54	54	54	54
Fitters	0	166	272	350	380	423	491	580	598	638	657	637	642	637	663

[10] Note that this also includes construction of pits, access roads into pits and other associated "construction" work, excluding permanent haul roads which are include in "Construction Phase Workforce Profile – Infrastructure".

Operational phase workforce profile - Mine															
Electricians	0	2	68	80	76	76	72	72	72	72	72	72	72	68	68
Auto Electricians	0	3	7	11	18	20	20	20	20	20	20	20	20	20	20
Boilermakers	0	3	7	11	18	20	20	20	20	20	20	20	20	20	20
Other Trades	0	4	16	18	24	24	24	24	24	24	24	24	24	24	24
Fitter / Electrical Operators for CPP / Loadout	0	0	22	22	28	28	30	30	30	30	30	30	30	30	30
Administration including Maintenance, IT, HR, Safety, Environmental, Emergency Services, Finance and Warehouse	0	53	143	181	210	233	248	248	248	248	248	248	248	248	248
Village and Airstrip Management	0	50	75	75	75	100	150	150	150	150	150	150	150	150	150

Table 3 Construction phase workforce profile - Rail

	2014	2015	2016	2017
Total Headcount	**550**	**1,500**	**1,470**	**400**
Occupation *Composed of:*				
Superintendents and Managers	10	30	30	10
Designers and Engineers	10	30	30	10
Tradespeople being fabrication, boilermakers, carpenters, fitters, and electrical	130	440	440	130
Construction – equipment operators and supervision	250	850	850	250
Quarry workforce	150	150	120	0

Table 4 Operational phase workforce profile - Rail

Operational phase workforce profile - Rail															
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total Headcount	**0**	**0**	**15**	**40**	**60**	**120**	**120**	**120**	**120**	**120**	**12**	**120**	**120**	**120**	**120**
Occupation *composed of:*															
Superintendents and Managers	0	0	3	3	4	5	5	5	5	5	5	5	5	5	5
Planners and Engineers	0	0	5	5	6	10	10	10	10	10	10	10	10	10	10
Rail Operators	0	0	7	32	50	105	105	105	105	105	105	105	105	105	105

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