

21 SOCIAL ENVIRONMENT

21.1 SOCIAL CONSIDERATIONS

Issue:

Clarification was sought on the consideration given to social issues by BHP Billiton and the South Australian Government during the preparation of the Draft EIS.

Submission: 26

Response:

In preparing the Draft EIS, BHP Billiton has given careful consideration to understanding the social, cultural and community issues that may arise in the construction, operation and decommissioning of the proposed expansion of Olympic Dam, and to developing appropriate management measures to reduce impacts and maximise benefits. BHP Billiton is not in a position to comment on the consideration given to the social issues by the South Australian Government.

The Draft EIS was prepared to meet, and in most cases exceed, the EIS Guidelines of the Australian, South Australian and Northern Territory governments (refer Appendix A of the Draft EIS). The EIS Guidelines required an assessment and discussion of issues that could have a significant environmental, social or economic impact or benefit. This was presented in the Draft EIS.

For the Draft EIS, specialist consultants worked closely with BHP Billiton management and design teams in an iterative process, where designs were modified and management measures added to minimise impacts and maximise benefits, in order to establish cost-effective and environmentally, socially and culturally acceptable outcomes. For example, major elements of project infrastructure have been planned and designed to reduce social impacts, including:

- Hiltaba Village – located to take account of the views of residents, known heritage sites, the need for separation from dust and noise sources at the mine and proximity to the new airport
- the landing facility – included in the project configuration to reduce the potential disruption to traffic if a road-only transport solution was adopted; and located to minimise the number and proximity of adjacent coastal homes
- new project infrastructure – aligned adjacent to existing infrastructure corridors wherever possible to minimise impacts on landholders.

The consideration of social effects has continued following the release of the Draft EIS and, in response, a number of changes are proposed. These are:

- realigning the access corridor from the landing facility to the pre-assembly yard – as requested in public submissions and in discussion with the South Australian Government to take account of existing and future residential development
- changing the method of installation for the desalination plant's outfall pipe from trenching to tunnelling – this addresses concerns raised in submissions about marine blasting and would reduce impacts associated with access and ground disturbance to landholders and visitors.

The preparation of the Roxby Downs Draft Master Plan (as presented in Appendix F4 of the Draft EIS) also provided for the future expansion of the Roxby Downs township and considered the requirements for housing and accommodation, retail and social services, recreation and open space, access and mobility, and industry to meet social planning directives.

A number of chapters of the Draft EIS had a particular focus on social and community considerations.

Chapter 7 described the stakeholder consultation and engagement process undertaken during the preparation of the Draft EIS, in order to identify issues and concerns about the proposed project, and to ensure that these issues were considered in the project design and addressed in preparing the Draft EIS.

Chapter 19 presented the findings of a social impact assessment, undertaken as part of the Draft EIS, which examined:

- employment and business
- crime and anti-social behaviour
- housing supply and affordability
- social services and facilities
- social character, well-being and amenity
- access and disturbance.

The methods used to assess the social impacts of the proposed expansion encompassed the following activities:

- profiling the existing social environment to establish baseline social conditions
- conducting social research and benchmarking to identify potential impacts
- consulting with members of the public and stakeholder groups to identify potential issues
- undertaking an impact and risk assessment and identifying management measures.

Social issues were also considered in other chapters of the Draft EIS, including:

- Chapter 9, Land Use
- Chapter 13, Greenhouse Gas and Air Quality
- Chapter 14, Noise and Vibration
- Chapter 17, Aboriginal Cultural Heritage
- Chapter 18, Non-Aboriginal Cultural Heritage
- Chapter 20, Visual Amenity.

In summary, in preparing the Draft EIS, BHP Billiton has carefully considered the social, cultural and community issues that may arise in the construction, operation and decommissioning of the proposed expansion of Olympic Dam; modified the design of project infrastructure to reduce impacts and maximise benefits; and identified management measures to achieve socially, culturally and environmentally sensitive outcomes.

21.2 LABOUR SUPPLY

21.2.1 LABOUR REQUIREMENTS AND SKILLS DEVELOPMENT

Issue:

Further information was sought about the occupational breakdown for the construction workforce and expanded operation.

Submission: 2

Response:

As discussed in Section 19.5.1 of the Draft EIS, the profile of the future operational workforce is expected to be similar to that of the present operational workforce, while the construction workforce is expected to mainly comprise workers in the trades or in semi-skilled labour and related occupations.

Section 19.3.4 of the Draft EIS presented information on the occupational profile of current BHP Billiton employees at Olympic Dam, who are made up of approximately 40% labourers, 33% professional or associated professional occupations, 16% tradespeople or trades-related, and 11% employed in other occupations.

More detailed workforce planning (including occupational categorisation and skills set requirements) would be completed and provided to government, training organisations and other relevant stakeholders should the project be approved, and as detailed engineering is completed and major construction commitments are planned.

Issue:

Further information and commentary was sought about the impact of the expansion on the labour market, including post-construction.

Submissions: 2 and 78

Response:

The conclusions of the labour market assessment, as presented in Section 19.5.1 of the Draft EIS, were that the adverse impacts from skills and labour shortages were expected to be high, and may affect local, regional and statewide enterprises over an extended period, and particularly during the peak construction period. The expansion would, however, also have a high residual benefit by creating sustained employment (both direct and indirect) over the long term.

Section 19.5.1 of the Draft EIS presented an analysis of the impact of the proposed expansion of Olympic Dam on the labour market, based on work undertaken by the National Institute of Labour Studies (NILS). This assessment showed that the greatest demand for labour from the proposed expansion is expected in trades, semi-skilled (transport and production workers) and labourer occupational categories, which would occur at the same time as forecast growth in demand for labour in the minerals resources sector in all states, including South Australia. Over the same period, employment growth rates are forecast to decline due to changes in the age of the workforce, an increasing number of retirements and associated declines in labour force participation.

The results of this analysis were summarised in Table 19.14 of the Draft EIS, which showed the projected increase in demand for labour in the minerals resources sector in Australia and South Australia compared to projected economy-wide employment growth (as an indicator of supply) for six occupational categories from 2008–2015. This highlighted the expected decline in supply in several occupational categories in South Australia, including trades and related, and labourers and related, at the same time as demand from Olympic Dam is predicted to increase.

The effects of major resource projects (both positive and negative) have been recognised in a discussion paper on employment, labour and skills issues in the resources sector, recently released by the National Resources Sector Employment Task Force (2010). The task force was established by the Australian Government to address the workforce needs of major resource projects, analyse the expected demand for labour, consider supply issues, and develop a plan to address labour and skills shortages in the sector in order to support new job opportunities across the country, while avoiding the impacts of skills shortages.

Subsequent to the release of the Draft EIS, a further analysis of data from the NILS assessment was undertaken to provide additional detail on the impact of the expansion on the labour market. This is presented in Table 21.1 and shows the projected growth in demand from the expansion of Olympic Dam as a proportion of projected growth in employment economy-wide in Australia and South Australia between 2010 and 2015 (i.e. the Draft EIS forecast peak construction period) and between 2015 and 2020 (i.e. towards the end of construction).

The NILS methodology for projecting Australian and South Australian employment is based on non-linear extrapolations of past growth rates (from 1996–2008) combined with census data of 10-year age cohorts. As noted by NILS, this assumes a continuation of past trends into the future, with increasing uncertainty about projections, particularly in the longer term. As a consequence, projections were not made beyond 2020.

Table 21.1 Projected growth in employment in Australia and South Australia by 2015¹

Occupational category	Projected growth in employment 2010–2015 (number of people)			Projected growth in employment 2015–2020 (number of people)		
	Economy-wide Australia ²	Economy-wide South Australia ²	Olympic Dam expansion ³	Economy-wide Australia ²	Economy-wide South Australia ²	Olympic Dam expansion ³
Managers and administrators	116,400	6,100	15	102,300	11,800	5
Professionals	177,600	4,000	200	120,800	3,900	25
Associated professionals	139,700	7,300	40	96,300	12,300	5
Tradespeople and related workers	13,300	-3,000	2,400	-2,100	-6,600	-1,075
Intermediate production and transport workers	24,300	4,300	2,350	16,700	7,950	-630
Labourers and related workers	19,300	-2,600	1,400	16,150	-4,700	-320

¹ Source: National Institute of Labour Studies and BHP Billiton 2008

² Based on past trends in the occupational composition of the labour force, the current age structure of the population and participation rates of workforce participants by age and gender as at 2008.

³ Based on the labour force requirements outlined in the Draft EIS and excluding the current Olympic Dam workforce.

This analysis shows that the growth in demand from Olympic Dam for workers in the trades and intermediate and lower-skilled occupational categories between 2010 and 2015 would occur at the same time as projected declines in the supply of tradespeople, labourers and related workers in South Australia. Nonetheless, during peak construction periods (i.e. around 2015), Olympic Dam would require less than 4% of workers in each of the critical occupational categories in South Australia (i.e. tradespeople and related; intermediate production and transport workers; and labourers and related), and less in Australia (by a factor of more than 10).

From the peak construction period around 2015–2016, demand for construction workers for the Olympic Dam expansion would decline, as shown in Figure 19.10 of the Draft EIS. This would coincide with projected declines in the supply of tradespeople both nationally and at the state level, as well as declines in the number of labourers and related workers in South Australia (as shown in Table 21.1 of the Supplementary EIS). The impact on the labour market post-construction is likely to be further reduced by the activities of large contractor companies, which commonly relocate their construction staff as one project concludes and another commences.

As noted in Section 1.4 of the Supplementary EIS, the range analysis undertaken for an extended construction phase would have the implication of ‘stretching’ the timeframe over which social impacts would be felt and social benefits realised. The categorisation of impacts and benefits however would not change from that presented in the Draft EIS. In this regard, the potential for labour drawdown would continue to represent a ‘high’ impact, and the creation of long-term sustainable employment and business opportunities would continue to present a ‘high’ benefit.

As discussed in Section 19.5.1 of the Draft EIS, the expansion is expected to require an increase in the operational workforce at Olympic Dam of approximately 4,000 workers. The profile of the future operational workforce is expected to be similar to that of the present operational workforce, which is made up of approximately 40% labourers, 33% professional or associated professional occupations, 16% tradespeople or related, and 11% employed in other occupations (assuming the impact of technological and management changes on mining output per employee is minimal).

As outlined in Section 19.5.1 of the Draft EIS, workforce planning by BHP Billiton would continue to be responsive to labour market conditions and national and international project demands and changes in labour requirements over time.

BHP Billiton has also committed to supporting a number of employment and training initiatives of the Australian and South Australian governments and would continue to participate in government and industry groups to address skills shortages and reduce potential labour impacts.

Issue:

Clarification was sought about labour sourcing and BHP Billiton's contribution to employment and training, including the processes to acquire the required skills and workforce and the conditions under which overseas workers would be recruited. It was requested that BHP Billiton establish employment targets and contribute funding to employment and training initiatives.

Submissions: 2, 44, 78 and 302

Response:

As presented in the Draft EIS, BHP Billiton has indicated its intention to recruit locally, regionally and nationally in the first instance, although some overseas recruitment may be required in occupations where there are skills shortages in Australia. BHP Billiton would also provide and support a range of training strategies to address identified skills shortages and workforce requirements.

As presented in Section 19.5.1 of the Draft EIS, BHP Billiton would continue to work with industry, government, training providers and other stakeholders to reduce potential labour impacts from the proposed expansion, and to maximise statewide benefits through collaborative workforce planning and skills development.

As presented in Section 19.5.1 of the Draft EIS, workforce planning would continue throughout the project definition and construction phases. As the project progressed, detailed information on the workforce and skills requirements (including the size, make-up and sourcing of the workforce) would be provided to the South Australian and Australian governments, regional development boards, education and training providers and other relevant organisations.

BHP Billiton has indicated its intention to recruit locally, regionally and nationally in the first instance. This is also reflected in the *Roxby Downs (Indenture Ratification) Act 1982*, which requires BHP Billiton to use the services of engineers, surveyors, architects and other professional consultants and labour available in the state, as far as is reasonable and economically practicable.

The skills sourcing strategy would need to be flexible enough to respond to changes in labour demand and supply sources over time, with different skills sets needed at different points in time during the expansion and requiring different responses. Options to obtain each skill set would therefore be constantly assessed. The specific sourcing strategy for each skill set would be decided at the appropriate point in time, and would allow sufficient lead time to implement up-skilling and training initiatives.

As a result of potential skill shortages in Australia, some overseas workers may be required, although they would be a relatively small component of the workforce. As outlined in Section 19.5.1 of the Draft EIS, BHP Billiton anticipates this would be largely confined to contractors employed directly on construction activities and commissioning and would involve between 200 and 500 construction contractors. In addition, approximately 5% of operational staff (or about 200 people) could be required to fill a range of professional and senior operational roles. The temporary business (long-stay) visa and labour agreements are the most commonly used program for employers to sponsor overseas workers to fill nominated skilled positions in Australia. The recruitment of overseas workers by BHP Billiton or subcontractors would accord with government policies and requirements. BHP Billiton also recognises the right to choose to belong to a trade union. BHP Billiton is not in a position to comment on the determination or merit of these policies.

As outlined in Section 19.5.1 of the Draft EIS, BHP Billiton is proposing to address potential skills shortages and labour impacts by participating in government and industry groups. Key considerations included:

- recommendations in recent reports by the National Institute of Labour Studies and others
- the extent and composition of labour force requirements
- vocational and educational training requirements for both new and older workers, including pre-vocational training, traineeships and apprenticeships, on-the-job training, retraining and multi-skilling
- more flexible and 'family friendly' work environments
- the location, training and other issues associated with the potential use of labour from industry sectors in decline (such as manufacturing).

BHP Billiton has also acknowledged that opportunities may exist for cross-company cooperation on labour by BHP Billiton and other regional enterprises.

One of the benefits of the proposed expansion of Olympic Dam is the substantial new employment and business opportunities that would be created locally, regionally and statewide. As identified in the Draft EIS, this would afford opportunities for skills development and job placement in areas with high unemployment, including the northern region, and among less traditional labour sources (including females, Aboriginal communities, mature-aged, retrenched and unskilled workers).

Employment targets would be discussed and determined as part of the Social Management Plan. Draft indicators have been prepared by BHP Billiton for discussion and finalisation in collaboration with the South Australian Government (see the draft Social Management Framework in Appendix J1 of the Supplementary EIS). This may include discussions relating to:

- the proportion of positions filled by South Australians at Olympic Dam
- the number of Aboriginal people attending the existing Indigenous Participation Program and attaining employment at Olympic Dam
- the proportion of women in the Olympic Dam workforce
- the proportion of apprentices and graduates at Olympic Dam in relation to workforce size.

Table Q7.3 of Appendix Q7 of the Draft EIS provided information on workforce diversity and development and training in a selection of other major Australian mining and heavy engineering companies.

As presented in Section 19.5.1 of the Draft EIS, the BHP Billiton strategy for the proposed expansion would focus on providing training to suitable individuals interested in careers in the resources sector, rather than seeking to attract experienced mining operators from elsewhere.

Programs to attract, train and retain the necessary workforce would be implemented by BHP Billiton, in collaboration with government, providers and other relevant organisations. In this regard, BHP Billiton would proactively work with government, regional development boards, TAFE and other training and education providers to meet skills requirements.

BHP Billiton has demonstrated its commitment to this strategy through on-site training for almost 100 apprentices, the employment of 60 graduates and, more recently, by funding external diesel mechanic apprentice training for 42 retrenched Mitsubishi employees and providing bursaries for eight students a year to study chemical and mining engineering for four years at the University of Adelaide.

BHP Billiton's commitment to Aboriginal training and employment is reflected in the Olympic Dam Agreement, which was described in Chapter 17 of the Draft EIS, Aboriginal Cultural Heritage. As part of its overall approach to Aboriginal training and employment, BHP Billiton is currently implementing an Olympic Dam Indigenous Participation Program. This program aims to increase Aboriginal employment in the Olympic Dam workforce (both within the company and its many contractors) and to enable Aboriginal enterprises to secure contracts at site. In line with this, the company is also trialling a range of innovative approaches to engage Aboriginal employees and provide a clear pathway to meaningful training and employment opportunities.

BHP Billiton has also committed to developing an Aboriginal Engagement Plan as part of the expansion project, which would cover the following aspects:

- details of commitments under the Olympic Dam Agreement
- an outline of people in the organisation who have responsibility for Aboriginal engagement and delivery of the commitments
- cross-cultural training for all employees and contractors
- plans for employment and training of local Aboriginal people and identifying potential positions for Aboriginal people, including training programs and apprenticeships
- identifying contracting or subcontracting opportunities that could be made available to local Aboriginal businesses
- consideration of wider business or joint-venturing opportunities with local Aboriginal businesses
- support for local Aboriginal business development.

BHP Billiton supports the Graham (Polly) Farmer Foundation in Port Augusta to assist Indigenous students to complete their secondary education, further reflecting BHP Billiton's commitments to Aboriginal employment and training.

The suggestion made in one submission to establish a training levy system in the mining industry (similar to the construction industry training fund), enforced and regulated through state legislation and managed by a board with union and employer representation, is a matter for government consideration.

Issue:

Comment was sought on the extent to which a larger operation may reduce workforce turnover in Roxby Downs.

Submission: 2

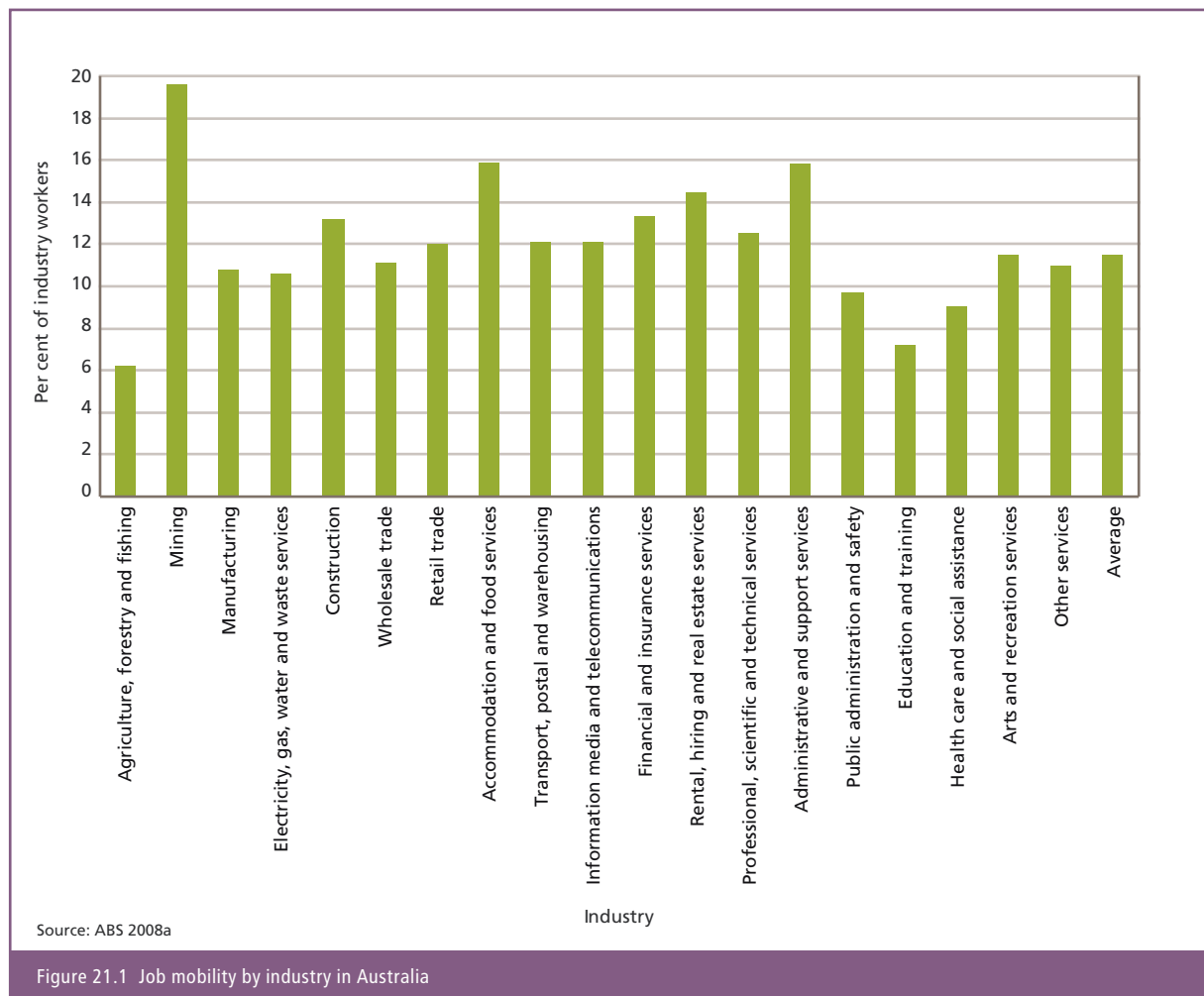
Response:

The analysis of workforce turnover and population size undertaken for the Supplementary EIS suggests that the size of the mining operation does not necessarily dictate workforce turnover and that a range of factors affect residential and workforce mobility.

As described in Section 19.3.3 of the Draft EIS, the Roxby Downs population is highly mobile, with people typically moving there for work, and leaving after several years, or as they near retirement. These characteristics are common to many mining towns in Australia and are likely to persist at Roxby Downs despite the expansion.

A study on community perceptions undertaken for BHP Billiton by the Centre for Social Responsibility in Mining and the University of Queensland Social Research Centre (2007) found that over 50% of Roxby Downs residents said they would definitely or probably move away in the next five years. The most commonly stated reasons were lifestyle options, educational opportunities for children, being closer to family members, and better employment prospects elsewhere.

As illustrated in Figure 21.1 of the Supplementary EIS, the mining industry has the highest rate of job mobility of any sector in the Australian economy, with 19.6% of the workforce changing employer/business annually (in the previous 12 months as at February 2008), compared to 11.5% nationally (ABS 2008a). The current rate of employee turnover at Olympic Dam (as at December 2009) is 15%. A discussion paper released by the National Resources Sector Employment Task Force (2010) suggests that the high turnover in the resources sector is largely due to the difficulties of the work, the remoteness of project locations and the competition for skilled workers.



A study of workforce turnover in fly-in/fly-out (FIFO) mining operations in Australia (Beach et al. 2003) examined data from nine metalliferous mines (seven that were wholly or mostly FIFO and two town-based sites). This found substantial variation in employee turnover rates between and within mine sites – at the seven FIFO sites, annual turnover of company employees ranged from 10% to 28%, with the average being 21% (as at June 2002). The two town-based sites had annual turnover rates of 8% and 27%. Within sites, the study found that turnover tended to be highest among professional and managerial staff, and in the mining operations area. Based on research from their own and other studies (e.g. MOSHAB 2002), they also suggest that contractor workforces appear to be less stable than company workforces. The study also noted that employee turnover rates vary markedly over time, and that this appears to be due mainly to site-specific factors, such as changes in working arrangements and management interventions.

Beach and others (2003) suggest that the main drivers of turnover are often internal, rather than external, to the mine site, and include the roster structure, level of management commitment to employee training and skills development, a positive workplace culture, parity of wages with labour market competitors and management perceptions of employee turnover.

Other studies of labour turnover and retention strategies have identified similar factors contributing to turnover. A literature review undertaken for the National Meat Industry Training and Advisory Council Ltd. (ACIRRT n.d.) suggested key factors include job satisfaction, organisational commitment, comparison of alternatives and intention to quit. This review also cites a study by Kirschenbaum and Mano-Negrin (1999) which suggested that turnover is affected by organisational size, as the key driver of an organisation's internal labour market, and that this effect occurs primarily through wage rates but also through career progression and promotional opportunities.

Table 21.2 of the Supplementary EIS compares residential mobility in mining communities of different sizes across Australia, based on 2006 census data (ABS 2007a) on the number of residents who lived at a different address one year ago and five years ago as a proportion of the total population. The criteria used to select communities for comparison is similar to that used in Appendix Q6 of the Draft EIS (i.e. the majority or a large proportion of the population employed in mining and in a remote or very remote location), but does not exclude areas because of size (between 2,000 and 20,000 people), demography or the number of towns in the area. The Local Government Areas that were previously selected for benchmarking in the Draft EIS are shaded in Table 21.2.

Table 21.2 Mining communities by population size and residential mobility, 2006

Local Government Area ¹	Mining ² (%)	Population size ³	Remoteness ⁴	Demography ⁵	Residential mobility (% living at a different address) ⁶	
					One year ago	Five years ago
Coober Pedy (SA)	Mining (10.1)	2,000	Very remote	L	15.1	31.8
Weipa (Qld)	Mining (38.8)	3,030	Very remote (94%)	H	29.3	62.8
Peak Downs (Qld)	Mining (36.6)	3,400	Remote	H	22.2	54.4
Roxby Downs (SA)	Mining (48.6)	4,290	Remote		31.5	64.2
Nhulunbuy (SLA) (NT)	Mining (33.9)	4,430	Very remote	H	25.4	60.6
Cobar (NSW)	Mining (30.7)	5,110	Remote (91%)	L	20.1	44.9
Ashburton (WA)	Mining (49.9)	6,510	Very remote	H	23.8	65.6
East Pilbara (WA)	Mining (41.5)	7,160	Very remote	M	29.5	57.3
Broadsound (Qld)	Mining (43.5)	7,310	Outer regional (52%) Remote (48%)	H	23.4	50.6
Belyando (Qld)	Mining (37.7)	11,190	Outer regional (62%) Remote (35%)	H	25.3	52.0
Port Hedland (WA)	Mining (18.9)	12,990	Remote (97%) Very remote (3%)	H	31.8	59.2
Roeboourne (WA)	Mining (23.2)	17,670	Remote (91%) Very remote (9%)	H	29.3	61.5

Source: Australian Bureau of Statistics

¹ Local Government Area, except for Nhulunbuy, where data is based on the Statistical Local Area (SLA). Shaded areas were previously selected for benchmarking based on their comparability to Roxby Downs Local Government Area.

² Majority of the working population employed in mining or mining-related employment (except in SA). Based on the 2006 Census of Population and Housing, place of usual residence, industry of employment by occupation (ABS 2007a) and industry of employment – mining-related industries (Quickstats, ABS 2007b).

³ Between 2,000 and 20,000 residents. Based on estimated resident population (ABS 2008b).

⁴ Greater than 30% of the population living in a remote or very remote area. Based on the 2006 Census of Population and Housing, National Regional Profiles (ABS 2008b).

⁵ Ranked demographic compatibility. Based on 2006 Census of Population and Housing (ABS 2007a, 2007b and 2007c).

⁶ Based on the 2006 Census of Population and Housing, place of usual residence (ABS 2007a).

This analysis suggests that larger mining communities do not necessarily have lower residential mobility and that other factors may affect turnover.

As the township of Roxby Downs has been established for over 20 years, both the residents and the operation's management are experienced with the benefits and challenges associated with a high workforce and population turnover, including the high proportion of long distance commute (LDC) workers. BHP Billiton is aware of the costs of high workforce turnover and, as such, there is a constant focus on initiatives to reduce turnover.

It is expected that the total workforce and the population of Roxby Downs would increase as a result of the proposed expansion. It is difficult to predict whether a larger operation would increase or reduce turnover. This level of detail would not change the impact assessment presented in Chapters 19, Social Environment, and 21, Economic Assessment of the Draft EIS.

The Draft EIS identified and discussed management measures and initiatives for the proposed expansion in relation to sourcing and retaining the workforce and maintaining and enhancing the amenity and lifestyle of Roxby Downs.

21.2.2 EFFECTS ON LOCAL AND REGIONAL EMPLOYMENT

Issue:

One submission identified staff recruitment and retention as a critical factor influencing the viability of the mine and the township. It also noted that recruitment and retention would be affected by the quality of the social amenities, and is related to the short- and long-term viability of Roxby Downs Council.

Submission: 72

Response:

The importance of staff recruitment and retention to the viability of the mine and the township of Roxby Downs is acknowledged. The Draft EIS also recognised the importance of maintaining and enhancing the amenity and lifestyle of Roxby Downs to workforce recruitment, including the provision of high-quality education, health and other services.

Section 19.5.1 of the Draft EIS highlighted the challenges that BHP Billiton would face in attracting the required workforce for the proposed expansion, which would require a range of strategies to meet employment needs. It also identified the key variables that differentiate and attract an employee in the marketplace and influence workforce stability. These include the physical environment, management practices, workplace culture and conditions, and reputation. Related factors such as job design, career opportunities, remuneration, housing, perceptions of lifestyle and community, education and training, and impacts on family and health were also identified as important.

Management measures identified in Section 19.5.1 of the Draft EIS in relation to workplace and living conditions included:

- offering competitive remuneration and rewards
- providing attractive and flexible career prospects
- providing employee development opportunities, such as study cost reimbursement, conference attendance and in-house training
- providing high-quality living environments and workplace conditions
- working with the community and government to improve amenities and facilities in Roxby Downs.

The Roxby Downs Council also plays an important role in maintaining and enhancing the amenity of Roxby Downs, by carrying out traditional local government functions and managing electricity, water and sewerage services. Municipal functions are currently funded via rates that the council levies on properties (based on general valuations), with shortfalls in the council's agreed annual budget funded equally by BHP Billiton and the South Australian Government. These arrangements are considered to provide sufficient stability and certainty to enable the council to adequately carry out its municipal functions.

Issue:

Submissions commented on the difficulties in attracting and retaining local staff and opportunities for collaborative practices between BHP Billiton and other local employers.

BHP Billiton was asked to work with local businesses to establish an employment database and to implement other strategies to attract key non-mining staff to work in essential services.

It was also suggested that local people were being deprived of 'green' jobs because of outdated attitudes to environmentally sustainable industries.

Submissions: 71, 72 and 130

Response:

Section 19.3.4 of the Draft EIS noted that staff recruitment and retention affects business, services and community groups in Roxby Downs.

The social impact assessment undertaken for the Draft EIS noted that while the expansion of Olympic Dam would create new job opportunities locally, regionally and statewide, it may also increase competition for labour, and draw labour and resources away from other areas in the state, particularly during the construction phase (refer Section 19.5.1 of the Draft EIS).

Section 19.3.4 of the Draft EIS highlighted this as an issue in the Roxby Downs Community Plan (Roxby Downs Community Board 2005). It has also been identified as an issue in other mining communities in Australia (refer Appendix Q8.3 of the Draft EIS) and can be compounded by high housing and living costs.

A continuing emphasis on skills development and training would be needed to reduce potential labour impacts and maximise statewide social benefits. To this end, BHP Billiton and the mining industry are collaborating with the South Australian and Australian governments, regional development boards and education and training providers to address skills and labour shortages, and will continue to do so.

At a local level, BHP Billiton, in consultation with the Roxby Downs Council and the community, would continue to monitor the situation in Roxby Downs and, where a gap exists, would work with relevant stakeholders to develop a strategy to address identified shortfalls. This could involve initiatives such as an employment database.

In specific circumstances, where market forces were unable to attract and retain key workers required for the well-being of the community, BHP Billiton may, on a case-by-case basis, consider providing support or incentives to attract or retain essential services. For example, BHP Billiton currently provides housing assistance to doctors in private practice in Roxby Downs to secure and retain their services.

Government incentives are in place to attract medical and allied health service professionals to country areas and retain them. The Australian Government has developed incentive schemes to address the shortage of general practitioners in rural and remote Australia through the General Practice Rural Incentives Program, which includes a General Practitioner Component; Registrar Component; and Rural Relocation Incentive Grant (Department of Health and Ageing 2010). The South Australian Rural Doctors Workforce Agency also offers grants to help recruit and retain general practitioners in rural and remote communities. These grants include Workforce Grants (Relocation Support Subsidy, Isolation Support Grant, Rural Retention Grant, and Rural Female General Practitioner Pre-School Childcare Grant); Professional Development Grants (Continuing Professional Development Grant, Procedural Assessment Grant/Training Grant and Post Graduate Medical Scholarship Subsidy) and Spouse Employment Assistance Grants (Rural Doctors Workforce Agency 2006).

As discussed in Section 19.5.4 of the Draft EIS, governments may also need to provide subsidised housing and/or other incentives to recruit staff into health and other services at Roxby Downs. In recent state budgets, to help recruit government employees to Roxby Downs, the South Australian Government has committed funds to upgrading and replacing housing. Some government agencies also provide rental subsidies to employees.

BHP Billiton would also work with the South Australian Government to ensure the availability of affordable housing for low- and moderate-income households. This may help attract and retain workers (and their families) in non-mining industries. The proposed Social Management Plan and partnership between BHP Billiton, the South Australian Government and the community, would provide a mechanism to identify and respond to social issues arising from the expansion, including staff recruitment and retention in key non-mining industries (see Appendix J1 of the Supplementary EIS for further details).

With regard to the issue about jobs in environmentally sustainable industries, the Draft EIS identified project components that would help protect environmental values and reduce greenhouse emissions. These included generating electricity from waste heat (i.e. cogeneration) at Olympic Dam and using renewable electricity for the desalination plant at Point Lowly (refer Sections 13.2.4 and 13.2.5 of the Draft EIS and Chapter 13 of the Supplementary EIS for details). Use of these technologies would help create new 'green' jobs, in addition to the 4,000 new full-time jobs and up to 6,000 new short-term jobs at Olympic Dam (over and above the current Olympic Dam workforce).

Issue:

Further information was requested on initiatives to promote local employment and whether recruitment organisations used by BHP Billiton would have local recruitment targets.

Submission: 6

Response:

The Draft EIS outlined a range of employment and training initiatives that are supported by BHP Billiton to promote local employment. It also noted that a continuing emphasis would be needed on skills development and training to attract and retain the workforce for the expansion and maximise statewide social benefits.

As presented in Section 19.5.1 of the Draft EIS, the increase in the construction and expanded operation at Olympic Dam is expected to provide significant benefits, including new business and employment opportunities locally, regionally and statewide.

In the first instance, BHP Billiton would actively seek to recruit locally, then regionally, and from within the state. As noted in Section 21.2.1 of the Supplementary EIS, under the *Roxby Downs (Indenture Ratification) Act 1982*, BHP Billiton is required to use the services of engineers, surveyors, architects and other professional consultants and labour available from within the state, as far as is reasonable and economically practicable.

As outlined in Section 19.5.1 of the Draft EIS, BHP Billiton is supporting a range of employment and training initiatives to promote local employment, with the aim to increase as appropriate. These initiatives include:

- expanding its traineeship and apprenticeship intake
- supporting TAFE SA programs in Roxby Downs, including the 'Job Readiness' program and pre-vocational training in mechanical engineering
- introducing a vacation employment program for engineering students
- supporting an annual Careers Expo in Roxby Downs
- targeting employment and skills formation for Aboriginal people
- proactively working with governments, regional development boards, TAFE and other training and education providers to build the capacity of South Australian businesses and to meet skill requirements.

In addition, BHP Billiton is supporting two new employment and training initiatives targeted at local people in Roxby Downs, Andamooka and Woomera, including the unemployed and those looking to get back into the workforce. These initiatives are the Community Learning Places program and the Business Administration Traineeship program.

The Community Learning Places program is funded by BHP Billiton to enable local people to participate in Roxby Downs TAFE courses. A number of positions are offered on each course to help members of the regional community access training courses that may otherwise not be made available to them. Applications are invited from the broader Andamooka, Roxby Downs and Woomera communities. Positions have been offered to people from non-English-speaking backgrounds, recent school leavers, unemployed people, parents re-entering the workforce and other people who could potentially benefit from personal development courses. Courses are offered throughout the year and to date have included Senior First Aid, Certificate IV Frontline Management, Certificate IV Workplace Training and Assessment, and Occupational Health and Safety.

The Business Administration Program is a 12-month fixed-term initiative. The program was developed to give people living in the Olympic Dam region an opportunity to gain experience working at Olympic Dam. Trainees attend TAFE two days a week to complete the Certificate III in Business. The remaining three days are spent on-site learning the role of administrators and personal assistants. While on-site, trainees gain training and experience using programs specific to BHP Billiton. A schedule is prepared for trainees to rotate between the various departments at Olympic Dam, including Mining, Surface, Services, Strategy and Growth, Commercial, Government and Community, Health, Safety and Environment, and Human Resources. Trainees also spend time in the field, including underground. To date, nine trainees have completed the program, three in the 2009–2010 financial year. Of those completing the course in 2010, two have transitioned into full-time employment with BHP Billiton and the third has been hired as a contractor. Two places will be made available in 2011, when some changes may be made to the program format.

Employment targets would be determined as part of the Social Management Plan (see the draft Social Management Framework in Appendix J1 of the Supplementary EIS), which would be finalised and implemented by BHP Billiton in collaboration with the South Australian Government and the community.

Issue:

Concerns were expressed about the limited number of jobs that would be created for local people from the proposed landing facility, access corridor and desalination plant, and how the use of overseas labour to produce and ship goods to Australia could further reduce local job opportunities.

Submissions: 68, 135, 211, 263 and 272

Response:

The Draft EIS presented information about the workforce that would be required for the construction and operation of off-site infrastructure in Upper Spencer Gulf, and indicated the numbers of workers who may be drawn from surrounding areas to work at Olympic Dam.

Section 19.5.1 of the Draft EIS provided an indication of the peak workforce that would be required for the construction and operation of off-site infrastructure for the expansion of Olympic Dam, including the landing facility, access corridor and pre-assembly yard in Port Augusta, and the desalination plant at Point Lowly (see Table 21.3 of the Supplementary EIS). The size of the off-site workforce would vary from month to month, depending on the specific project component and tasks being undertaken.

Table 21.3 Labour requirements for off-site infrastructure in Upper Spencer Gulf

Infrastructure component	Peak construction workforce	Ongoing operations workforce
Landing facility and access corridor at Port Augusta	100	30
Water desalination plant at Point Lowly, supply pipeline and pumping stations	500	32 ¹

¹ Operational workforce only required for the desalination plant. The supply pipeline and pumping station would be monitored remotely, with workers dispatched on a regular basis for maintenance.

In addition to the off-site workforce, the expansion is likely to employ significant numbers of workers from Upper Spencer Gulf and the surrounding areas. This was detailed in Chapter 19 of the Draft EIS, and included a peak construction workforce of approximately 6,000, and an average of approximately 4,000 workers over the construction period. The Olympic Dam operation would also see a doubling of the existing workforce from 4,000 to 8,000 in the long term.

Based on the residential arrangements of the current workforce, BHP Billiton predicted the project could employ up to 1,000 workers from the Upper Spencer Gulf and surrounding region in both the construction and operation phases. This would involve programs to attract, train and retain the necessary workforce, which would be implemented by BHP Billiton in collaboration with government, training providers and other relevant organisations. The proportion of workers drawn from regional South Australia is expected to be similar to OZ Minerals' Prominent Hill mine, which draws approximately 12% of its workforce from northern regional South Australia (OZ Minerals 2009).

While the intention is to recruit locally, regionally and nationally in the first instance, given the size of the expansion workforce and potential skills shortages, BHP Billiton anticipates some international workers would be required in the construction and operation phases, largely to work on construction activities and commissioning. Estimates provided in the Draft EIS suggested between 200 and 500 construction contractors could be drawn from overseas during the peak construction and commissioning periods, and approximately 5% of operational staff (or approximately 200 people) could be required to fill a range of professional and senior operational roles.

In addition to the direct employment at Olympic Dam, as noted in Section 21.4.9 of the Draft EIS, other business and employment opportunities would arise for service providers, such as engineering, equipment supply and maintenance, and training and education. In this regard, a range of service providers in Port Augusta and Whyalla, such as road earthworks, security, IT and communications support, equipment hire and repair services would be required to support activities associated with the landing facility, access corridor and desalination plant. As such, there are likely to be opportunities for local businesses to leverage off the construction and ongoing operation of the off-site project components.

Given the size and complexity of the proposed expansion, and the range of goods and materials required, BHP Billiton is likely to use a combination of domestic and international suppliers. In this regard, some materials would be imported from overseas, as the volume and speciality of goods and services are likely to exceed the capacity of South Australian and Australian businesses.

To promote the participation of South Australian businesses in the expansion of Olympic Dam, BHP Billiton is working with the Industry Capability Network (ICN) South Australia and other economic development organisations. As part of the industry participation arrangements to be developed for the proposed expansion, an objective would be to engage local residents and companies in the Upper Spencer Gulf region in activities that support the landing facility, access corridor, pre-assembly yard and desalination plant on an ongoing basis. BHP Billiton would also continue to work with government, education and training providers, regional economic development boards and other stakeholders to develop local technical and professional skills.

It is anticipated that these arrangements would make a positive and ongoing contribution to the Upper Spencer Gulf community and result in increased long-term employment opportunities in the region.

The economic assessment presented in Chapter 21 of the Draft EIS also highlighted the economic benefits that could be expected in Port Augusta, Whyalla and other Upper Spencer Gulf communities as a result of the proposed expansion at Olympic Dam and associated off-site infrastructure at Port Augusta and Whyalla. Gross regional product in the Northern Statistical Division was predicted to increase by approximately \$22.6 billion in NPV terms over the modelled 30-year period and, while this would be largely felt in Roxby Downs, positive economic effects would be expected across the region.

21.3 LOCAL BUSINESS OPPORTUNITIES

Issue:

Further information was sought about local business opportunities, including:

- BHP Billiton's local procurement policies and practices, and its communication with local businesses
- whether priority would be given to local businesses in supplying goods and services for the expansion
- who would control the lease or sale of the land in the expanded light industrial estate and whether there would be a selection process to take account of the mix of tenancies.

Submissions: 6, 71 and 72

Response:

Substantial business opportunities would be created for local suppliers and contractors from the proposed expansion at Olympic Dam. BHP Billiton would continue to work with government, suppliers and others stakeholders to support local business opportunities and to enable local, regional or state suppliers to fulfil BHP Billiton's requirements and to maximise their participation in the project.

As presented in Section 19.5.1 of the Draft EIS, the proposed expansion of Olympic Dam is expected to provide substantial direct and indirect business opportunities for local, regional and statewide businesses. Direct business opportunities relate to the provision of goods and services to BHP Billiton and its contractors. Indirect opportunities relate to flow-on effects such as the servicing of residents and workers, and increased tourism and visitors to Roxby Downs, Andamooka and Arid Recovery. These opportunities would change over the construction and operational phases of the proposed expansion and could benefit a range of business types from one-person ventures to larger companies.

The agreement between BHP Billiton and the South Australian Government, ratified by the *Roxby Downs (Indenture Ratification) Act 1982*, includes a number of provisions relating to the use of local professional services, labour and materials, which refer to:

- using the services of engineers, surveyors, architects and other professional consultants resident and available in the state
- using labour available in the state
- ensuring that South Australian suppliers, manufacturers and contractors are given reasonable opportunity to tender or quote when tenders are called and contracts let for works materials, plant, equipment and supplies
- giving proper consideration, and where possible preference to, South Australian suppliers, manufacturers and contractors when letting contracts or placing orders for works materials, plant, equipment and supplies where price, quality, delivery and service are equal to or better than that obtainable elsewhere.

The BHP Billiton Group Code of Business Conduct (2008) outlines BHP Billiton's aim to clearly inform potential suppliers of its expectations, policies, requirements, standards and procedures.

As outlined in Section 19.5.1 of the Draft EIS, BHP Billiton would continue to work with government, regional economic boards, TAFE and other training and education providers to build business capacity and maximise local employment and business opportunities. It would also liaise with the Industry Capability Network (ICN) South Australia, supply industries and regional economic development boards to identify and best position state, regional and local suppliers to participate in the expansion of Olympic Dam.

The activities that BHP Billiton would undertake to enhance local business opportunities include:

- continuing to convene the Contractor Framework Implementation Team – while the focus of this group is on BHP Billiton's Health, Safety, Environment and Community (HSEC) Standards at Olympic Dam, it also provides a forum for communication and engagement with contract companies
- conducting supply forums (locally and elsewhere in South Australia) to provide information on current and future business opportunities, tendering processes and pre-qualifications of businesses
- reinstating a web address for potential suppliers to register and express interest in tender packages for the project
- re-establishing an online project supplier database, in conjunction with the Industry Capability Network South Australia, to enable potential suppliers to register their interest in the project
- continuing to fund the Olympic Dam Indigenous Participation Program to develop the capacity of Indigenous companies and contractors to supply goods and services to Olympic Dam
- working with government, regional economic development boards and education and training providers to support capacity building, meet skills requirements, and link existing or potential suppliers to improve local competition
- participating in the Roxby Downs Business Forum, if it is re-formed by local businesses
- giving consideration to the South Australian Government's Industry Participation Policy (Department of Trade and Economic Development 2005) to give local businesses a full, fair and reasonable opportunity to be considered for work in the expansion of Olympic Dam.

BHP Billiton also plans to expand the supply of serviced industrial land, as outlined in the Roxby Downs Draft Master Plan (refer Appendix F4 of the Draft EIS), in order to support the development of new businesses and industries. This includes the development of a new heavy industrial estate near the junction of Olympic Way and the heavy vehicle bypass, 6 km north of Roxby Downs, to provide approximately 150 new serviced allotments. An extension of the existing light industrial area, north of the township, is also proposed to provide approximately 90 additional serviced allotments.

BHP Billiton is currently responsible for issuing leases for land in the light industrial estate. It is likely that this would continue for the expanded light industrial area. A BHP Billiton committee, comprising the managers of facilities, finance, supply and public affairs at Olympic Dam, currently assesses these applications, based on whether the business is likely to be beneficial to the operation and/or the town. There are no restrictions based on existing tenancies (i.e. there is no restriction on competition), although the likely sustainability of a business is considered in granting a lease.

Issue:

Further information was sought on the type and scale of retail services to be provided in Hiltaba Village, how the village would be managed and whether transport services would be provided from Hiltaba Village to Roxby Downs to enable workers to access retail and recreation facilities in town.

Submissions: 71 and 168

Response:

The Draft EIS provided information on the design, location and management of Hiltaba Village, and the workforce transport arrangements.

Section 19.5.3 of the Draft EIS presented a concept plan for Hiltaba Village and identified a range of facilities that would be provided in the village. The concept plan provides for the main recreational and retail centre to be based around a central plaza at the 'core' of the village, with secondary centres located in the residential areas on the north-eastern and north-western sides of the village. These secondary clusters are planned to include internet cafes and associated small-scale retail and bottle shop facilities, a small public plaza, gym, swimming pool and recreation and sports area (refer Figure 19.15 of the Draft EIS, reproduced in the Supplementary EIS as Figure 21.2).

The workforce commuter bus service would link the airport, Hiltaba Village and the main worksites during construction and operation of the expanded mine.

The exact type and size of the retail outlets in Hiltaba Village would be determined during detailed design, but they are expected to be relatively small-scale, in keeping with the nature of the accommodation (i.e. rotating motel-style accommodation, with on-site dining and tavern facilities) and workforce requirements (i.e. short-term temporary contractors, employed on a long distance commute basis, who would be required to remove all personal effects on checking out).

The proposed operations concept for Hiltaba Village is to engage a single facilities management contractor to manage all aspects of the village for BHP Billiton, including tavern and retail operations, bussing and personal logistics. This is in line with standard industry practice and the existing Olympic Dam operation. The facilities manager would be responsible for identifying tasks that require the employment of subcontractors (subject to approval by BHP Billiton or their nominated representative). The potential, therefore, exists for third parties to manage and operate retail outlets, taverns and the workforce commuter bus services on a commercial leasing basis, as the preferred option. The coffee shop and internet cafes could also be provided by third parties as commercially operated facilities. These services would be tendered by the Hiltaba Village facilities manager to pre-qualified business suppliers.

BHP Billiton does not intend to provide a bus service between Hiltaba Village and Roxby Downs or Andamooka. As outlined in Section 19.5.2 of the Draft EIS, the intention would be to encourage the workforce to remain at the village for social and recreational activities by providing high-quality on-site facilities. BHP Billiton would, however, assist interested parties in a study aimed at determining the feasibility of a bus service between Andamooka and Olympic Dam, and would support any study that may be initiated by the State Government into the feasibility of a public transport system for Roxby Downs.

The retail and other commercial services in Hiltaba Village, however, could be provided by local businesses; this is an example of a potential business opportunity that could arise from the proposed expansion.

Issue:

Two submissions identified specific products that could potentially be used at Olympic Dam.

Submissions: 366 and 367

Response:

Specific product placements are referred to BHP Billiton's Olympic Dam Supply Manager, who would forward the matter to the responsible procurement officer for investigation. The officer would research the product and supplier and, if appropriate, place the supplier on a list of pre-qualified businesses, which may be invited to tender.

One submission discussed the value of a product in relation to dust reduction in Roxby Downs, and associated impacts on community health, safety and vegetation. Questions on dust impacts are dealt with elsewhere in the Supplementary EIS (see Section 14.1).



Figure 21.2 Conceptual layout of Hiltaba Village

21.4 TOURISM MANAGEMENT

21.4.1 TOURISM IN ROXBY DOWNS AND ENVIRONS

Issue:

Submissions supported the installation of a mine viewing platform and suggested there should be an increase in the number and availability of mine tours at Olympic Dam to boost visitor numbers to Roxby Downs and Andamooka.

Questions were also asked about tourism and hospitality opportunities in Andamooka as a result of the larger workforce and tourist numbers, and BHP Billiton was requested to review tourism as a potential benefit and impact of the proposed expansion.

The need to expand tourist accommodation facilities in Roxby Downs to support tourism opportunities was also raised.

Submissions: 6, 63, 71 and 72

Response:

Section 19.5.1 of the Draft EIS noted that tourism is one of the potential indirect business opportunities from the expanded operation at Olympic Dam for local and regional businesses. Section 20.5.3 of the Draft EIS noted that BHP Billiton would investigate the installation of a viewing platform that would allow organised tour groups to safely view the open pit and mining operation. This proposal received support in submissions to the Draft EIS from the South Australian Government's Department for Environment and Heritage Outback Consultative Committee, Roxby Downs Council, Roxby Downs Community Board and the Andamooka Progress and Opal Miners Association (APOMA). BHP Billiton would also consider increasing the number of mine bus tours, if this was warranted.

The significance of the proposed expansion at Olympic Dam has the potential to generate increased tourism in the region. An increase in the number of tourists to Olympic Dam is likely to result in flow-on visits to nearby communities. This could provide an opportunity for an existing or new private or community-based enterprise to establish a tourism service to Olympic Dam and other places of interest – for example, Arid Recovery and heritage sites in Andamooka – or to showcase Aboriginal heritage and culture.

The Roxby Downs Draft Master Plan (refer Appendix F4 of the Draft EIS) provides for the development of additional short-stay accommodation for tourists and visitors. This includes land for a 300-bay caravan and tourist park, to replace the existing smaller Roxby Downs Olympic Dam Caravan Park, and additional hotel/motel-style accommodation and serviced apartments in the town centre. The development of additional housing and accommodation by BHP Billiton to meet the demand of the permanent workforce and their families (including at Axehead Village, the transitional housing village on Axehead Road), would likely free up further short-term accommodation for tourists and visitors. The finalisation of the Roxby Downs Master Plan will be undertaken by the South Australian Government (see Section 1.3 of the Supplementary EIS for details).

BHP Billiton recognises the potential tourism opportunities that may result from an expanded operation, and has indicated it would work with local and regional businesses and industry groups to identify and facilitate such opportunities.

21.4.2 TOURISM IN UPPER SPENCER GULF

Issue:

Concerns were expressed about the potential of the proposed landing facility, access corridor and desalination plant to reduce tourism and visitor numbers to Upper Spencer Gulf, and the flow-on effects in terms of income generation and future development.

Submissions: 68, 130, 158, 211, 212, 231, 263, 272, 274, 385 and 355

Response:

The experience of other coastal cities in Australia, such as Newcastle and Geelong, suggests that industrial activity is not necessarily incompatible with tourism. BHP Billiton anticipates that a similar situation would occur and the tourism industry would continue for the cities of Port Augusta, Whyalla and in the Upper Spencer Gulf region, with little to no impact as a result of the infrastructure associated with the proposed Olympic Dam expansion.

In response to this concern, research has been undertaken since the release of the Draft EIS to examine the characteristics that influence travel and tourism and the current tourism profile of Upper Spencer Gulf. Specific issues relating to the effects of the proposed landing facility, access corridor and desalination plant on the attractiveness of Port Augusta and Whyalla as tourist destinations are also addressed.

The tourism profile of Upper Spencer Gulf is outlined below, as well as an assessment of the likely impact on tourism in each of the areas affected by the proposed landing facility, access corridor and desalination plant.

Tourism profile of Upper Spencer Gulf

The literature on travel and tourism highlights a number of factors that can contribute to the attractiveness of an area as a tourist destination; the decision to visit an area; and the travel experience (Hudson 1999; Crouch 2007; Fuller et al. 2007). Among these factors are:

- the characteristics of the destination and host community (such as the type and range of attractions, availability and quality of amenities/infrastructure, climate, culture/history and the hospitality of local people)
- travel stimuli (such as awareness/image, advertising, recommendations from others, travel literature, and personal or domestic reasons)
- features of the trip (such as cost, quality, value, location, accessibility, travel distances and safety)
- personal and social characteristics (such as age, income, previous travel experiences, attitudes and values).

This suggests there is a range of influences on people's interest and experiences in visiting an area and that the perception of visitors tends to be based on the totality of their experience, rather than on specific sites.

Data from Tourism Research Australia (2008) provides an indication of current overnight visitor numbers to Port Augusta and Whyalla, their origin and reasons for visiting, and visitor activities, as well as the number, size and contribution of tourism businesses (see Table 21.4 of the Supplementary EIS).

These statistics show that (based on a three-year average to June 2007), the City of Port Augusta attracted around 163,000 overnight visitors annually, the majority of whom were domestic visitors (mainly from South Australia). The average length of stay was two nights, with around 60% of visitors indicating their trip involved multiple stopovers, and therefore 40% had Port Augusta as their only destination.

For international visitors, the most common reason for overnight travel to Port Augusta was for holiday/leisure. For domestic visitors, the reasons for visiting were more varied and included holiday/leisure (38%), followed by business (22%), visiting friends or relatives (19%) and other purposes (21%). The major activity by visitors to Port Augusta was eating out; other activities by domestic visitors were 'walking or driving about', visiting friends and relatives, shopping, and going to pubs and clubs.

Data from Tourism Research Australia (2008) and the Australian Bureau of Statistics (ABS 2010a) suggest that tourism businesses account for approximately 40% of all businesses in Port Augusta (based on 2008 ABS data and 2007 Tourism Research Australia data). Of the 264 tourism businesses in Port Augusta, almost half (47%) were non-employed (i.e. sole operators) and the remainder employed either one to four people (17%); five to 19 people (26%); or 20 or more people (10%).

The City of Whyalla had fewer overnight visitors than Port Augusta, with a three-year average of 83,000 annually. The majority of visitors originated from South Australia, with very few international.

Visiting friends or relatives was a common reason for overnight travel to Whyalla (for 33% of visitors), with about one-fifth (21%) visiting for holiday or leisure, and almost half (47%) visiting for other purposes. The top activities were eating out (54%), followed by visiting friends and relatives (36%), going to pubs and clubs (28%), and walking or driving about (28%).

Tourism accounted for 294 businesses in Whyalla (ABS 2010b) (approximately one-third of all businesses in Whyalla). Like Port Augusta, almost half the tourism businesses were sole operations and the remainder were largely micro- or small-sized enterprises.

The tourism profile of the cities of Port Augusta and Whyalla indicates that the majority of overnight visitors are domestic visitors from South Australia, who visit for a diversity of reasons – commonly for other than holiday/leisure – and that the beach and coast are not major attractors. Tourism is nonetheless an important industry, accounting for 30–40% of businesses recorded in these cities.

Other coastal cities in Australia, such as Newcastle and Geelong, have diverse economic bases, including heavy industries, transport and shipping, education and services, and tourism. While the industrial sector continues to play a significant role in the economy of these cities, other sectors, including hospitality and tourism, continue to thrive. This would suggest that industrial activity is not necessarily incompatible with tourism. While Newcastle and Geelong are much larger than Port Augusta and Whyalla, a similar situation is likely to occur in the Upper Spencer Gulf region, with little or no negative impact on tourism as a result of the proposed Olympic Dam expansion.

Table 21.4 Tourism profile for Port Augusta, Whyalla, South Australia and Australia, 2008

Visitor characteristics (as a percentage, unless otherwise indicated)	City of Port Augusta		City of Whyalla ¹	South Australia		Australia	
	International	Domestic ²	Domestic ²	International	Domestic ²	International	Domestic ²
Number of overnight visitors ('000)	14	149	83	n.a.	n.a.	n.a.	n.a.
Proportion of total visitors	8.6	91.4	99	n.a.	n.a.	n.a.	n.a.
Average stay (nights)	1.8	2.0	2.7	18.6	3.6	28.5	3.9
Spend (\$m)	n.p.	29	31	n.a.	n.a.	n.a.	n.a.
Spend per night (\$)	n.p.	98	141	73	117	97	126
Origin							
Interstate	n.r.	43	20	n.r.	36	n.r.	33
Intrastate	n.r.	57	80	n.r.	64	n.r.	67
• Adelaide		36	50		37		5
• Other SA		21	29		28		3
Purpose							
Holiday/leisure	95	38	21	63	43	58	43
Visiting friends/relatives	n.p.	19	33	24	32	33	35
Business	n.a.	22	n.a.	n.a.	19	16	19
Other (e.g. educational, personal, health-related)	n.p.	21	47	20	8	17	6
Accommodation							
Hotel, resort, motel/motor-inn	35	38	41	45	31	60	36
Caravan park or camping	51	25	13	13	16	6	11
Friends or relatives	n.p.	19	36	27	39	37	42
Backpackers	10	n.a.	n.a.	20	n.a.	10	n.a.
Rent a house/apartment/flat	n.a.	n.p.	n.a.	n.a.	6	10	7
Other (e.g. guest house, B&B, boat, houseboat, home-stay)	n.p.	14	n.p.	14	13	14	10
Top activities							
Eat out	74	49	54	90	50	89	52
Go shopping	n.p.	28	n.a.	85	28	83	29
Go to the beach	n.p.	n.a.	n.a.	74	n.a.	62	24
Visit friends/relatives	n.p.	28	44	24	44	33	45
Pubs, clubs, discos	n.p.	27	28	59	26	43	24
Just walking or driving	n.p.	31	28	n.a.	30	n.a.	28
National/state park	n.p.	12	n.a.	69	8	46	8
Markets	n.p.	n.a.	n.a.	n.a.	n.a.	50	n.a.
Transport and stopover							
Air	n.a.	n.p.	n.a.	n.r.	20	n.r.	21
Private car	n.a.	73	79	n.r.	74	n.r.	73
Other	n.a.	25	21	n.r.	7	n.r.	8
Destination was only stopover	n.a.	39	71	n.r.	83	n.r.	89
Trip included multiple stopovers	n.a.	61	29	n.r.	17	n.r.	11
Tourism businesses							
Number of businesses	n.r.	264	294	n.r.	n.r.	n.r.	n.r.
Non-employing	n.r.	47	46	n.r.	53	n.r.	50
Micro (1–4 employees)	n.r.	17	26	n.r.	23	n.r.	27
Small (5–19 employees)	n.r.	26	23	n.r.	17	n.r.	16
Medium to large (20 or more employees)	n.r.	10	5	n.r.	7	n.r.	7

Source: Tourism Research Australia 2008, based on three-year average to June 2007

¹ Statistics on international visitors for the City of Whyalla are too small for reporting purposes.

² Some minor differences in statistics on domestic overnight visitors to South Australia and Australia are reported in tourism profiles for local government areas in regional Australia.

n.p. – number is too small to be used for reporting purposes (i.e. fewer than 20); n.a. – data is not available; n.r. – not relevant/applicable.

Effects of the proposed landing facility and access corridor on tourism in Port Augusta

As presented in Section 19.5.6 of the Draft EIS, landholders, residents and visitors to properties around Port Augusta would experience some loss of amenity, disturbance and inconvenience associated with the construction and operation of the landing facility, access corridor and pre-assembly yard. There may also be some periodic delays for residents, visitors and other road users associated with the movement of over-dimensional loads across existing roads.

The potential effects of the proposed landing facility and access corridor on the characteristics and attractiveness of Port Augusta as a tourist destination as it relates to visual amenity, traffic, access and disturbance, and recreation, marine and leisure activities are outlined below, based on the findings presented in the Draft EIS and subsequent research undertaken for the Supplementary EIS.

As noted in Chapter 19 of the Draft EIS, Port Augusta is a major junction for road and rail traffic, and connects Adelaide, Darwin and Perth via the Stuart, Eyre and Princes highways and rail network, and links to other regional centres, including Whyalla, Port Pirie and Port Lincoln. The city is a major service centre for the northern region, and provides a regional base for many government services, access to the tourist destinations of the Flinders Ranges and Far North, and support for a range of industries including power generation, transport logistics, manufacturing and agriculture.

Figure 21.3 of the Supplementary EIS (adapted from Figure 19.18 of the Draft EIS), shows the site of the proposed landing facility approximately 14 km south of Port Augusta West, on the western side of Upper Spencer Gulf. Figure 21.3 of the Supplementary EIS also shows the major recreational and tourist amenities located in and around Port Augusta, including boat ramps, parks and other public facilities.

There are approximately 12 properties situated within a 750 m radius of the proposed landing facility and five on or adjacent to the realigned access corridor and pre-assembly yard (which is eight fewer properties than previously mentioned in the Draft EIS, based on the initial alignment of the access corridor). About 300 properties are located between the pre-assembly yard in Port Augusta West, and south along a 20 km coastal strip to Blanche Harbor, and these are accessed via Shack Road. The main recreation and tourist activities in the vicinity of the proposed landing facility are based around the coastline. The area is principally used by local people, who access the coast for swimming, skiing, recreational boating, fishing and other marine activities. There are no public facilities on Shack Road or the adjacent coastal area for recreational use (see Figure 21.3 of the Supplementary EIS).

The proposed access corridor would be located on the western side of Shack Road, on land held by the Commonwealth Department of Defence in the Cultana Training Area (CTA), and would connect to the pre-assembly yard in Port Augusta West and the Stuart Highway, approximately 3 km north of Port Augusta (see Figure 1.10 of the Supplementary EIS). A number of community and recreational facilities, including a golf course, are located in Port Augusta West, in the vicinity of the pre-assembly yard. Access to these facilities would not be affected by the operation of the landing facility or access corridor.

The Draft EIS presented the findings of a visual amenity assessment of project infrastructure, including the landing facility and access corridor, from sensitive viewing locations such as roads and residences (refer Chapter 20 and Appendix R of the Draft EIS). Chapter 20, Visual Amenity, noted the visual amenity of the proposed landing facility is defined in the east by the views across Spencer Gulf to the southern Flinders Ranges, and in the west by the nearby hills and escarpments supporting intact scrubland in the Department of Defence's Cultana Training Area. The visual character of the landing facility site is semi-industrial; the Playford and Northern power stations are very prominent industrial features across the gulf to the north-east. The local landscape is dominated by the coastal homes and sections of low mangrove woodland that occur in the more sheltered areas. The findings of the assessment of the proposed landing facility were that the visual impact would be slight from the group of homes that start about 240 m south of the proposed landing facility. Although the facility would extend 200 m into Spencer Gulf, the presence of the Playford Power Station across Spencer Gulf would lessen somewhat the visual effect of the facility (refer Plate 20.13 of the Draft EIS, reproduced in the Supplementary EIS as Plate 21.1).

The findings of the assessment of the access corridor were that its visual impact would vary from substantial to slight, depending largely on the distance from the viewpoint (with offsets of less than 100 m generally having a substantial visual impact), as well as other factors such as the topography and the openness of the terrain, and the presence of screening vegetation. In order to minimise this impact, tree planting would be used to screen the access road, using native species common to the Upper Spencer Gulf area. These findings suggest that the landing facility and access corridor are unlikely to impact significantly on the visual or aesthetic appeal of the area for tourist or visitors, except near the proposed facilities.

As discussed in Chapter 14 of the Supplementary EIS, the impact of dust from the proposed access corridor is likely to be minor. Water carts would be used during operations to keep the roadway sufficiently moist to avoid dust generation and create, over time, a surface less likely to generate dust when not in use.

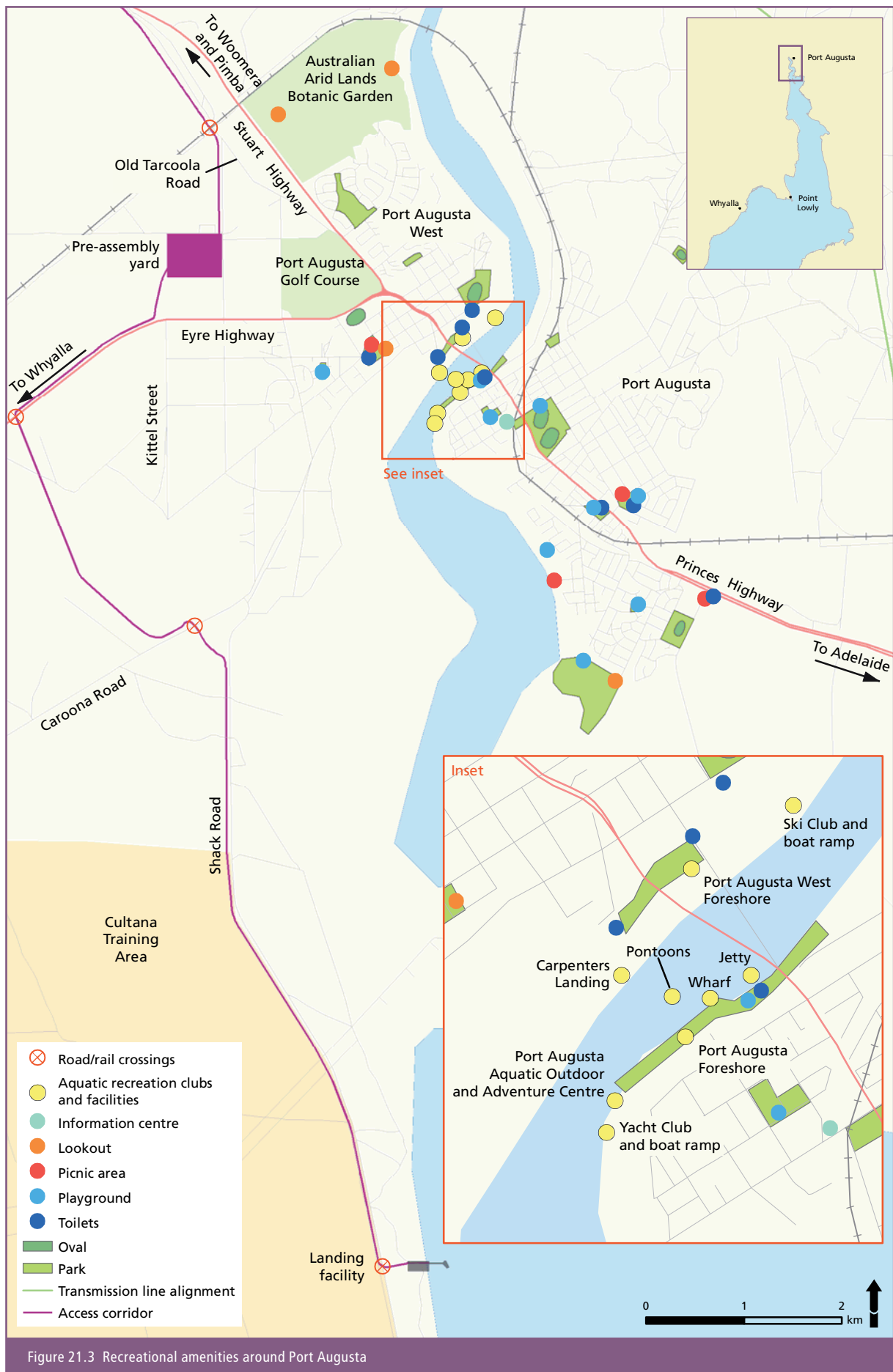


Figure 21.3 Recreational amenities around Port Augusta



Plate 21.1 Viewpoint 36 showing the proposed landing facility jetty – 50 mm lens photomontage (human field of view)

As presented in the Draft EIS, the facility is expected to accommodate about 280 vessels over seven years in the construction phase (an average of about one vessel every 11 days and approximately one a week during the peak period), and the vessels would be berthed for two to three days as cargo was unloaded. The facility would continue to be used during the operational phase, but infrequently. Noise levels during daytime unloading activities would be above applicable noise limits at the outside of the 12 nearby residences (note that no night-time unloading would occur). Noise from the unloading activities may be audible, but below applicable limits, at distances of up to 2 km. As outlined in Section 1.4 of the Supplementary EIS, in the event of a slower ramp-up in metal production, the facility would accommodate the 280 vessels less frequently but over a period longer than seven years. As a result, the residual impact category would remain the same (i.e. 'moderate') as that presented in the Draft EIS, reflecting a short-term non-compliance.

Access to the coastline and recreational and marine activities by residents or visitors would not be significantly affected by the operation of the landing facility or access corridor. As presented in Section 19.5.6 and illustrated in Figure 19.24 of the Draft EIS (reproduced in the Supplementary EIS as Figure 21.4), only a small proportion of the landing facility would be located in the Upper Spencer Gulf channel (approximately 50 m or one-twelfth of the 600 m-wide channel), and most of it would lie in the shallow sub-tidal zone. While there would be some minor limitations on swimming, diving, mooring or anchoring in the immediate vicinity of the facility (similar to those in place at the Port Augusta boat ramp), and around vessels during berthing, unloading and departure, there would be no restrictions on vessels transiting past the facility, accessing the coastline, or moving into the channel. The impact on recreational, boating or other marine activities by visitors and residents is therefore expected to be minimal.

It is also considered unlikely that tourist attractions, such as whale watching, would be adversely affected by the proposed landing facility and associated shipping movements. In the peak period, the facility is expected to accommodate about one vessel a week, which should not disturb whale watching. Similarly, tourism activities associated with fishing are not expected to be adversely affected by the development and operation of the facility. As outlined in Section 17.16.1 of the Supplementary EIS, it is more likely that the jetty, wharf and rock pad area would create a reef habitat that would attract reef fish, and may improve catches of these species.

As a consequence, the potential effects on tourism associated with coastal or marine activities and attractions are predicted to be minimal.

Section 19.5.6 of the Draft EIS presented the findings of a Traffic Impact Assessment (TIA), which found there would be some delays and disruptions to road users associated with the movement of over-dimensional loads across public roads around Port Augusta. This would require temporary road closures and may create delays in the order of five minutes (assuming loads do not travel in convoy). There would also be an increase in local traffic associated with construction and operation of the landing facility and access corridor, and a minor increase in support traffic on local roads during the operation phase. This would include around 10 light vehicles a day when a vessel was unloading.

BHP Billiton is not able to predict the interest or otherwise of tourists and sightseers associated with the proposed expansion activities in Upper Spencer Gulf, although some interest might be predicted, at least initially, in viewing the pre-assembled modules from the landing facility, given their size and the spectacle they are likely to create. In coordination with appropriate authorities (including SA Police), BHP Billiton would establish arrangements to ensure that tourists and sightseers would be managed to minimise impacts on the surrounding landowners and residents.



In conclusion, it is considered that the proposed landing facility and access corridor would have a minimal impact on tourism and visitation to the area.

BHP Billiton would develop a comprehensive and coordinated community communication and engagement program to provide detailed information on short-, medium- and long-term activities associated with the proposed expansion. This information would ensure that the community, visitors, tourists and tour operators were informed and able to make timely and appropriate decisions about planned expansion activities and how these may affect their plans.

Effects of the proposed desalination plant on tourism in Whyalla

As presented in Section 19.5.6 of the Draft EIS, coastal home owners and visitors may experience some minor disturbance and loss of amenity during the construction of the proposed desalination plant and its associated intake and outfall pipes, as a result of increased road traffic, noise and blasting, although these impacts would be short-term and limited to the construction period. In addition, while there may be some minor restrictions on marine activities associated with construction and operation in the immediate vicinity of the intake and outfall pipes for the plant, these are expected to be limited and would have a minor impact on recreational, leisure, marine or other tourist activities and attractions. The Draft EIS (Section 18.5.1) also categorised the residual impact of the plant to the Point Lowly Lighthouse complex as low.

The potential effects of the plant on the characteristics and attractiveness of Point Lowly as a tourist destination as it relates to visual amenity, the Australian Giant Cuttlefish, the Point Lowly Lighthouse, and access and disturbance are outlined below, based on the findings presented in the Draft EIS and subsequent research undertaken for the Supplementary EIS.

Point Lowly is located about 34 km from Whyalla and can be reached via sealed road. As noted in Chapter 19 of the Draft EIS, approximately 55 properties are located on the coast near Point Lowly – most are privately owned and used either as principal residences or holiday houses.

The Point Lowly Lighthouse complex is located about 2.5 km from the proposed desalination plant site and is operated by the Whyalla City Council as a tourist attraction. It is listed on the Register of the National Estate and the South Australian Heritage Register and includes the lighthouse and two keepers' cottages, the power house, oil store, signal flag mast and reserve land. The number of people staying at the lighthouse cottages is reported to have increased, with approximately 3,000 overnight stays (based on the number staying overnight in 2009), and includes local people and school groups, as well as visitors from South Australia and interstate (H Wood [Uniting Church Whyalla] 2010, pers. comm., 17 June). The cottages are reportedly heavily booked during school holidays, long weekends, the cuttlefish breeding season and the annual snapper fishing competition, and are also well-occupied during the week.

Other public facilities at Point Lowly include a boat ramp and moorings, playground, toilet and shower and surf lifesavers' facility (see Figure 21.5 of the Supplementary EIS). The main local attractions include the Point Lowly Lighthouse and recreation and marine activities such as picnicking, fishing, diving, snorkelling, swimming and other leisure pursuits. Point Lowly and the Santos facility are signposted on the Lincoln Highway, but there are no signposts indicating the cuttlefish diving area on the Point Lowly Road. As shown on Figure 21.5 of the Supplementary EIS, there is a cuttlefish information board and diving platform at Stony Point. Interest in seeing the cuttlefish is also reported to be growing (*Whyalla News* 2010) although there is currently limited promotion of this attraction. Bush camping facilities north of the boat ramp near Fitzgerald Bay can be accessed via an unsealed coastal road from Port Bonython Road (see Figure 21.5 of the Supplementary EIS).

The site of the proposed desalination plant at Point Lowly is on land zoned for special industry (Hydro) (Planning SA 2009), and would be in keeping with the existing and allowable industrial land uses in the area (see Figure 21.5 of the Supplementary EIS). Section 20.3.5 of the Draft EIS noted that the visual character of the area is semi-industrial, with the Santos oil facility clearly visible from at least 30 km across Spencer Gulf and from Whyalla. The large white tanks, used for liquid petroleum gas and crude oil, are highly visible and in sharp contrast to the surrounding landscape. The 2.4-km jetty also dominates the seascape. The generally low scrubland on Point Lowly provides little screening of these facilities. Although much smaller and less intrusive than the Santos facility, the aquaculture rings in Fitzgerald Bay and shore facilities on Point Lowly also contribute to the region's emerging industrial/commercial character.

A detailed assessment of the visual effect of the proposed desalination plant presented in Section 20.5.2 of the Draft EIS found that the plant would be consistent with the area's industrial character and categorised the residual impact as moderate (refer Appendix R of the Draft EIS for details). This is illustrated in Plate 21.2 of the Supplementary EIS (reproduced from Plate 20.12 of the Draft EIS), which shows the facility in the context of the existing environment. Views of the desalination plant from the recreational sites at the lighthouse and coastal homes on Point Lowly would be screened to some extent by the topography. Views from the sea and across the gulf would be screened by the Santos facility, which would continue to dominate the visual character of Point Lowly. Similarly, at night, lights associated with the Santos facility would dominate any light emanating from the desalination plant.

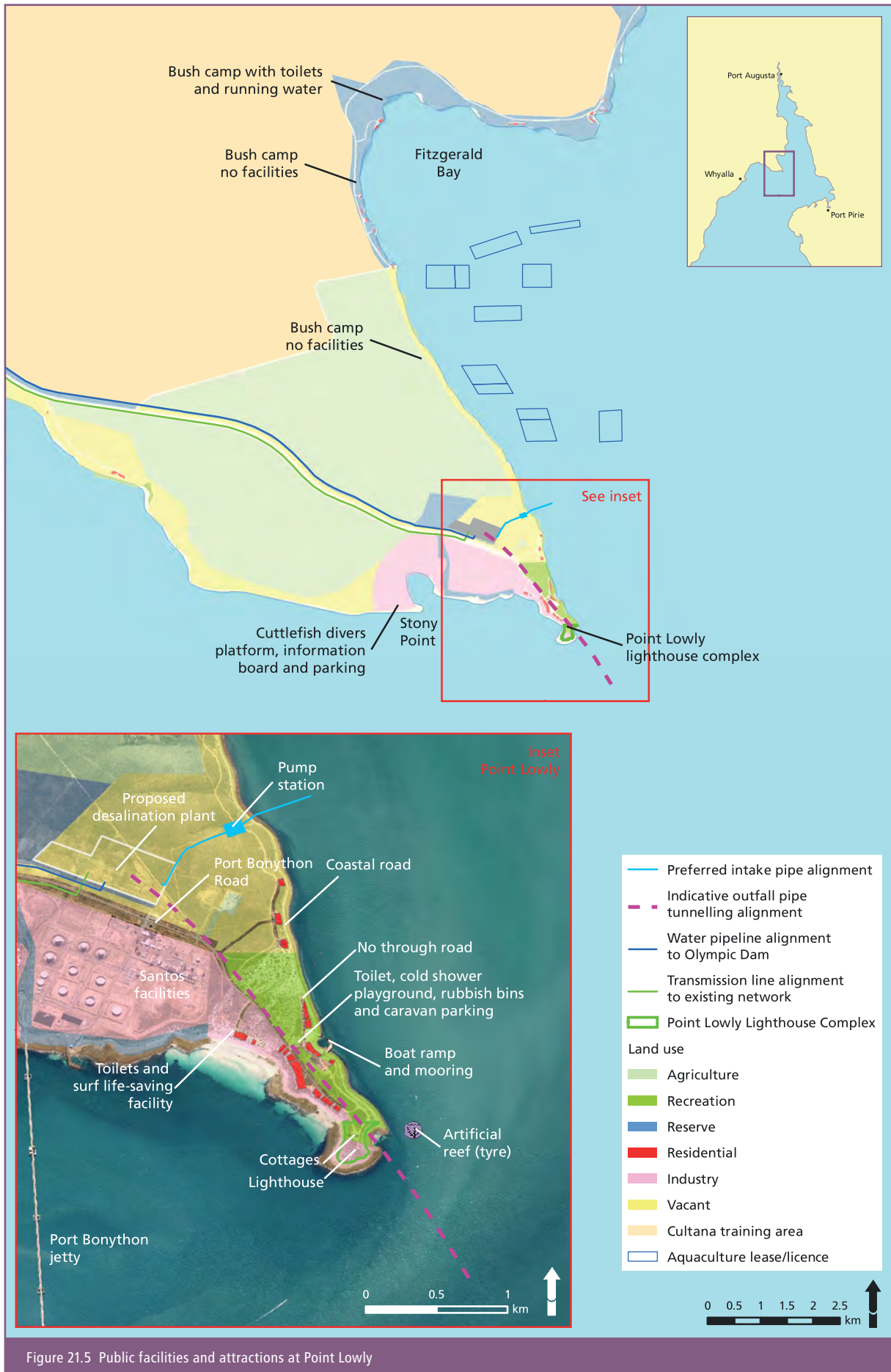




Plate 21.2 Viewpoint 33 showing the proposed desalination plant from the road to Point Lowly – 50 mm lens photomontage (human field of view)

A number of measures were identified in the Draft EIS to further minimise the potential impact of the plant on visual amenity. These included:

- locating the plant adjacent to the existing Santos facility
- selecting colours for the plant that suit the surrounding landscape
- landscaping to provide screening of the plant and associated infrastructure.

Following the release of the Draft EIS, and as a result of BHP Billiton responding positively to concerns noted in submissions, tunnelling, as opposed to trenching, would now be used to install the outfall pipe (see Chapter 1.4 of the Supplementary EIS for details). The intake pipe would continue to be installed by a 'trench and fill' construction method, with the requirement for, and extent of, blasting for the intake pipe to be further investigated prior to detailed design. Should blasting be required, the number of land-based and underwater blasts would be considerably less than originally proposed and assessed for both pipelines in the Draft EIS.

Section 19.5.6 and Appendix O12.2 of the Draft EIS discussed the potential impacts of land-based blasting if it was required to install the terrestrial sections of the intake and outfall pipes. The Draft EIS concluded that adverse effects on human comfort, and building damage as a result of blasting, could be readily managed based on Australian and international standards and criteria. Also, as discussed in Section 19.5.6 of the Draft EIS, blasting for the intake pipe would occur only every two to three days, during daylight hours only, and would not occur on a Sunday or a public holiday. It would also be scheduled, where practicable, to minimise disruptions during peak holiday periods. The pipelines would also be buried completely to limit any potential visual impact.

Tunnelling the outfall pipe would eliminate the need for ground disturbance in the Point Lowly Lighthouse complex, as the tunnel is expected to be approximately 50 m below ground level in the vicinity of the complex.

Visitors and residents to the lighthouse, cottages or nearby homes may be able to perceive some vibration as a result of tunnelling, although this is likely to be at the threshold of perception, and would be less than that felt during blasting. This would also be limited to about a six-to-eight-month period during tunnelling (and less in the vicinity of an individual residence). The predicted levels are well below those likely to result in structural building damage to the lighthouse or residences (see Section 1.4 and Appendix A6 for details).

There would be general construction noise associated with the construction of the desalination plant and marine structures, including the excavation of the tunnelling shaft (at the site of the desalination plant) and pile driving (required to install the riser casings for the outfall pipe diffuser). The shaft excavation would take place 500 m from the nearest residences and is likely to occur over a two-month period. Pile driving would take place approximately 600–800 m offshore and would occur intermittently (i.e. one or two days per riser, with four risers to be installed). Given the distance between the construction noise, residences and visitor attractions, and the short-term nature of these activities, noise impacts are expected to be low. Some noise may also be generated from transporting workers by helicopter to the offshore platform used to install the risers (should this mode of transport be used rather than boat transfer in turbulent seas). A number of 'fly neighbourly procedures' (such as flying over the ocean or varying flight routes) would be considered, if required to minimise noise from helicopter transport.

Prior notice of construction works, including noise- and vibration-generating activities, would be provided to people in the Point Lowly area, tourists and the South Australian Department for Environment and Heritage. A noise and vibration management plan and monitoring plan would also be developed following project approval to ensure compliance with relevant legislation and guidelines, and to facilitate ongoing communication and consultation with residents and stakeholders.

Safety lighting may be required during night-time operations at the site of the desalination plant (at the tunnel shaft, for example) and on the offshore platform. Night lighting would be similar to that currently in place at the Santos plant and jetty, and would be considerably less than the bright lighting used on sections of the jetty when a ship is being unloaded.

There would also be some increase in heavy vehicle traffic from the site of the desalination plant along Port Bonython Road to the Lincoln Highway and beyond as the tunnelling equipment was brought to site and spoil was removed, but this is not expected to affect other road users or change the level of service or capacity of these roads (see Sections 21.11.2 and 22.4 of the Supplementary EIS for details).

While tunnelling may result in some minor short-term disturbance and loss of amenity from noise, vibration and increased traffic, this would be temporary and limited to the construction period. A communications plan about proposed works at Point Lowly would also be developed and communicated to residents and visitors at Point Lowly before construction activities began.

These findings suggest that the proposed desalination plant is unlikely to have a significant impact on the visual or aesthetic appeal of the area for tourists or visitors.

The impacts on recreational, leisure or maritime activities from the construction or operation of the plant and associated intake and outfall pipes are also expected to be low. Road access to the Point Lowly Lighthouse, coastal homes and other public facilities would remain unchanged during the construction and operation of the plant (see Section 21.11.2 of the Supplementary EIS for further details). While there may be some minor disruption and inconvenience to traffic during the construction of the intake and outfall pipes, public access to residences, the lighthouse complex, public facilities, recreational areas and the coastline would be maintained, and visitations to the area would not be adversely affected. In addition, notification would be provided in advance of any disturbance during the construction period to minimise disruption to visitors.

Restrictions on marine activities during the operation of the desalination plant are also expected to be limited (see Section 21.11.2 of the Supplementary EIS for details). While there may be some operational restrictions on anchoring, mooring, diving and fishing in the vicinity of the intake structure and the diffusers on the outfall pipes, commercial, community or recreational vessels would be expected to have free passage in the area, with no restrictions on vessels transiting the intake and outfall pipes, given their location in deep water off the coastline. The impact on recreational, leisure or maritime activities by residents or visitors is therefore expected to be minimal.

The potential impact from the discharge of desalination plant return water into Upper Spencer Gulf has also been studied extensively and the results were presented in the Draft EIS (refer Chapter 16, Marine Environment, and Appendix O). The conclusions of those assessments were that the return water would not affect the Australian Giant Cuttlefish (refer Section 16.6.7 of the Draft EIS and Section 17.10 of the Supplementary EIS for details). In order to minimise potential impacts on breeding cuttlefish during construction of the intake pipe, marine blasting (if required) would be confined to the period from 1 November to 1 May (i.e. outside the breeding season). The Draft EIS also predicted that measurable effects on marine communities would be confined to within 100–200 m of the outfall (refer Section 16.6.6 of the Draft EIS and Sections 17.8 and 17.9 of the Supplementary EIS for details). As a consequence, the desalination plant should not adversely affect tourism associated with fishing, diving, snorkelling or other aquatic activities.

In addition, BHP Billiton has committed to programs to monitor Australian Giant Cuttlefish populations and other marine flora and fauna at Point Lowly and would work with appropriate stakeholders to develop a capability to conduct marine biological work in the Point Lowly region. BHP Billiton's presence at Point Lowly and its commitment to ongoing monitoring and research have the potential to increase public interest in the area and may enhance its attractiveness as a tourist destination. This potential is illustrated at Arid Recovery, which is supported by BHP Billiton and other partners and attracts a range of visitors to see rare and threatened native fauna in a natural arid zone environment.

In conclusion, it is considered that the proposed desalination plant would have a minimal impact on tourism and visitations to the area. The area is semi-industrial in character and zoned for industrial purposes. Access to coastal homes and visitor attractions would be maintained during construction activities and impacts on visual amenity would be reduced by landscaping and other measures. While there may be some minor disturbance and loss of amenity during the construction activities as a result of increased road traffic, noise and blasting, these impacts would be short-term and limited to the construction period. There may also be some minor restrictions on marine activities associated with the construction and operation of the intake and outfall pipes, but these are also expected to be limited, with minor impacts on recreational, leisure or maritime activities. Having regard to other recreation and tourist attractions in the Point Lowly area, no direct impacts are predicted on the Point Lowly Lighthouse heritage structures or the Australian Giant Cuttlefish as a result of the proposed desalination plant and its associated intake and outfall pipes.

21.5 CRIME AND ANTI-SOCIAL BEHAVIOUR

21.5.1 ASSESSMENT AND MANAGEMENT OF CRIME AND ANTI-SOCIAL BEHAVIOUR

Issue:

Various comments were made about the potential social issues arising from the influx of young male workers employed on short-term contracts, the assessment of these issues in the Draft EIS, and the strategies and support to be applied by BHP Billiton to manage these issues.

Submissions: 44, 71, 141, 168, 180, 205, 315 and 326

Response:

Chapter 19 of the Draft EIS presented the findings of the social impact assessment for the construction and operation of the proposed expansion of Olympic Dam, and canvassed management measures to minimise potential impacts with particular reference to issues of community concern, including crime and anti-social behaviour. This assessment was supported by information on potential impacts and mitigation measures associated with crime and anti-social behaviour contained in Appendix Q4 (Crime and Anti-Social Behaviour) of the Draft EIS. Measures to be taken by BHP Billiton to manage these issues, as outlined in the Draft EIS, are summarised below.

Two submissions questioned the categorisation of residual impact from crime and anti-social behaviour as 'low' in the Draft EIS. This has been re-examined in the Supplementary EIS, and has been re-categorised as having a 'moderate' residual impact as per the impact assessment criteria provided in Section 1.6.2 of the Draft EIS. In this respect, it is acknowledged that crime and anti-social behaviour is likely to be an ongoing issue for local communities in Roxby Downs and Andamooka, particularly during the construction phase.

Basis of the assessment in the Draft EIS

The assessment of crime and anti-social behaviour undertaken for, and presented in, the Draft EIS was based on:

- the concerns identified by residents and agencies during consultation for the Draft EIS, and in other community plans and reports (refer Appendix Q4, and Sections 7.3.1, 19.3.9 and 19.5.2 of the Draft EIS for a summary of these concerns)
- an analysis of recorded offences in Roxby Downs, regional South Australia and South Australia from 1996 to 2006, using data from the Office of Crime Statistics and Research (refer Appendix Q4 for details and Section 19.3.9 for a summary of crime trends in Roxby Downs)
- a review of the literature on crime and anti-social behaviour, having regard to the factors of most relevance to the proposed expansion (refer Appendix Q4 and Appendix Q8, Social Impacts and Lessons from other Mining Developments, for details and Section 19.5.2 for a summary of relevant findings), including:
 - the factors that contribute to crime and fear of crime
 - approaches to crime prevention
 - the experiences of, and lessons learnt from, other mining communities
- an audit of existing services in Roxby Downs, Andamooka and Woomera, including policing, emergency and other justice services (for details refer to the Draft EIS, Appendix Q5, Social Services and Facilities and Section 19.3.9 for a summary of justice services provided in Roxby Downs and neighbouring townships)
- benchmarking employment in social services in Roxby Downs and comparable Australian mining communities, including the number of police per 1,000 people (for details refer to the Draft EIS, Appendix Q6, Benchmarking Social Services and Living Costs)
- mitigation measures proposed by BHP Billiton to reduce potential impacts associated with crime and anti-social behaviour (refer Section 19.5.2 of the Draft EIS).

A summary of the key findings from that assessment is provided below.

As presented in Sections 7.3.1 and 19.5.2 of the Draft EIS, the potential for increased crime and anti-social behaviour was identified as a concern to residents in Roxby Downs and Andamooka. This was primarily related to the construction workforce and, to a lesser extent, the increased residential population in Roxby Downs. Issues raised during community consultation and feedback from government agencies included:

- misuse of alcohol and drugs
- increased crime, prostitution, assault, sexual assault and domestic violence
- unauthorised access to station properties and irresponsible behaviour causing damage to property and roads and tracks, vandalism, theft of equipment and stock losses
- off-road driving around Roxby Downs and on surrounding pastoral stations and Arid Recovery
- potential racial tensions
- the shortage of police.

Other community issues identified in Appendix Q4 included:

- insufficient facilities to meet the needs of the transitional and construction workforce and increased demands on recreation and entertainment in Roxby Downs
- integration issues between the temporary and permanent workforce and local residents
- youth issues associated with under-age drinking, poor parental supervision, youth boredom and anti-social behaviour.

Section 19.3.9 of the Draft EIS presented summary information on crime trends in Roxby Downs. This was supported by an analysis of recorded offences in Roxby Downs from 1996 to 2006, contained in Appendix Q4 of the Draft EIS, which took account of the variability in the temporary construction workforce in Roxby Downs over time, including during the 1997 Olympic Dam expansion (refer Figure Q4.2, reproduced in the Supplementary EIS as Figure 21.6). This showed a rise in victim-recorded offences from 1997 to 1998 and 2002 to 2005, and showed considerable variability in police-detected offences. It also showed that, although there has been a decline in the number of temporary construction workers in Roxby Downs over time, crime rates have increased.

Further analysis of crime rates

Table 21.5 of the Supplementary EIS has been prepared since the release of the Draft EIS, using data from analysis undertaken in Appendix Q4 of the Draft EIS, to provide further details of the type and rate of recorded offences in Roxby Downs from 1996 to 2006. It highlights the variability in crime rates and shows that from 1996 to 1999 (the last year of the previous expansion at Olympic Dam), Roxby Downs had:

- a rise in the rate of total recorded offences (which has continued to rise in subsequent years)
- a decline in the rate of offences against the person (which has risen in subsequent years)
- a rise in the rate of offences against property
- a decline in the rate of offences against good order (which has risen in subsequent years)
- a rise in the rate of driving offences (which has generally risen in subsequent years).

With the exception of driving offences, Roxby Downs recorded lower rates of offending in each of the major offence categories than either regional South Australia or South Australia during the previous expansion at Olympic Dam (from 1997 to 1999).

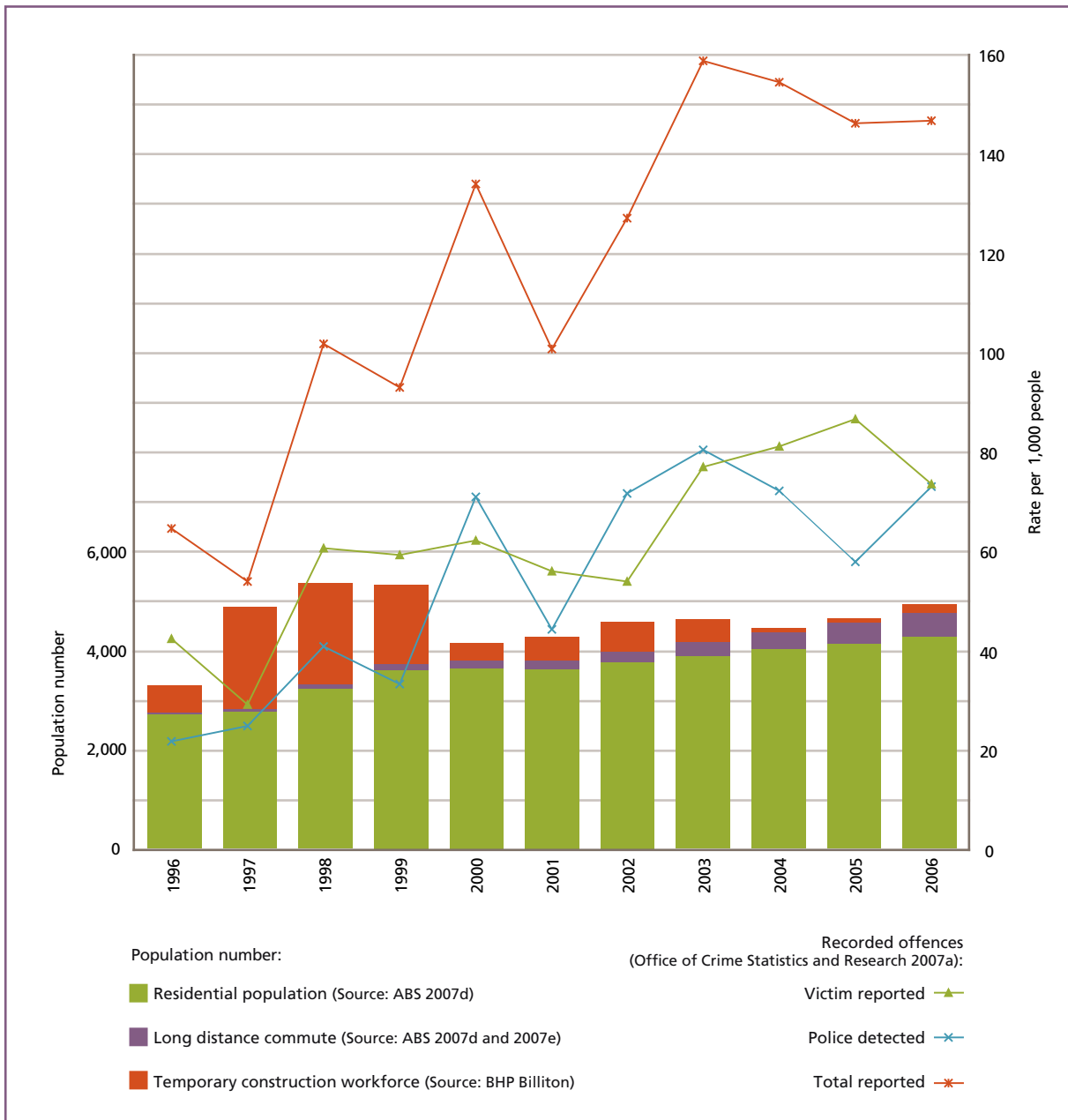


Figure 21.6 Trends in recorded offences in Roxby Downs by how offences were reported

Appendix Q4 of the Draft EIS highlighted a range of factors that can contribute to crime and the fear of crime, and how these factors can be associated with particular types of crime (including age and gender; social and community factors; situational and environmental factors; and facilitators of crime (such as alcohol and substance misuse and firearms). This analysis pointed to several factors that may increase the potential for crime and fear of crime associated with the proposed expansion, which were summarised in Section 19.5.2 of the Draft EIS and included:

- the large number of young, single male construction workers
- alcohol and substance misuse
- population turnover and the presence of 'strangers'
- physical and social disruption
- increased opportunities for crime, including vandalism and theft from building sites
- young people and 'at-risk groups' engaging in potentially unsafe and anti-social behaviours.

Table 21.5 Rates of offending (per 1,000 people) in the Roxby Downs Local Government Area from 1996 to 2006 by major offence categories

Year	Population ¹	Offences against the person ²	Offences against property	Offences against good order	Driving offences	All other offences ³	Total offences
1996	3,290	5.2	37.4	5.5	13.7	3.0	64.7
1997	4,900	3.3	25.9	2.9	19.8	2.2	54.1
1998	5,370	4.1	56.6	4.3	36.7	0.2	101.9
1999	5,320	4.7	54.5	5.1	27.8	1.1	93.1
2000	4,150	9.2	52.8	13.3	55.0	3.9	134.1
2001	4,283	11.4	44.6	16.3	27.6	0.9	100.9
2002	4,650	6.4	46.6	16.1	54.8	1.5	125.5
2003	4,710	9.3	66.6	23.1	56.0	1.5	156.6
2004	4,470	11.9	69.4	27.3	44.5	1.8	154.9
2005	4,600	12.6	75.5	18.9	36.8	4.8	148.6
2006	4,940	19.2	54.4	27.5	45.5	0.0	146.7

Source: Office of Crime Statistics and Research 2007, Australian Bureau of Statistics 2007d, 2007e and BHP Billiton

¹ Estimated population includes the residential population, long distance commute population and temporary construction workforce.

² Includes sexual offences, because of the low number of recorded offences in this category.

³ Includes drug offences, robbery and extortion, and other offences.

Concerns about increasing levels of crime associated with population growth and an influx of construction workers have also been identified in other mining developments.

Section 19.3.9 of the Draft EIS described the existing police, emergency and other justice services in Roxby Downs, Andamooka and Woomera in 2008. At that time, the Roxby Downs police station was staffed by one sergeant, eight uniformed officers and a detective. It was open seven days a week, during business hours, with officers recalled to duty after hours as required. Andamooka and Woomera both had a police station staffed by one officer, and the station was open during business hours Monday to Friday, and after hours as required. Police from Roxby Downs and Port Augusta also provided support to Andamooka and Woomera.

Benchmarking showed that Roxby Downs had a relatively high number of police officers per head of population compared to comparable mining communities in Western Australia and the Northern Territory (refer Appendix Q6 of the Draft EIS, Figure Q6.11). The Draft EIS (Section 19.5.2) noted that the relative isolation and character of Andamooka, and limited police presence, may increase the likelihood of prostitution, anti-social behaviour or illicit activities and suggested that an expanded police presence in Andamooka may also be warranted, particularly after hours, around licensed premises and to meet continuing population growth. The South Australian Government has indicated that additional police services would be provided to support the proposed expansion. It is anticipated that the additional police officers would provide a 24-hour policing service to Roxby Downs, and policing support to Hiltaba Village and nearby townships and properties.

Measures to be adopted by BHP Billiton to address concerns relating to crime and anti-social behaviour

To reduce the likelihood of adverse impacts associated with the construction workforce, BHP Billiton has committed to constructing separate, high-quality accommodation (i.e. Hiltaba Village) halfway between Roxby Downs and Andamooka, which would provide on-site entertainment, recreation and sports facilities. The design, location and management of Hiltaba Village is intended to encourage the construction workforce to remain at the village for social and recreational activities, in order to minimise the demand on facilities and services in Roxby Downs and Andamooka, reduce the potential for negative interactions between permanent residents and construction workers, and lessen residents' concerns.

In keeping with industry best practice, workers accommodated at Hiltaba Village would be inducted on arrival and required to sign an agreement to comply with village rules. This would cover behavioural expectations, illegal activities and drugs and BHP Billiton's right to remove accommodation privileges for non-compliance. Similar conditions would apply in the workplace. The off-site workforce would also be required to comply with established codes of practice and behaviour, as required at other accommodation and worksites.

Other measures outlined in the Draft EIS to address concerns relating to crime and anti-social behaviour resulting from the expansion, which would be implemented by BHP Billiton, included:

- initiating visitor management policies and procedures for Hiltaba Village and initiatives relating to crime and anti-social behaviour
- providing for a proactive, community-policing style of security and surveillance presence in Hiltaba Village to prevent and respond to incidents
- developing, in collaboration with police, a strategy to ensure a rapid response to incidents
- continuing to implement the 'Fit for Work' program, including routine drug and alcohol monitoring of workers
- continuing to implement the workforce induction and education information strategies to communicate safety and security expectations
- liaising with police management and providing regular updates of workforce schedules
- working with the council and police to develop safety awareness education and information programs
- establishing a complaints procedure whereby any reported incidents of unacceptable behaviour would be investigated
- providing internal security arrangements in accommodation villages to manage inappropriate behaviour by workers and visitors
- proactive discussion and engagement with the community and other stakeholders to establish a social management system to monitor and respond to issues, including the implementation of additional management strategies where necessary.

As presented in Section 19.5.4 of the Draft EIS, BHP Billiton would participate in the development of a plan by the South Australian Government to address social services and infrastructure associated with the expansion and collaborate with government and non-government organisations to maintain health services (including drug and alcohol services, domestic violence and anger management programs) in Roxby Downs to a reasonable standard.

One submission suggested that BHP Billiton should be required to provide contractually bound levels of support for offenders and the victims of crime. However, it is not within BHP Billiton's direct control, responsibility or authority to do so.

There are a number of organisations that provide support to victims of crime in South Australia. The Victim Support Service is a statewide, community-based, not-for-profit organisation which provides a range of services for adults and older adolescents who have experienced crime, including individual crime victims, their families, friends and the wider community. The Victim Support Service works with communities, police and other organisations across regional, rural and metropolitan areas and provides counselling, information about victims' rights and criminal injuries compensation, court support and support groups, training and consultancy and community education (Victim Support Service Inc. 2010a).

Victims of Crime Compensation is state-paid compensation that provides some recompense to immediate victims of a crime involving either violence or a threat of violence, an imminent risk of harm, a sexual crime, or a crime resulting in death or physical injury (funding is provided through the Victims of Crime Fund, which is administered by the South Australian Attorney-General's Department). Compensation can be awarded for pain and suffering (including physical injury, emotional and psychological illness, shock and pregnancy), financial losses (including loss of earnings or reduced ability to earn as a result of the injury) and past and/or future treatment costs (Victim Support Service Inc. 2010b).

The South Australian Department for Correctional Services has the primary responsibility for the supervision, management and rehabilitation of offenders.

Issue:

Concerns were expressed about the potential impact of a large construction workforce on specific population groups, including young people, women and traditional Aboriginal people, and the management strategies to deal with these issues.

Submissions: 44, 71 and 78

Response:

BHP Billiton has considered the potential impact of a large construction workforce on specific population groups, and has proposed management measures to address these issues. Section 19.5.4 of the Draft EIS identified a number of critical population groups (including women, children, young adults, Aboriginal people and people on low incomes) who may be more susceptible to adverse impacts from the proposed expansion, and highlighted the factors that may contribute to this vulnerability. It also indicated that proposed measures to mitigate crime and anti-social behaviour and to plan for social services and infrastructure would provide a mechanism to respond to the needs of these groups.

Proposed mitigation measures outlined in the Draft EIS that would address the needs of critical population groups included:

- participating in the development of a plan by the South Australian Government to address social services and infrastructure for an expanded Roxby Downs township, taking account of the needs of critical population groups (refer Section 19.5.4 of the Draft EIS)
- collaborating with government and non-government organisations to maintain health services (including drug and alcohol services, domestic violence and anger management programs) in Roxby Downs to a reasonable standard (refer Section 19.5.4 of the Draft EIS)
- constructing separate, high-quality accommodation (i.e. Hiltaba Village) with on-site entertainment, recreation and sports facilities, to encourage the construction workforce to remain at the village for social and recreational activities, reduce the potential for negative interactions evident during the previous expansion, and lessen residents' concerns (refer Section 19.5.2 of the Draft EIS)
- implementing a number of other measures to reduce crime and anti-social behaviour, including workforce induction and education, codes of practice/behaviour, enforcement of the BHP Billiton Group's drugs and alcohol policies and testing, and other community safety initiatives (refer Section 19.5.2 of the Draft EIS)
- undertaking proactive discussion and engagement with the community and other stakeholders to establish a social management system to monitor and respond to issues, including the implementation of additional management strategies where necessary (refer Section 19.5.2 of the Draft EIS).

In addition, the South Australian Government has indicated that additional police services would be provided in Roxby Downs to support the proposed expansion (refer to Section 19.5.2 of the Draft EIS).

Women and children

The Draft EIS identified concerns raised by community and government agencies about increased prostitution, assault, sexual assault and domestic violence. It also identified a number of factors that may contribute to the vulnerability of women and children, including:

- the geographic remoteness of the town and isolation from extended family
- the male-dominated culture
- high levels and tolerance of alcohol consumption
- barriers to reporting offences associated with reduced anonymity in rural and regional communities and a transient population
- limited access to a full range of services, including domestic violence counselling services and emergency accommodation.

The Draft EIS also noted that the relative isolation and character of Andamooka and limited police presence might increase the likelihood of prostitution, anti-social behaviour or illicit activities (refer Section 19.5.2 of the Draft EIS).

Prostitution is illegal in South Australia, and responsibility for its control rests with the SA Police. BHP Billiton would, however, be willing to participate in and contribute to a workshop or study on potential local impacts of prostitution, if this were organised by the police or other key stakeholders.

BHP Billiton would also work with the Premier's Council for Women to promote women's safety in Roxby Downs and Andamooka throughout the expansion period.

BHP Billiton would also progress the detailed design of village accommodation to reduce the potential for crime and anti-social behaviour and promote women's safety, for example, by providing lighting and safety phones on pathways, providing passive surveillance of open space and pathways, and allocating rooms to locate women together in groups.

As noted in Section 19.5.2 of the Draft EIS, the high population turnover and presence of 'strangers' during the expansion at Olympic Dam may also increase concerns about crime and fear of crime. BHP Billiton also indicated it would work with the Roxby Downs Council and police to develop safety awareness education and information programs, which could include 'stranger danger'-type programs in both Roxby Downs and Andamooka.

As noted by the Roxby Downs Community Board (2005), a safety house scheme would be difficult to manage in Roxby Downs because of the high turnover of residents and high number of rental properties (requiring designated safe houses to change when occupants change). It would also be difficult to keep the location of emergency accommodation a secret in Roxby Downs. While these are matters for the South Australian Government to consider, BHP Billiton would work with the government to achieve practical outcomes through the mechanism of the Social Management Plan and social management partnership (see Appendix J1 of the Supplementary EIS for a draft of the Social Management Framework provided for discussion purposes).

Youth issues

The potential for young people and 'at-risk groups' to engage in potentially unsafe and anti-social behaviours was identified in the Draft EIS (refer Section 19.5.2). The Draft EIS also noted that limited parental supervision of young people, combined with relatively high household income and adolescent allowances, may increase the susceptibility of young people to experiment with drugs and engage in potentially risky behaviours in Roxby Downs. Other factors identified in the Draft EIS that may contribute to the vulnerability of young people included family lives that revolve around long working hours and shiftwork, and high levels and tolerance of alcohol consumption.

A number of youth issues, including binge drinking among young people, poor parental supervision, youth boredom (compounded by limited recreation and social facilities and limited education and employment opportunities), and anti-social behaviour have been raised by the community in the Roxby Downs Community Plan (Roxby Downs Community Board 2005), 'Youth Futures in Roxby Downs' (Wade 2005), in consultation on the Roxby Downs Draft Master Plan (refer Appendix F4 of the Draft EIS) and with government agencies as part of the Draft EIS process.

Research undertaken since the release of the Draft EIS has also identified the potential for adverse impacts on young men and women in Andamooka associated with a large, predominantly male workforce in the region (see Appendix J2 of the Supplementary EIS).

Appendix Q4 of the Draft EIS examined these issues in detail and identified a number of potential mitigation strategies to reduce the likelihood of young people engaging in anti-social and unsafe behaviours. These included improving educational, recreational and social activities, providing meaningful pathways into employment, and developing specific prevention programs targeted towards at-risk groups and behaviours (refer Appendix Q4.3.3 of the Draft EIS). Strategies to prevent people from visiting Hiltaba Village for illicit purposes are outlined in Section 21.5.3 of the Supplementary EIS, and would also limit the ability of young people to enter the village and engage in risky activities.

As outlined in the Draft EIS, BHP Billiton would work with the Roxby Downs Family and Youth Forum, the Roxby Downs Council and the South Australian Government to develop and implement a youth strategy, which could include strategies targeted towards at-risk groups and behaviours. Strategies such as personal development and assertiveness programs or other specific programs for young people could also be considered for Andamooka, potentially as an extension of programs in Roxby Downs. BHP Billiton would also continue to support the provision of youth officer services and youth activities in conjunction with the Roxby Downs Council and the South Australian Government.

The recent appointment of a project officer by BHP Billiton and the Roxby Downs Council (in June 2010) to work with the Roxby Downs Alcohol and Substance Abuse Partnership may provide an opportunity to address issues around alcohol and substance misuse by young people, which can be associated with unsafe or delinquent behaviours (Barnes et al. 1999; Drugs and Crime Prevention Committee Victoria 2004). In this regard, one of the roles of the project officer is to collaborate with the Roxby Downs Area School on school-based education programs relating to alcohol and substance abuse. Potentially, such a program could also be extended to Andamooka.

While the specific service requirements for young people were not detailed in the Draft EIS, it identified a range of additional youth services and facilities that may be required, including new and expanded primary and secondary education, TAFE and library services and facilities, youth programs (including support for Aboriginal youth and young people from culturally and linguistically diverse backgrounds), and recreation and social facilities and programs (refer Appendix Q5 of the Draft EIS). The provision of such services would also benefit young people in Andamooka who access services in Roxby Downs.

To facilitate the provision of youth services, programs and facilities, BHP Billiton would participate in developing a social services and infrastructure plan before the expansion proceeded, and take account of needs in both Roxby Downs and Andamooka. BHP Billiton would also collaborate with the South Australian Government and the Roxby Downs Council to facilitate the timely provision of education, sporting, leisure, social, cultural, entertainment and training facilities, as outlined in the Draft Master Plan.

The expansion at the Olympic Dam operation would be expected to provide new opportunities for casual, part-time and full-time employment for local youth in both mining and non-mining sectors. As outlined in the Draft EIS, BHP Billiton would continue to support youth employment and training opportunities by expanding its traineeship and apprenticeship intake; supporting TAFE SA programs in Roxby Downs (such as the 'Job Readiness' program and pre-vocational training); and holding a Careers Expo in Roxby Downs (in conjunction with the Roxby Downs Education and Workplace Training Forum).

Other potential mitigation strategies outlined in Appendix Q4 of the Draft EIS, which could potentially be considered by the South Australian Government and BHP Billiton, include:

- establishing a forum for ongoing communication and consultation with young people to discuss issues and requirements from their perspective
- investigating and implementing appropriate youth leadership programs
- developing crime prevention and safety programs targeted specifically at young people.

Traditional Aboriginal communities

BHP Billiton is aware of legislation relating to the supply and consumption of alcohol on Aboriginal lands, including the *Anangu Pitjantjatjara Yankunytjatjara Land Rights Act 1981* and the *Aboriginal Lands Trust Act 1996*. Under these Acts, and associated bylaws and regulations, a number of Aboriginal communities and areas, including the Anangu Pitjantjatjara Yankunytjatjara (APY) Lands and Yalata, have banned the possession, consumption, sale or supply of alcohol on their land (Drug and Alcohol Services 2009).

The prospect of the construction workforce taking alcohol and drugs onto Aboriginal lands is considered unlikely, given the distance between Olympic Dam and relevant Aboriginal communities, work rosters, fly-in/fly-out arrangements, and limited access to alternative private transport. An indication of the road distances and travel times by car from Roxby Downs to traditional Aboriginal communities in the Far North is provided in Table 21.6 of the Supplementary EIS. This includes Indulkana (the most accessible community on the APY lands) and Nepabunna and Umoona (on Aboriginal Lands Trust lands) and Yalata (on the far west coast).

Table 21.6 Road distances and travel times by car from Roxby Downs¹

Destination	Distance by road (kilometres)	Approximate driving time (hours)
Umoona	450	5.3
Nepabunna (via the Torrens Ring Route ² to Leigh Creek)	460	6
Indulkana	735	8.5
Yalata	925	11

¹ Sourced from Travelmate (n.d.), unless otherwise indicated.

² Sourced from Outback South Australia (n.d.), minimum times in good weather conditions.

The proposed Social Management Plan would also identify indicators to monitor crime and anti-social behaviour in Roxby Downs and neighbouring communities, including Andamooka, and would provide a mechanism to identify additional mitigation measures by BHP Billiton and the South Australian Government to respond to emerging issues in relation to young people, women, children, Aboriginal people or other population groups, if required. A draft of the Social Management Framework has been prepared by BHP Billiton for the purposes of ongoing discussion with the South Australian Government, and would be finalised and implemented in collaboration with government (see Appendix J1 of the Supplementary EIS for details).

21.5.2 CRIME AND SAFETY IN ROXBY DOWNS AND ENVIRONS

Issue:

One submission requested disaggregated data on criminal offences in Roxby Downs between 1997 and 2004, and asked BHP Billiton to explain the reasons for the increase in offending, and discuss the link with proposed management measures.

Submission: 2

Response:

The analysis of crime data undertaken for the Draft EIS, and augmented in the Supplementary EIS, points to the variability in rates of offending over time, and across different offence categories. A number of factors may have contributed to this, but alcohol has been identified as a likely key factor. BHP Billiton has proposed a number of strategies to address these factors as they relate to its workforce and areas within its direct control. BHP Billiton, in collaboration with the South Australian Government, would also monitor and respond to emerging issues in Roxby Downs and elsewhere through the mechanism established by the Social Management Plan, and would work with the SA Police, as the agency responsible for law enforcement, and the community to address issues associated with crime and anti-social behaviour where necessary.

Analysis in the Draft EIS

Chapter 19 and Appendix Q4 of the Draft EIS examined trends in recorded offences in the Roxby Downs Local Government Area (LGA), regional South Australia and South Australia from 1996–2006.

Figure 21.7 (adapted from Figure 19.9 in the Draft EIS) showed the rate of offending in the Roxby Downs LGA (per 1,000 people) between 1996 and 2006 by major offence categories. Crime rates were calculated based on annual estimates of the resident population and long distance commute workforce (ABS 2007d and 2007e) and the temporary construction and maintenance workforce (from BHP Billiton), and offence data from the Office of Crime Statistics and Research (2007). Figure 21.7 of the Supplementary EIS illustrates the variability in rates of offending over time, particularly in driving offences and offences against property, which make up the largest offence categories in Roxby Downs (over 68% of all recorded offences in 2006).

Appendix Q4 of the Draft EIS (Section Q4.1.2) analysed trends in recorded offences, categorised by how the offences were reported (i.e. victim-reported or police-detected). Victim-reported offences include offences against the person, sexual offences, robbery and extortion and offences against property. Policing practices and specialist operations, which change from time to time, influence the number of offences detected by police; these include driving offences, offences against good order, and drug offences. This analysis highlighted the variability in rates of offending in Roxby Downs over time, particularly in police-detected crime (see Figure 21.7 of the Supplementary EIS).

Notwithstanding this variability, rates of offending rose in most offence categories between 1997 and 2004, with the largest increase occurring in offences against good order (an increase of almost tenfold in the rate of offending).

Further analysis of crime data

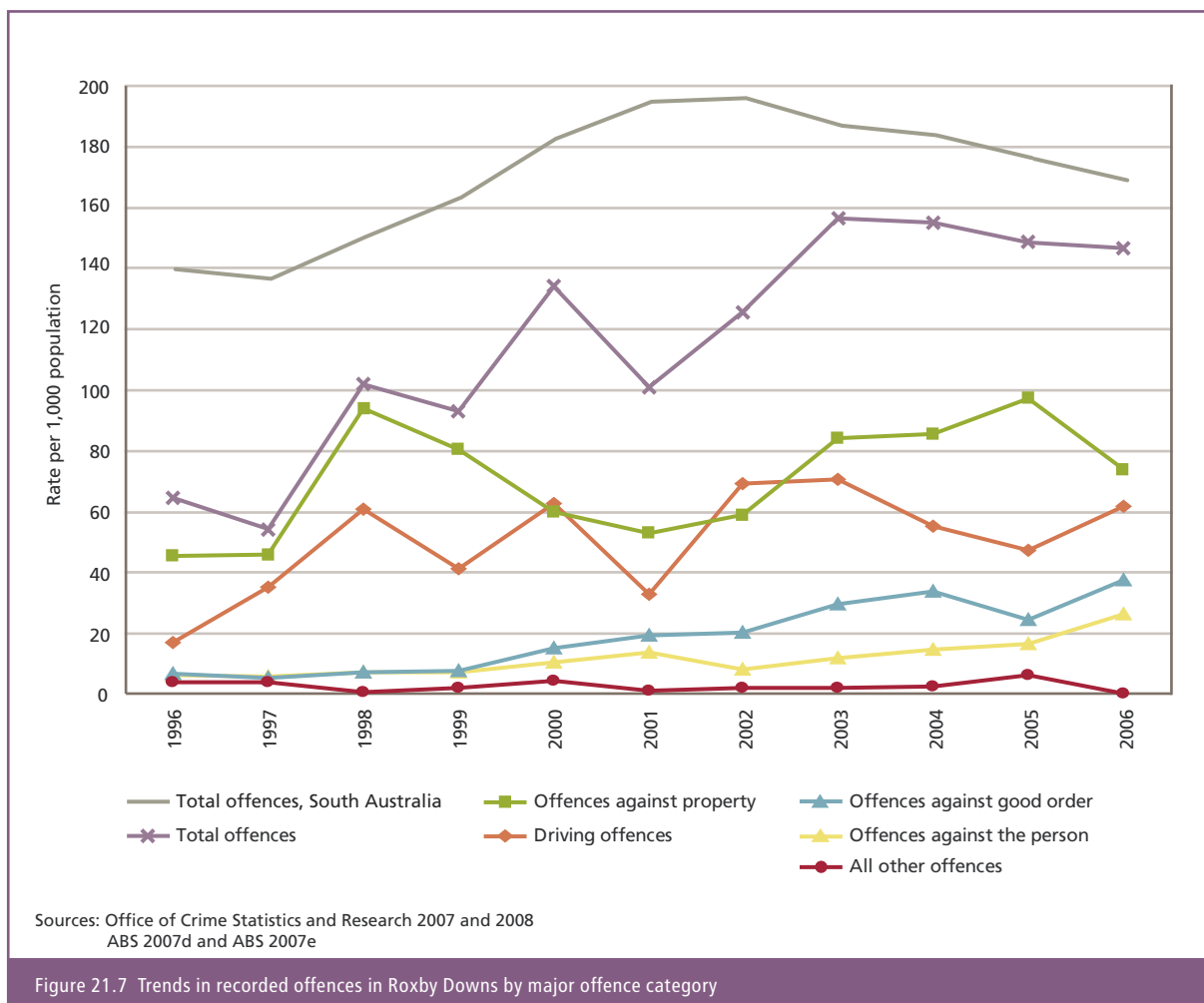
The crime data for the Roxby Downs LGA has been analysed further since the Draft EIS was released to examine the type of offences recorded in major offence categories between 1996 and 2006. Disaggregated data is presented in the following figures of the Supplementary EIS:

- Figure 21.8 shows the trends in offences against property
- Figure 21.9 shows the trends in offences against the person (including sexual offences)
- Figure 21.10 shows the trends in driving offences.

This analysis again illustrates the considerable variability in rates of offending over time. The only exception is the category of offences against the person, where the majority of offences comprise minor assaults.

Disaggregated data is not presented for other major offence categories – disaggregated data on good order offences was not made available by the South Australian Government. Other major offence categories (i.e. robbery and extortion, drug offences and other offences) were excluded from the analysis because of the low number of recorded offences (fewer than 20 recorded per annum).

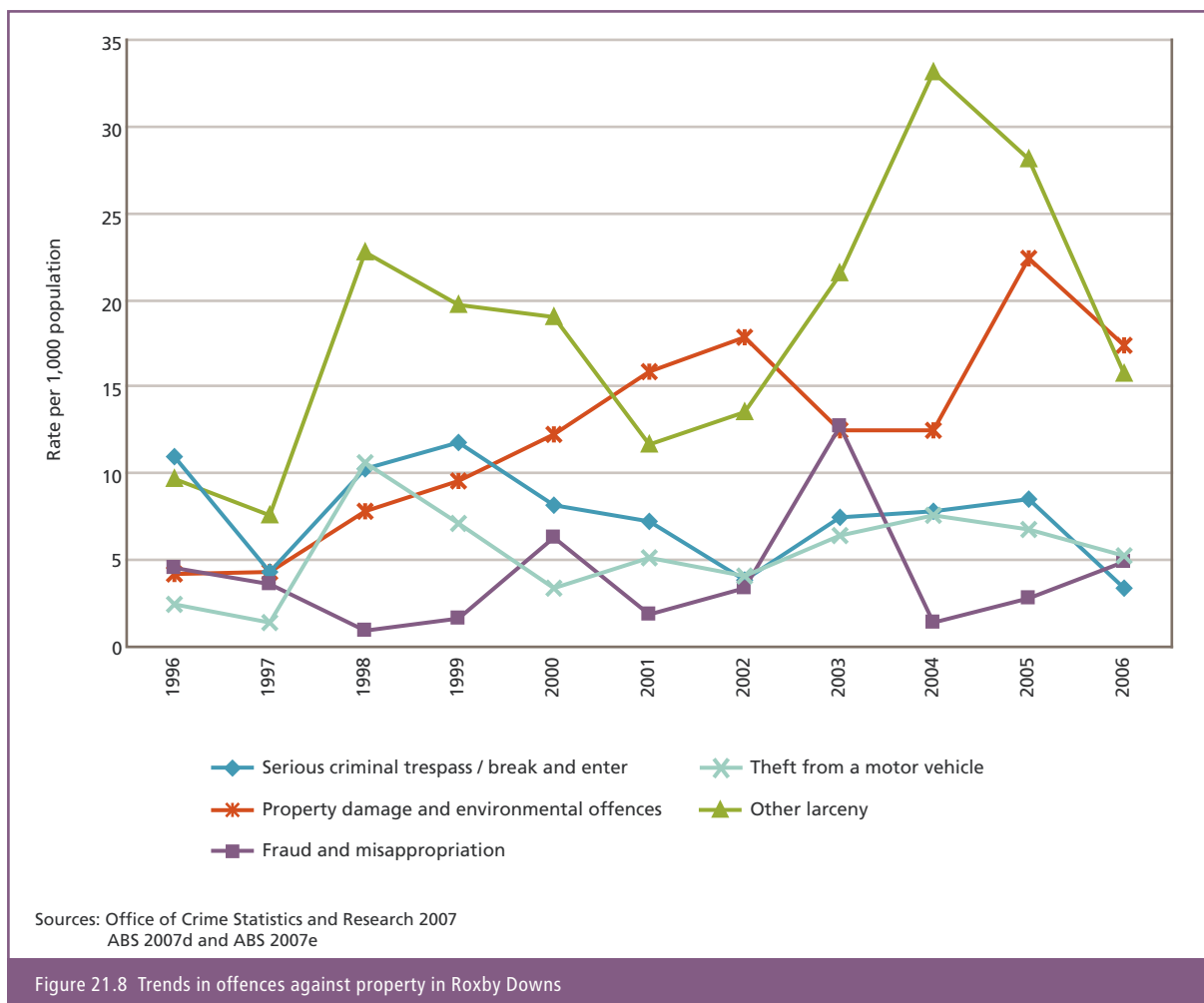
The analysis undertaken for the Supplementary EIS shows that the most common offence types in Roxby Downs, which contributed to the large increases in rates of offending between 1997 and 2004, were minor assault, property damage and environmental offences, 'other larceny' offences, good order offences, and driving offences (including motor vehicle registration offences, and driving offences involving alcohol or drugs).



In order to understand the relevance of management measures proposed by BHP Billiton, it is important to be aware of the factors that may contribute to offending. Appendix Q4 of the Draft EIS highlighted a range of factors that can contribute to crime and the fear of crime (including age and gender, social and community factors, situational and environmental factors, and facilitators of crime, such as alcohol and substance use, and firearms) and their association with particular types of crimes.

Much of the crime and anti-social behaviour in Roxby Downs is reportedly alcohol-related. Research by the NSW Parliamentary Library Research Service (Johns 2004) points to alcohol as the single highest causal factor of public nuisance, and has also been identified as a contributing factor in other types of offending such as criminal violence (Weatherburn 2001). Alcohol has also been identified as an issue in consultation with service providers and residents. Issues relating to alcohol and crime raised in the Roxby Downs Community Plan (see Roxby Downs Community Board 2005) included:

- statistics reported by the SA Police that show a high percentage of crime, violence and other anti-social behaviour is alcohol-related
- a majority of perpetrators of criminal, violent and other anti-social behaviours are intoxicated by alcohol or other substances
- a high incidence of driving under the influence of alcohol
- the incidences of criminal and other anti-social behaviours in licensed venues and their surrounds
- increasing levels of vandalism by youths
- under-age drinking and the associated risk of accidents, violence, vandalism and other anti-social behaviours, and being taken advantage of by other people.

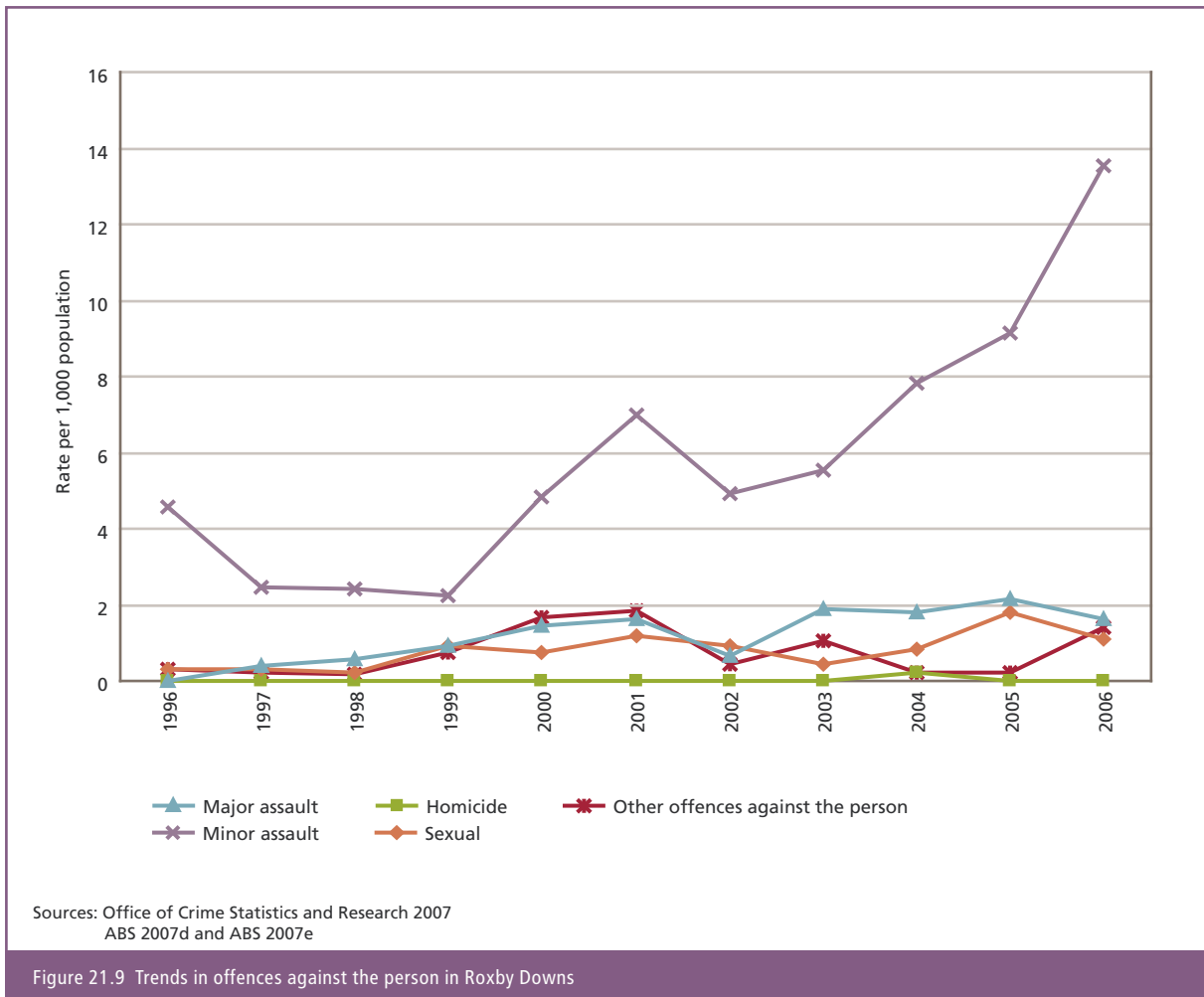


Management measures

BHP Billiton has committed to a range of management measures to address alcohol-related issues, and other issues associated with crime and antisocial behaviour among its workforce. These include:

- constructing a separate, high-quality accommodation village for the construction workforce, with internal security arrangements to manage inappropriate behaviour by workers and visitors
- implementing practices relating to the responsible service of liquor at Hiltaba Village and other workforce accommodation facilities
- implementing workforce induction and education information strategies to communicate expectations about safety and security
- enforcing the code of practice/behaviour for the workforce
- implementing the 'Fit for Work' program, including routine drug and alcohol monitoring of workers
- liaising with police, providing regular updates of workforce schedules and, in collaboration with police, developing a strategy to ensure a rapid response to incidents
- establishing a complaints procedure to investigate reported incidents of unacceptable behaviour (recognising that all reported incidences of criminal activity would be investigated by police, as the agency responsible for law enforcement)
- working with the council and police to develop safety awareness education and information programs.

The South Australian Government has also indicated that police services would be provided to support the proposed expansion and address crime and antisocial behaviour. BHP Billiton would work with the SA Police, as the agency responsible for law enforcement, to address issues associated with crime and anti-social behaviour as required and appropriate through the mechanism of the Social Management Plan and social management partnership.



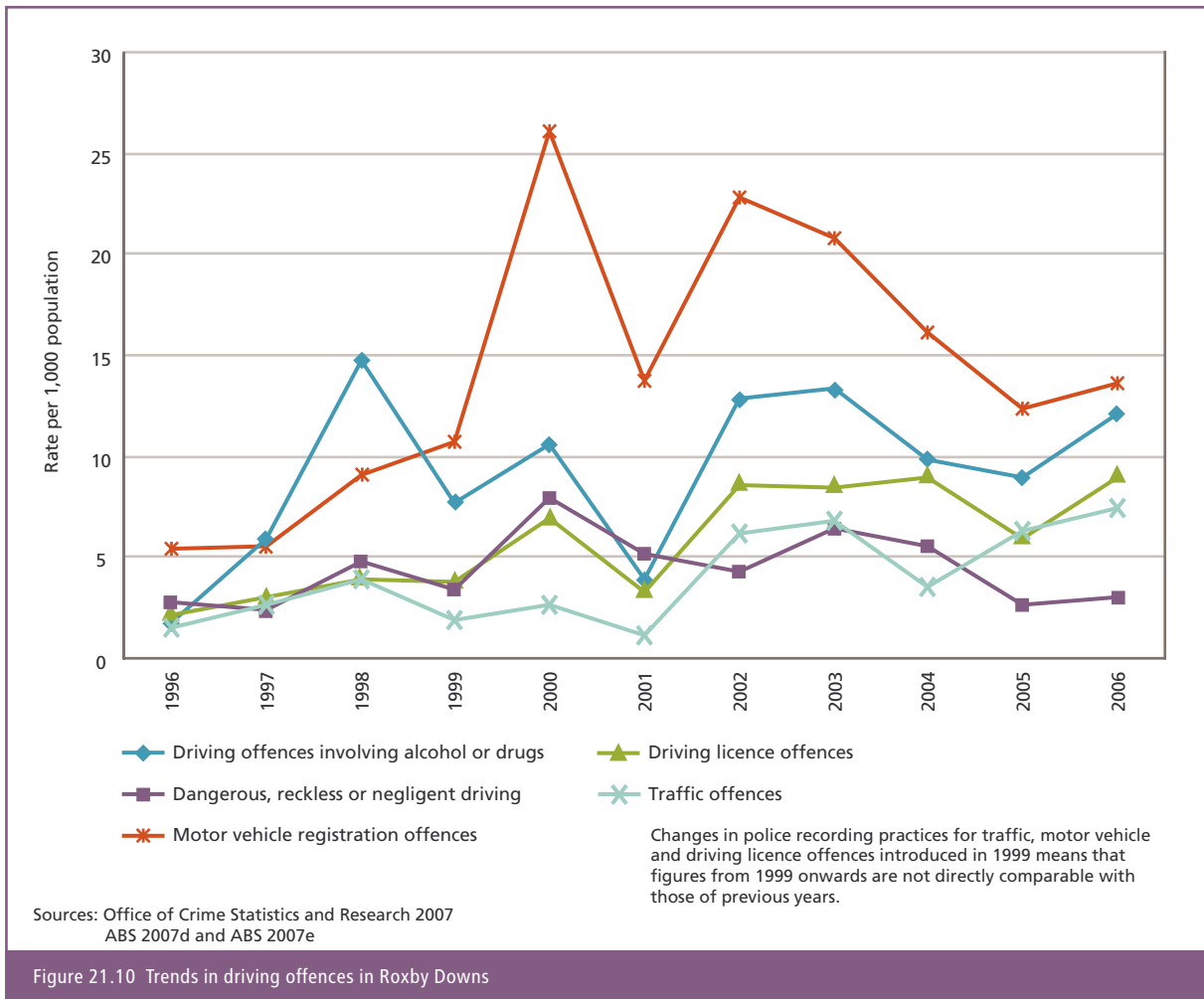
In addition, BHP Billiton and the Roxby Downs Council have recently agreed to jointly fund a project officer to work with the Roxby Downs Alcohol and Substance Abuse Partnership to mobilise community support and reduce alcohol misuse and address drug and alcohol problems in Roxby Downs (see Section 21.7.2 of the Supplementary EIS for further details).

A number of other community-based strategies presented in Appendix Q4 aim to minimise the likelihood of crime and antisocial behaviour, including alcohol and drug-related offences, in Roxby Downs and surrounding communities. The success of these initiatives would require the support and involvement of the community and other stakeholders (Allsop 2008), and BHP Billiton would work with these groups if there was broad-based support for such initiatives.

One submission suggested that the implementation of a dry zone should be investigated. Section 131 of the *Liquor Licensing Act 1997* provides for the prohibition, by regulation, of the consumption or possession of liquor in a specified public place, or a public place of a specified kind. There are three types of dry areas: one-off major events that are promoted as alcohol-free; popular public places where liquor-related problems negatively affect the amenity of the area; and a community where drinking in public places creates, or is an indicator of, complex social issues (Office of the Liquor and Gambling Commissioner 2010).

An application for a dry area, or zone, would need to be made by the Roxby Downs Council to the Liquor and Gambling Commissioner. The council would need to submit details of local strategies that address public nuisance and anti-social behaviour, and demonstrate a sufficient level of consultation. In addition, the council would be responsible for issues associated with the dry area, such as undertaking consultation, monitoring evidence of displacement, education programs, signage installation, and an evaluation of the area and applying to renew the dry area (Office of the Liquor and Gambling Commissioner 2010).

Another potential mitigation strategy identified in Appendix Q5 of the Draft EIS was the development of a liquor licensing accord and/or alcohol management plan, which could include a code of practice and other initiatives for licensees and their patrons to promote the responsible service and consumption of alcohol. This would also require the support of the community and involve a range of other stakeholders including licensees, the Roxby Downs Council, the Office of the Liquor and Gambling Commissioner, police, traders and community and resident groups and organisations.



BHP Billiton has also committed to establishing a Social Management Plan with indicators to monitor and respond to emerging issues, which would include additional management strategies directed at crime and anti-social behaviour, where necessary and appropriate.

This would be undertaken in collaboration with government and the community, through the proposed Social Management Plan and social management partnership (described in Section 19.5.7 of the Draft EIS).

Issue:

Further information was sought on the level of policing to be provided in Roxby Downs, Andamooka and Woomera.

Submissions: 6 and 302

Response:

Policing requirements in Roxby Downs, Woomera and Andamooka are a matter for the South Australian Government, which has indicated it would provide policing resources and support commensurate with projected population numbers.

As indicated in Section 19.5.2 of the Draft EIS, recent state budgets have outlined funding commitments to the SA Police to upgrade and expand the existing police station in Roxby Downs and to provide housing to accommodate additional police officers to support the proposed expansion. The additional police officers would enable a 24-hour policing service to be provided to Roxby Downs, and policing support to Hiltaba Village and nearby townships and properties. The Roxby Downs Draft Master Plan also sets aside land for a new police station and courthouse and expanded emergency services (refer Section 19.5.4 and Appendix F4 of the Draft EIS).

Issue:

The Andamooka Progress and Opal Mining Association (APOMA) raised concerns about crime and anti-social behaviour in Andamooka as a result of the increased number of people in the town and the risk of prostitution and related issues. The association suggested these were not adequately assessed in the Draft EIS. They also requested that BHP Billiton and the SA Police follow through with mitigation measures identified in the Draft EIS and proposed a series of additional actions to manage these issues.

Submission: 6**Response:**

The Draft EIS identified the potential for increased crime and anti-social behaviour as a result of the proposed expansion as a matter of concern to residents in Roxby Downs and Andamooka. It also noted that the relative isolation and character of Andamooka and limited police presence in the town may increase the likelihood of prostitution, anti-social behaviour or illicit activities.

Section 19.5.2 of the Draft EIS noted that the location of Hiltaba Village on the road to Andamooka may mean workers could visit Andamooka for social and recreational purposes, although the provision of facilities in the village is intended to encourage the construction workforce to remain at the village. It suggested that an expanded police presence in Andamooka may be warranted, particularly after hours and around licensed premises, and to meet continuing population growth.

These issues are discussed further in a specific study on social impacts in Andamooka undertaken after the release of the Draft EIS and contained in Appendix J2 of the Supplementary EIS.

Responsibility for policing rests with the South Australian Government and SA Police. BHP Billiton is not in a position to comment on the level of policing to be provided in Andamooka but understands from previous discussions with the SA Government that additional police services would be provided to support the proposed expansion. To this end, SA Police have also indicated their intention to upgrade and expand the existing police station in Roxby Downs.

The additional police officers would enable policing support to be provided in Hiltaba Village and nearby townships and properties, including in Andamooka, as well as providing a 24-hour policing service in Roxby Downs. BHP Billiton would not provide or contract private security in Andamooka.

A number of measures have been proposed by BHP Billiton to reduce crime and anti-social behaviour, including workforce induction and education, codes of practice/behaviour, enforcement of the BHP Billiton Group's drugs and alcohol policies, and other community safety initiatives. Other commitments by BHP Billiton to address concerns relating to crime and anti-social behaviour resulting from the expansion and to encourage appropriate behaviour by workers were outlined in Section 19.5.2 of the Draft EIS.

With respect to the specific safety and security initiatives identified as potential mitigation measures in Appendix Q4 of the Draft EIS, and put forward in the submission to the Draft EIS for action by BHP Billiton and SA Police, in conjunction with APOMA, the following comments are made:

- developing a liquor licensing accord – licensees, councils, regulatory bodies (including the Office of the Liquor and Gambling Commissioner), police, traders and other stakeholders usually develop liquor licensing accords, and outline the objectives, commitments and obligations of relevant parties to the accord. BHP Billiton would be willing to participate in developing a liquor licensing accord, if this was supported by the community, SA Police and other stakeholders
- establishing a community safety committee – community safety committees provide another mechanism to enable a broad range of community stakeholders and service providers to identify priority issues, and develop appropriate local responses (for example, through the development of a crime prevention plan). BHP Billiton would be willing to participate on a community safety committee in Andamooka, if this was supported by the community, SA Police and other stakeholders
- nominating a community project officer to be contactable for anti-social behaviour matters. This is a matter for SA Police to consider; in some instances SAPOL has established community liaison positions in local services areas. In some council areas, community safety officers have also been appointed to work with the council, community members and service providers to develop a crime prevention plan, or to implement specific programs to address community safety concerns, commonly in conjunction with a community safety committee. As outlined in the Draft EIS, BHP Billiton has indicated it would establish a complaints procedure to investigate any reported incidents of unacceptable behaviour. Any criminal or illegal activities should be reported to police
- after-hours transport – while this was identified in Appendix Q4 as a potential mitigation strategy, BHP Billiton would not provide after-hours community transport because this is not within its responsibilities

- code of conduct – the BHP Billiton code of conduct would apply to the behaviour of employees and contractors in Andamooka, and elsewhere (both on-site and off-site)
- workforce inductions – as indicated in Section 19.5.2 of the Draft EIS, BHP Billiton would continue to implement the workforce induction and education information strategies to communicate safety and security expectations.

In addition, the police, council, residents, business and other stakeholders could develop and implement other crime prevention strategies which would reduce opportunities for crime and anti-social behaviour. These may include initiatives such as an education program for residents on crime reporting.

With regard to the issue of prostitution, this is illegal in South Australia, and enforcement of the law is a matter for SA Police. BHP Billiton would be willing to contribute to, and participate in, a workshop or study on the local impacts of prostitution, if this was organised by SA Police or other key stakeholders.

The proposed social management partnership between BHP Billiton, the South Australian Government and the community would also provide a mechanism to identify and respond to emerging social issues in Andamooka and elsewhere, should this be required (refer Section 19.5.7 of the Draft EIS and the draft Social Management Framework in Appendix J1 of the Supplementary EIS for further information).

21.5.3 HILTABA VILLAGE

Issue:

Differing views were expressed about the location of Hiltaba Village – some suggesting it would isolate the construction workforce and lead to social problems, others suggesting that it would protect the safety and character of the Roxby Downs and Andamooka residential communities.

BHP Billiton was asked to provide a commentary that reflected its intention to create a positive camp culture, rather than a focus on policing, and to develop a social engagement program to prevent negative behaviour and improve social and physical activity among workers.

Submissions: 2, 71, 72 and 168

Response:

The design of Hiltaba Village, the provision of high-quality facilities and amenities, and the employment of leisure and lifestyle support staff, are intended to create a convivial living environment that would minimise any sense of isolation or segregation in the workforce, assist in creating a positive culture and sense of community in Hiltaba Village and reduce the potential for negative social interactions between the construction workforce and existing community.

As presented in Section 19.4.2 of the Draft EIS, a major element of the project planning included siting infrastructure to reduce social impacts. This included the site selected for Hiltaba Village on the Andamooka Road, 17 km east of Roxby Downs and midway between Roxby Downs and Andamooka.

Fourteen locations north, south and east of Roxby Downs were investigated as possible sites for Hiltaba Village, including a number of sites adjacent to and within the Roxby Downs township. As discussed in Section 4.12 of the Draft EIS, these sites were assessed against a number of criteria, including the expressed views of residents in Roxby Downs and Andamooka that the construction workforce should be accommodated some distance from the townships. Other reasons for rejecting sites adjacent to and in the township were associated with dust and noise impacts, the location of the new airport, and impacts on known heritage sites and/or areas of national environmental significance.

The reasons for choosing the preferred site were:

- the expressed views of residents in Roxby Downs and Andamooka that the construction workforce should be accommodated some distance from the townships
- to reduce the potential for negative interactions between the construction workforce and residents in Roxby Downs and Andamooka
- to reduce dust and noise impacts in the village from establishing and operating the open pit mine
- proximity to the new airport, which helps manage the transport logistics associated with the arrival and departure of personnel.

It was also recognised that the peak population at the construction village (averaging 6,000 people and up to 10,000 during peak construction activity) would be greater than the existing Roxby Downs township and would have the potential to overshadow it. A self-contained village, incorporating a range of high-quality facilities and amenities, was identified as the preferred option.

The construction workforce would be accommodated at Hiltaba Village on a rotating 'motel-style' basis and, while some workers may be employed at Olympic Dam on cycles of four weeks on and one week off for some time, many would stay for far shorter periods – some for only days. In this regard, many construction workers may only be accommodated on a short-term or temporary basis at Hiltaba Village, and would not be expected to have strong ongoing relationships with Roxby Downs residents.

In line with industry best practice, BHP Billiton would promote social and community cohesion in Hiltaba Village and Roxby Downs and aim to proactively manage the interaction and relationship between residents in nearby townships and the construction workforce, to deliver positive and sustainable social and economic outcomes. This would be undertaken as part of the Social Management Plan and would also address factors associated with the contractor community that may directly or indirectly affect the 'liveability' and sense of community in Hiltaba Village, including the services, programs, activities, communication and room allocation policies that affect workers' satisfaction and their day-to-day physical, social and psychological needs. This would be undertaken in consultation with the workforce and the community, and would build on best-practice strategies implemented at other remote Australian mine sites.

The village is a critical part of the proposed project, and its location, amenities, management and relationship with Roxby Downs would be fundamental to securing, managing and retaining the required workforce for the project. The design of the construction village has been based on urban design principles for a modern town and incorporates the recreational, leisure and retail facilities required by a community of this size, to create a sense of place and amenity. The provision of facilities, as well as organised and individual activities, would also be supported by health and lifestyle staff and would help create a positive and high-quality living environment.

Benchmarking was conducted to identify the issues and lessons learnt from other remote mining and construction villages in Western Australia to inform the planning and design of Hiltaba Village.

The Draft EIS detailed the design, management and provision of facilities at Hiltaba Village, which would assist in creating a sense of community among the workers to be accommodated at the village. As presented in Section 19.5.3 of the Draft EIS, Hiltaba Village has been designed to create an urban village atmosphere around a 'main street' instead of being a stereotypical 'camp'. The specific objectives for the design of Hiltaba Village were to:

- create a community, not a 'camp'
- maintain a single town core
- create a 'main street' and locate the principal facilities along this street
- define the main entrance to the village
- minimise distances from residential units to the town core
- create defined residential areas in which people would enjoy living.

Other design features that can influence workforce satisfaction and relationships on-site, which would be further considered during detailed design, are:

- the size, position/orientation and layout of rooms and their internal/external finishes
- the ability to obtain a restful sleep
- sufficient personal space and sense of privacy
- the ability to obtain quality meals and to self-cater (i.e. prepare small meals, snacks and hot drinks)
- room allocation/room share policies
- being able to exercise freely and easily
- being able to access general areas for leisure or social use within a walkable distance
- having access to private open space or a small common area (such as a barbecue area) to enable 'neighbours' and friends to socialise and interact
- good communication infrastructure (including telephone and broadband access in rooms).

Hiltaba Village would offer a wide range of sporting, recreation and leisure facilities, including swimming pools, gymnasiums, indoor and outdoor ball game and sporting areas, a perimeter running track, a dining hall and taverns. These facilities would allow for active and passive, indoor and outdoor recreation and social pursuits, which could be undertaken individually, among friends, or as part of communal events. The design of facilities and amenities would also take account of the mix of workers, and their diverse interests, and would consider the recreational, leisure and social needs of people from different cultural and linguistic backgrounds.

In addition, in keeping with industry best practice, BHP Billiton would arrange for the village managers to employ leisure and lifestyle coordinators to organise a range of recreational, cultural, social and sporting activities and events at Hiltaba Village, which would also assist in creating a congenial atmosphere and sense of community at the village. This would provide opportunities for people to be involved in out-of-work activities, establish friendships, and maintain a positive outlook. Internet access would also be made available in rooms and internet cafes to facilitate communication with family and friends, as well as for social, recreational, educational and entertainment purposes. The provision of pastoral care and external counselling services would also be considered to provide for the health and well-being of residents.

The design of Hiltaba Village, the provision of high-quality facilities and amenities, and the employment of health and lifestyle support staff, are all intended to create a convivial and harmonious living environment and reduce the potential for negative social interactions between the construction workforce and existing community. Further details on the services and facilities to be provided in Hiltaba Village, and the timing of service provision, are provided in Section 21.7.4 of the Supplementary EIS.

Hiltaba Village is a critical part of the project infrastructure. It is in BHP Billiton's interests to ensure it is well planned, of a high quality, and caters to the needs of its residents in order to:

- attract the best possible workforce to the project
- achieve a high workforce retention rate and reduce turnover
- maintain a productive workforce as a result of having quiet and pleasant living conditions
- minimise occupational health and safety issues
- minimise industrial relations issues relating to the accommodation facility
- minimise potential disruptions between the construction workforce and existing employees, contractors and their families in Roxby Downs.

The development of a Social Management Plan by BHP Billiton, and in collaboration with the South Australian Government, would also provide a mechanism to identify and respond to issues and concerns from the workforce or local community about Hiltaba Village. This could include additional programs and services to create a sense of community and social engagement among the construction workforce, as required.

Issue:

Further information was requested about the strategies that would be put in place to stop people visiting Hiltaba Village with the intent of prostitution or drugs.

Submission: 71

Response:

The Draft EIS described the design, location and management of Hiltaba Village, and the features that would discourage people from visiting Hiltaba Village for unauthorised, improper or illegal purposes.

As presented in Section 19.5.2 of the Draft EIS, Hiltaba Village would be located 17 km from Roxby Downs and 16 km from Andamooka, on the northern side of Andamooka Road. Internal security arrangements would be provided in the village to manage inappropriate behaviour by workers or visitors, and would include a closed-circuit television system, and a security team who would undertake continuous patrols 24 hours a day, seven days a week, to prevent and respond to potential incidents.

A number of strategies are proposed to prevent people visiting Hiltaba Village for unauthorised, improper or illegal purposes.

There would be a single entry point to Hiltaba Village via the main entrance off Andamooka Road. Access to the village for non-bus traffic would be via the main entrance and would be controlled by a security gate. The first main cluster of buildings would be located at the entrance to the village, and would include the security gate, reception building (with associated parking for vehicles and buses) and an administration building.

Security services would be provided to:

- control the ingress and egress of vehicular traffic
- monitor and control personnel entering the village
- monitor behaviour in the village

- investigate disturbances or offences and advise statutory authorities, where necessary
- control and monitor the village closed-circuit television system and smoke alarm monitoring and reporting.

In addition, an electronic recognition card system is proposed for Hiltaba Village, to manage access to rooms, recreational facilities and dining areas.

Further consultation would occur with SA Police during the detailed design phase, to ensure appropriate security requirements and procedures are provided at the village.

Issue:

Further information about the programs to target racial harmony and cultural acceptance among the workforce was requested.

Submission: 2

Response:

The Draft EIS outlined a number of strategies and programs that would be implemented by BHP Billiton to promote racial harmony and cultural acceptance among the workforce, including workforce inductions, codes of practice/behaviour, education and information programs on cultural diversity and, depending on the size and make-up of the workforce, the potential appointment of a cultural liaison officer.

As noted in Section 19.5.1 of the Draft EIS, the BHP Billiton Group is a global organisation with an established history of providing for the needs of a culturally diverse workforce. This is reflected in the existing operation at Olympic Dam, which currently manages a diverse operational workforce of over 34 nationalities (including over 80 people from non-English-speaking backgrounds, excluding the United Kingdom and Ireland, New Zealand, Canada, the United States of America and South Africa). In addition, up to 50 overseas workers are currently employed in the shutdown maintenance workforce and live in camp accommodation.

'Respect for Others' is one of the BHP Billiton Group's Charter (2007) values that underpin behaviour. Contracts with service providers would include clauses outlining BHP Billiton's expectation that contractor employees behave in a manner consistent with these values. These values would be covered in workforce inductions and include Indigenous heritage and cultural awareness training. In addition, BHP Billiton would organise education programs and provide information on cultural diversity to employees, new and existing residents of Roxby Downs and workers accommodated at Hiltaba Village.

For example, this could include information sessions about working and living with people from diverse cultural and linguistic backgrounds. Specific programs may also be developed and periodically be run among workers to address particular cultural sensitivities, once the size and make-up of the workforce was better understood (i.e. programs would be developed that are 'fit-for-purpose'). Programs would also be provided for incoming overseas workers to inform them about workplace and living conditions in Australia, how to access services and facilities outside village accommodation (including support and counselling services), and how to contact family members and friends overseas. A process of consultation and engagement would be undertaken to help shape appropriate workplace programs and services for the workforce. These programs and strategies are in keeping with industry practice at Australian mine sites to promote racial harmony and cultural acceptance among the workforce. Other aspects that may need to be considered in planning for a culturally diverse workforce were outlined in Sections 19.5 and Appendix Q5.3.3 of the Draft EIS.

In addition to the programs directly targeting racial harmony and cultural acceptance among the workforce, BHP Billiton would arrange for recreation/leisure officers to be employed at Hiltaba Village to organise a range of recreational, cultural and social activities. These activities would provide opportunities for informal interaction and socialisation among different groups in the construction workforce. Depending on the size and make-up of the workforce, BHP Billiton would also consider appointing a cultural liaison officer to develop and implement specific programs to facilitate social and cultural rapport among the workforce and the wider community.

As described in Section 19.5.2 of the Draft EIS, access to village accommodation would also involve individuals agreeing to abide by a set of appropriate behaviours, which would cover discrimination, intimidation or harassment on the basis of race, gender, national origin, religious belief or other personal characteristics, and the right to remove accommodation privileges for non-compliance.

The development of a Social Management Plan (refer Section 19.5.7 of the Draft EIS) would provide an additional mechanism for BHP Billiton and other stakeholders to identify and respond to issues associated with cultural diversity and sensitivities, should they arise. This may include, for example, additional programs targeting racial tolerance and acceptance.

21.5.4 OTHER CRIME AND SAFETY IMPACTS

Issue:

Concern was expressed about safety issues arising from the increased number of workers, seamen and sightseers associated with the landing facility.

Submission: 333

Response:

Section 19.5.2 of the Draft EIS outlined a number of measures to address concerns relating to crime and anti-social behaviour among the on-site and off-site workforce.

For example, the workforce involved in constructing and operating off-site infrastructure, including the landing facility and access corridor, would be expected to comply with codes of practice and behaviour, as is required at other BHP Billiton worksites. This would include the use of alcohol and illicit drugs, with both employees and contractors subject to random breath and blood testing in accordance with BHP Billiton's policies and 'Fit for Work/Fit for Life' standards. BHP Billiton also expects its business partners to comply with its own policies to minimise any negative impacts on the local community.

In addition, when a vessel or barge arrived at the landing facility, a security plan would be enacted. The landing facility and quarantine area would be subject to restricted access and security arrangements would be in place while the cargo was being discharged and transported along the access corridor.

The landing facility would handle about 280 vessels over the construction period (about one vessel a week during the peak period), with vessels remaining at the facility for two to three days while the cargo was being unloaded. Discharge activities would involve representatives from BHP Billiton, customs, quarantine, vessel agents, security, and associated workers involved in unloading and transport activities. The crew of the vessel or barge would be involved in discharge activities and would have limited free time, with the aim being to minimise the time crew members spent at the landing facility. As at all BHP Billiton worksites, the landing facility would also be a 'dry area' (i.e. no alcohol would be permitted) and there would be no amenities to attract or retain workers outside working hours. Some members of the crew may visit Port Augusta and, in conjunction with the vessel master/ship's agent, BHP Billiton would coordinate transport to and from the landing facility for this purpose.

BHP Billiton anticipates that the security plan for the landing facility would be developed in conjunction with Australian and South Australian law enforcement authorities so inappropriate behaviour or activities would be managed and dealt with accordingly.

Some interest in activities at the landing facility could also be expected from tourists and sightseers, given the size of the pre-assembled modules and spectacle these are likely to create, particularly in the initial stages of the operation. BHP Billiton would establish arrangements to minimise potential safety issues and other impacts associated with an increased number of visitors to the area, in cooperation with SA Police and other appropriate authorities.

21.6 HOUSING AND ACCOMMODATION

Issue:

Submissions commented on the importance of housing in attracting and retaining labour and requested further information on how issues associated with the supply, affordability and quality of housing and accommodation for mine and non-mine workers would be addressed and monitored. Also, whether there would be consistency of housing styles or options to upgrade particular developments into premium accommodation in the expansion.

Submissions: 71, 72 and 78

Response:

As presented in the Draft EIS, BHP Billiton's intention is to provide for the timely release and development of land and housing to meet the accommodation requirements of the mining and non-mining workforce and their families in an expanded Roxby Downs township and ensure best-value housing outcomes are achieved in terms of cost and quality.

Chapter 19 of the Draft EIS noted the housing constraints, including high costs, in Roxby Downs and the concerns raised by residents and service providers in Roxby Downs and regionally about housing affordability, the logistics of supply, the role of neighbouring townships, and the associated difficulties in attracting and retaining staff (refer Sections 19.3.5 and 19.5.3 of the Draft EIS). Section 19.5.1 of the Draft EIS noted the importance of workplace and living conditions to staff recruitment and retention, and outlined a number of management measures to maintain and enhance the amenity and lifestyle of Roxby Downs.

Section 19.5.3 of the Draft EIS further described the mechanisms by which BHP Billiton, in collaboration with the South Australian Government and other stakeholders, would seek to ensure an adequate supply and affordability of housing for mine, and non-mine, workers throughout the expansion of Olympic Dam.

As presented in Section 19.5.3 of the Draft EIS, the Roxby Downs Draft Master Plan has been prepared by BHP Billiton on behalf of, and in close collaboration with, the South Australian Government and the Roxby Downs Council, to provide a framework for housing, services and facilities for an estimated population in Roxby Downs of 10,000 people, including the long distance commute (LDC) operational workforce (refer Appendix F4 of the Draft EIS). Specific features envisaged in the Draft Master Plan to meet housing and accommodation requirements for the expanded township included:

- up to 2,500 additional allotments and a 5% vacancy rate in accommodation
- a mix of housing types and styles, including units and two-, three- and four-bedroom houses
- a new accommodation site for permanent LDC workers on the western side of Olympic Way, incorporating approximately 1,800 accommodation units
- a transitional housing village for key operational staff, comprising approximately 350 transportable one-, two- and three-bedroom cottages.

BHP Billiton is responsible for the release and development of land and housing, which is done in collaboration with builders and developers. As noted in Section 19.5.3 of the Draft EIS, BHP Billiton would facilitate the implementation of the Roxby Downs Draft Master Plan with relevant stakeholders to meet housing requirements for the expansion, including:

- providing for the timely and orderly release of serviced land to meet housing demand in the mine and non-mine workforce
- providing for a range of allotment sizes across residential precincts to offer a diversity and choice of housing types and densities, and to meet demographic requirements
- utilising the Draft Master Plan and 'Good Residential Design SA', published by Planning SA (1999), as the basis for residential design
- seeking to achieve a 5% vacancy rate in housing to encourage a stable market
- allowing for long-term contractors and the permanent long distance commute workforce to be accommodated in Roxby Downs.

The residential design strategies outlined in the Roxby Downs Draft Master Plan aim to achieve a set of distinct high-quality residential precincts in new development areas, each with a strong individual identity. The draft plan also indicated that a suite of housing design options should be provided, from which people could choose a home most suited to the needs of the Roxby Downs location. It also discussed the use of colours and textures that are characteristic of the town; utilising a palette of materials and colours for new buildings or landscape designs; and introducing a greater range of colour and vitality into the built form of Roxby Downs. Implementation of these strategies would be likely to provide a choice of housing styles in the expanded township. In recent housing developments, such as Copper Sands, eligible people were able to choose from a variety of house designs by several approved builders, and benefited from BHP Billiton being able to negotiate a lower price due to its ability to 'buy in bulk'. Freehold land is also available for purchase, and can be developed at the discretion of the owner, taking account of the Roxby Downs Municipality Development Plan. While the Draft Master Plan may not address housing around the golf course, this could be considered in the future (e.g. as a component of the Final Master Plan being developed by the South Australian Government).

BHP Billiton recognises that land and housing prices are influenced by the balance of supply and demand, and development costs.

To provide for the timely development of land and housing, BHP Billiton would develop and maintain a schedule to deliver housing to meet the expected increase in demand from the mine and non-mine workforce. It would also continue to work with the urban land and housing development industry to ensure adequate industry resources are available to meet accommodation requirements. In particular, BHP Billiton would seek to enter development agreements with South Australian building companies to secure competitive resourcing and the timely delivery of future housing supplies.

In addition, BHP Billiton would work with appropriate urban land and housing development partners to influence the cost of land and housing, and ongoing operational costs in Roxby Downs. For example, this could be facilitated by efficient, cost-effective design and construction of infrastructure and facilities, and by seeking to incorporate optimal environmental, economic and social sustainability outcomes.

BHP Billiton has an obligation pursuant to Clause 21 (1) of the *Roxby Downs (Indenture Ratification) Act 1982* with the Government of South Australia to 'use (its) best endeavours to assist in the provision of the housing needs of such other persons and their dependants who provide services in the town that are ancillary and necessary to the needs of (mining sector) employees and their dependants'. BHP Billiton would meet this obligation, in collaboration with the urban land and housing development industry, to ensure a diverse range of housing was available to meet the rental and purchase needs of non-mining workers and their dependants.

A number of strategies would be used to address the forecast early demand for accommodation, in order to moderate demand during the initial growth period and contribute to maintaining stability in house prices and affordability. These strategies include:

- the initial short-term use of Hiltaba Village for new pioneering operations workers, on a commute basis, until housing becomes available
- the early development and use of the transitional housing village for accompanied workers and their dependants as interim accommodation pending permanent housing becoming available
- the early development of a new workers' village for permanent long distance commute (LDC) workers in Roxby Downs.

After the initial growth period, BHP Billiton anticipates that additional accommodation would be able to be constructed for sale and rental to satisfy the varying needs of the increased operational workforce, other service sector and support workers, and their families, and to achieve the goal of 5% vacancy rates in Roxby Downs in the longer term.

BHP Billiton has committed to working collaboratively with the South Australian Government to develop and implement a strategy to ensure the provision of an appropriate diversity of accommodation to meet the socio-economic requirements of the demographic mix of the Roxby Downs community as it expands (refer Section 19.5.3 and Chapter 27 of the Draft EIS). This would include collaborating with the Government to provide for the development of affordable rental and purchase housing for low- and moderate-income households under government affordable housing development programs.

The Roxby Downs Draft Master Plan (refer Appendix F4 of the Draft EIS) provides for the development of additional short-stay accommodation for tourists and visitors, including sites for hotel/motel-style and serviced apartments in the town centre. This, coupled with providing for additional housing and accommodation for the permanent workforce and their families, including the transition housing village (Axehead Village) on Axehead Road, should enable short-term accommodation to be more readily available for short-term occupancies, such as outreach service providers, tourists and other visitors. BHP Billiton recognises the importance of visiting health specialists to the Roxby Downs community, and may, in specific circumstances and on a case-by-case basis, consider providing accommodation (or other forms of assistance) to support this provision, as it has for private medical services.

Questions about the quality of social amenities in Roxby Downs and its effect on staff recruitment and retention are dealt with in Section 21.2.2 of this chapter.

The development of a Social Management Plan (refer Section 19.5.7 of the Draft EIS and Appendix J1 of the Supplementary EIS) would also provide a mechanism to regularly monitor and review housing issues and identify areas for action, in light of emerging needs in the mining and non-mining sector.

Issue:

It was requested that consideration be given to providing affordable and supported university-type accommodation to attract and retain young people in Roxby Downs.

Submission: 187

Response:

BHP Billiton has committed to working collaboratively with the South Australian Government to develop and implement a strategy to ensure the provision of an appropriate diversity of accommodation to meet the socio-economic requirements of an expanded Roxby Downs, but would not directly provide or manage university-style residential accommodation for young people.

The social impact assessment undertaken for the Draft EIS identified housing affordability for low- and moderate-income households in Roxby Downs, including people employed outside the mining sector, as a potential issue associated with the proposed Olympic Dam expansion (refer Sections 19.5.3 and 19.5.4 of the Draft EIS).

The high housing costs in Roxby Downs were noted in Section 19.3.5 of the Draft EIS. Section 19.5.3 also described the experience of other mining projects and the impact of population growth on housing markets, including housing shortages, a lack of choice and inflated prices, the difficulty in getting people to fill lower-paid jobs (particularly in non-mine and support industries) because of the high cost of housing, and the vulnerability of some people (including women, young people, single parents and non-mine workers) to housing stress. The issue of housing costs has been raised as a priority in consultation with residents of Roxby Downs and service providers.

Section 19.5.3 of the Draft EIS noted that accommodation would be required for a range of different groups in Roxby Downs as a result of the proposed expansion. The Roxby Downs Draft Master Plan provided the framework for the future expansion of the township and considers the requirements for housing and accommodation. The South Australian Government is finalising the Roxby Downs Master Plan and BHP Billiton would facilitate the implementation of the final plan, in collaboration with the Roxby Downs Council, the State Government, developers and community organisations, to provide for a range of allotment sizes across residential precincts to offer a diversity and choice of housing types and densities, and to meet demographic requirements.

BHP Billiton has also committed to working collaboratively with the South Australian Government to develop and implement a strategy to ensure the provision of an appropriate diversity of accommodation to meet the socio-economic requirements of the demographic mix of the Roxby Downs community as it expands (refer Section 19.5.3 and Chapter 27 of the Draft EIS).

BHP Billiton would not directly provide or manage university-style residential accommodation for young people in Roxby Downs, but would be willing to collaborate with government or non-government housing providers to facilitate the development of suitable accommodation for young people, if required.

Other management measures proposed by BHP Billiton to address issues of housing supply and affordability in Roxby Downs include:

- managing land release to accommodate supply-and-demand requirements, with the goal of achieving a 5% vacancy rate in Roxby Downs
- providing accommodation for the permanent long distance commute workforce and transitional housing for operational workers and their families to reduce housing demand during the initial period of growth and contribute to maintaining stability in house prices
- entering into development agreements with South Australian building companies as soon as practicable, to secure competitive resourcing and timely delivery of future housing supplies.

Issue:

The Andamooka Progress and Opal Miners Association (APOMA) commented that the expansion of Olympic Dam would result in an increased population in Andamooka, as it offers more affordable housing than Roxby Downs, particularly for lower-income workers, and that pressure on house prices would occur in Andamooka, although to a lesser extent than in Roxby Downs. To this end, APOMA has asked that BHP Billiton identify Andamooka as an affordable alternative to Roxby Downs and that this represents a cost saving to BHP Billiton.

Submission: 6

Response:

As presented in the Draft EIS, BHP Billiton does not intend to construct housing or accommodate operational or construction workers at Andamooka, although some workers and their families may choose to live there.

Section 5.10.2 of the Draft EIS acknowledged that a proportion of the workforce may choose to commute from areas outside Roxby Downs, and that some of the Olympic Dam workforce may choose to live in Andamooka, in much the same way as members of the existing workforce choose to live in Upper Spencer Gulf, Adelaide or interstate.

Section 19.5.3 of the Draft EIS noted that the location of the proposed airport between Roxby Downs and Andamooka, lower housing and living costs, and the unique character of Andamooka may enhance its attractiveness as a place to live and lead to further population gains (including short-term workers, and lower-income and non-mine-related households). It also reported on the growing housing demand and rising costs in Andamooka, at the same time as housing shortages and high housing costs were reported in Roxby Downs.

After the release of the Draft EIS, a specific study was undertaken on the social effects of the Olympic Dam expansion on Andamooka during the construction and operation phases (see Appendix J2 of the Supplementary EIS). The study predicted that, based on the current number of people (about 220) who live in Andamooka and work at Olympic Dam, a doubling of the workforce at Olympic Dam could see a commensurate increase in the population of Andamooka to over 400 workers associated with Olympic Dam. This could lead to increased demand for housing in Andamooka, and rising purchase, rental and accommodation costs. On the other hand, this may benefit existing property owners in terms of increased land and property values. High occupancy rates may also provide a larger source of revenue to support the provision and maintenance of infrastructure by APOMA.

The study also noted that the 2008 'Development Plan, Land Not Within a Council Area: Eyre, Far North, Riverland and Whyalla (Planning SA 2008a) provides the opportunity for more orderly and sustainable development through defined requirements for future development approval. New governance arrangements for the Outback would also support enhanced strategic planning, asset management and revenue-raising capacity to manage future growth (see Section 21.9.2 of the Supplementary EIS for further details).

While BHP Billiton does not have a direct role in the development of land and housing at Andamooka, managing housing outcomes in Roxby Downs is likely to indirectly influence Andamooka prices.

BHP Billiton is committed to providing sufficient accommodation for the construction and operational workforce in an expanded Roxby Downs and the proposed Hiltaba Village. In this respect, BHP Billiton would provide for the timely release and management of land and housing in Roxby Downs to meet demand and ensure best-value housing outcomes were achieved. BHP Billiton has also committed to working collaboratively with the South Australian Government to ensure the provision of an appropriate diversity of accommodation to meet the socio-economic requirements of the Roxby Downs community as it expands (refer Section 19.5.3 and Chapter 27 of the Draft EIS). This would include meeting the housing needs of the services and non-mining sector as well as BHP Billiton workers and their families, and would be regularly reviewed and addressed as required.

The development of a Social Management Plan and social management partnership (refer Section 19.5.7 of the Draft EIS and Appendix J1 of the Supplementary EIS) would also provide a mechanism to monitor housing issues in Roxby Downs and Andamooka and identify areas for action, if required.

Issue:

One submission commented on the importance of the Pimba workforce being accommodated in Woomera, given the constraints on growth in Pimba. It also identified the risk of unplanned development occurring in Pimba.

Submission: 62

Response:

The workforce required for the construction of the intermodal facility at Pimba would be accommodated in short-stay accommodation at Woomera, and it is likely this would also be the case for the operational workforce.

Chapter 5 of the Draft EIS indicated that approximately 80 people would be required for the construction of the intermodal facility at Pimba, and they would be accommodated in existing short-stay facilities in Woomera. A similar number of workers were expected to operate the Pimba intermodal facility and rail spur to Olympic Dam.

Since the release of the Draft EIS, the size of the operational workforce for the Pimba intermodal facility and rail infrastructure has been revised downwards to approximately five to 10 people. This workforce would be required only until the proposed rail line was extended from Pimba to Olympic Dam. Consequently, it is anticipated that the majority of the operational workforce would be long-distance commuters, who would be accommodated in short-stay accommodation in Woomera during their rostered work periods. Alternatively, operational workers (and their families) may choose to live in Woomera (depending on the availability of housing for rent or purchase) or Roxby Downs, rather than Pimba, given the range and quality of accommodation, facilities and services in those townships.

The South Australian Government is responsible for planning and development control in the out-of-council areas of the Far North, including Pimba. The relevant objectives and principles for development control are outlined in the 'Development Plan, Land Not Within a Council Area Plan: Eyre, Far North, Riverland and Whyalla' (Planning SA 2008a).

21.7 SOCIAL SERVICES AND FACILITIES

21.7.1 EXISTING SERVICES

Issue:

Comments were made about the accuracy of the description of some existing social services and facilities in Roxby Downs, as listed in the Draft EIS. One submission requested that further work be undertaken on the existing social environment, including a review of recent community plans and reports, and suggested that this work take account of current community views on aspects of the Draft EIS.

Submissions: 71, 72 and 168

Response:

The description of social services and facilities, as listed in the Draft EIS, was based on information available in 2008, and may not reflect subsequent changes in the level or type of services provided in Roxby Downs.

Section 19.3 of the Draft EIS identified and described a range of social services and facilities that were available in Roxby Downs as at May 2008. This included comments made by agencies or the community on services, with further detail on capacity, staffing, service gaps and issues provided in Appendix Q5 of the Draft EIS. The information on existing social services was principally based on a survey and discussions with government and non-government service providers undertaken in 2006, and updated in 2008, and supplemented with desktop research.

Comments made in submissions about the description of services in the Draft EIS and the status of those services as at April 2010 is provided in Table 21.7 of the Supplementary EIS. Details on the current status of services are based largely on information from the roxybydowns.com website (Roxby Downs Council 2010), comments made by service providers by telephone or through a review of the literature.

Inaccuracies were reported in the number of staff employed by the Roxby Downs Council and staff ratios (i.e. per person and as a proportion of staff employed in human services).

Local government comparisons were undertaken in 2007 and were based on 2006 data wherever possible, to provide some comparability across data sources. Employee numbers (used in calculating the number of employees per person and the proportion of staff employed in human services) were based on information provided by the Roxby Downs Council in the 2006 survey of human service providers. The population of Roxby Downs, used to calculate employee ratios, was based on the estimated residential population in June 2006 (ABS 2007a). Comparisons with South Australian local government were based on the most current available reports from the Department of Transport and Regional Services, Local Government National Report 2005–2006 (2006) and the Local Government Association of South Australia (2006).

Updated information was used to describe the number and positions of community services staff in Roxby Downs in 2008, and was based on information from the Roxby Downs Council.

The limitations of benchmarking data, including the comparability of councils in South Australia to Roxby Downs, were outlined in Appendix Q6 of the Draft EIS. These issues are compounded by the variation in functions performed by local government, the size and characteristics of local government authorities, and the extent of outsourcing.

In its Annual Report for 2007–2008, the Roxby Downs Council reported operating with a management organisation of 21 permanent staff plus various service providers. In this respect, some functions of the council are provided by contract services (i.e. planning and development, leisure centre functions and construction and maintenance work) (Roxby Downs Council 2008). Unlike most local government authorities in South Australia, the council also operates separate power and water authorities, which are managed as self-contained business units and are separately funded from user charges.

To provide more current benchmarking data on levels of staffing in South Australian councils, further research has been undertaken since the release of the Draft EIS.

Based on the staffing numbers publicly reported by the Roxby Downs Council in its 2007–2008 annual report, and an estimated residential population in Roxby Downs of approximately 4,340 people as at 30 June 2007 (ABS 2010c), the population served per employee in Roxby Downs is 1:207 people. The Department of Infrastructure, Transport, Regional Development and Local Government (2009) reports this is fewer employees per person than for all South Australian councils (1:135, as at February 2007).

Table 21.7 Description of social services and facilities in Roxby Downs

Comment about services	Status as at April 2010
Grace Surgery is no longer operating, and this leaves Roxby Downs with only one private practice and the public health service.	Grace Surgery is no longer operating, with two general practitioners' rooms operating in Roxby Downs – the Roxby Downs Family Practice (in Gregory Street) and the Roxby Downs Medical Practice (in the Roxby Downs Hospital).
The Strengthening our Families program does not include counselling and social work.	The Strengthening our Families program provides support, friendship and assistance to parents with children younger than five years. It can also introduce new families to the services and activities available in Roxby Downs. The service is provided by trained volunteers, who are available for home visiting, supervising children at health and medical appointments, attending community activities and other daily activities.
There are no qualified workers providing domestic violence counselling or support in Roxby Downs.	The Port Augusta Regional Women's and Children's Support Service previously provided a service on a visiting outreach basis but the service is no longer operating (Connecting Up Australia). Uniting Care Wesley provides telephone counselling, support and emergency accommodation to Roxby Downs residents at Port Augusta and Coober Pedy (Uniting Care Wesley Port Pirie Inc. 2010). A 24-hour seven-day-a-week statewide telephone counselling service is also operated by Uniting Care Wesley, and offers counselling, support, information or referrals to other agencies (Uniting Care Wesley Adelaide 2010).
The Drug and Alcohol Services no longer sends a counsellor to Roxby Downs.	A counsellor from the Port Augusta Community Health Centre visits Roxby Downs one day a month, and operates out of the Roxby Downs Hospital. The Drug and Alcohol Information Service, based in Adelaide, provides a 24-hour, seven-day-a-week telephone counselling service. The FlipSyde Youth Health Service is a new 12-month pilot project in Roxby Downs that offers information and support, including mental health and drug and alcohol counselling, to people aged between 12 and 20. FlipSyde is run by a community nurse and visiting family doctor and offers a weekly youth health clinic at the Roxby Youth Centre.
The Little Rascals Child Care Centre will close at the end of August 2009, which will leave only one childcare centre in Roxby Downs.	The Little Rascals Child Care Centre was still operating as at April 2010, and runs early education programs during school terms ¹ . The Roxby Downs Child Care Centre also runs early education programs in Roxby Downs during school terms.
There are limited hospital and health services in Roxby Downs, including functioning theatre, imaging, obstetric, antenatal, maternal and postnatal health services.	The limitations of community health and medical services in Roxby Downs were summarised in Table 19.8 and detailed in Appendix Q5 of the Draft EIS. Additional health-related concerns and servicing issues were summarised in Sections 19.3.8 and 19.5.4 of the Draft EIS.
The BHP Billiton policy of providing subsidies to employees and their families to attend secondary schooling away from Roxby Downs is disruptive to family life, contributes to workforce turnover and impacts on the community.	This issue is beyond the scope of the Draft EIS, but could be discussed with BHP Billiton.
The availability and quality of childcare services in Roxby Downs is a concern. Lack of space also needs to be addressed.	The provision of child care is not an issue within the direct control, responsibility or authority of BHP Billiton. BHP Billiton would participate in the development of a plan to consider future requirements for social services, including the provision and location of childcare services and facilities. All providers approved for the childcare benefit (including long day care centres, family day care and outside school hours care) must comply with the Australian Government's quality assurance system. The accreditation process is managed by the National Childcare Accreditation Council, which inspects and reports on childcare providers (Care for Kids n.d.). State and territory governments are responsible for legislation under which childcare services are licensed, which typically includes structural quality factors, such as space, range of equipment, number and ages of children, and the number and qualifications of staff (National Childcare Accreditation Council Inc. 2009).
There is a lack of premises to enable locally based health practitioners to establish private practices in Roxby Downs and Andamooka.	The Roxby Downs Draft Master Plan provides land for buildings and facilities along the extension of Richardson Place for mixed-use development. The availability of premises in Andamooka is not the responsibility of BHP Billiton and is beyond the scope of the EIS.
The cost of transport services to and from Roxby Downs is high.	Section 19.3.10 of the Draft EIS reported on the community's concerns with the existing transport services between Roxby Downs and Adelaide. Transport services, including an air service operated by Air Alliance and a daily bus service operated by Greyhound Australia, are provided by private companies on a commercial basis. BHP Billiton also operates a workforce commuter bus service between Olympic Dam and Port Augusta.

Source: Roxby Downs Council 'Roxbydowns.com', unless otherwise indicated

¹ In June 2010, Little Rascals Child Care Centre was advertised for sale (*Trading Post* 2010).

Table 21.8 of the Supplementary EIS provides further detail on levels of staffing in councils of similar size to the Roxby Downs Council, as well as other contextual and financial information. This is largely based on data from a Comparative Performance Measurement Project website (as at May 2010) created by the Local Government Association of South Australia. Data on the Roxby Downs Council is based on its 2007–2008 annual report, as the council is not listed on the website. As noted by the Local Government Association, variations in the methods of data collection and the different issues being dealt with by each council may affect the reliability and accuracy of this data.

This analysis also suggests that the Roxby Downs Council may have fewer employees relative to similar-sized councils in South Australia, while noting that a number of the council's functions are undertaken by external contractors.

Table 21.8 Local government comparisons

LGA	Population (number of people) ²	Land area (hectares)	Rateable properties ⁴	Rate revenue (\$'000) ⁵	Operating surplus (\$'000) ⁶	Net Financial Liabilities (\$'000) ⁷	Number of staff (FTE) ⁸	Atypical functions ⁹
Roxby Downs ¹	4,450	11,000 ³	1,500	1,935	-517	4,544	21, plus contractors	Power, water, sewerage, agent for government housing
Ceduna	3,731	543,306	2,054	2,907	202	2,085	43	Airport, water, sewerage/effluent, boating facilities and aquaculture park
Goyder	4,284	668,787	4,240	3,305	809	178	43	Quarrying
Kangaroo Island	4,536	443,438	5,352	5,810	-3,362	3,378	61	Airport, boating facilities, camping ground
Lower Eyre Peninsula	4,731	475,524	3,444	3,618	451	-491	31	Airport, caravan parks, boating facilities, effluent schemes, aged care homes
Northern Areas	4,856	297,409	3,987	3,139	853	1,217	48	Industrial park
Yankalilla	4,497	75,693	5,349	6,456	-2,186	7,448	42	Foreshore cafe

Source: Local Government Association of South Australia, unless otherwise indicated

¹ Based on data from the Roxby Downs Council Annual Report 2007–2008 (Roxby Downs Council 2008), unless otherwise stated.

² As at 30 June 2008. Roxby Downs population is based on the ABS estimated residential population (ABS 2010c).

³ Based on the National Regional Profile for Roxby Downs (ABS 2010d).

⁴ As at 1 January 2009, except in Roxby Downs. The number of rateable properties in Roxby Downs may be higher than indicated, as the estimate is based on the number of rateable properties in 2004–2005 (Roxby Downs Council 2005) plus an additional 120 new dwellings completed in June 2008.

⁵ For the financial year 2007–2008.

⁶ For the financial year 2007–2008. Under the *Roxby Downs (Indenture Ratification) Act 1982*, Roxby Power is not permitted to make a profit, but can direct any excess income into its asset replacement fund. Profits (if any) from Roxby Water are permitted to support the municipality. The State Government and BHP Billiton equally meet the deficit on municipal operations.

⁷ As at 30 June 2008, before capital amounts.

⁸ Full-time equivalent (FTE), as at 30 June 2008. FTEs for Roxby Downs Council are as reported in the 2007–2008 Annual Report.

⁹ Functions and services not typically or generally provided by councils – intended as a guide only. As identified in annual business plans for 2009–2010 and/or annual reports for 2008–2009.

A planning process was identified in Section 19.5.4 of the Draft EIS to address existing and/or future needs, and is discussed in further detail in Section 21.7.3 of the Supplementary EIS.

Public consultation on the Olympic Dam Expansion Draft EIS in 2009 provided an opportunity for interested people and organisations to comment on aspects of the expansion project, in addition to the consultation and social research that was undertaken during the preparation of the Draft EIS. The development of the Social Management Plan and indicators would also provide a mechanism to measure and monitor the future social effects of the expansion of Olympic Dam, to help identify emerging social issues and areas for future action by BHP Billiton, government and other relevant stakeholders (see Appendix J1 of the Supplementary EIS for a draft version of the Social Management Framework).

21.7.2 HEALTH STATUS

Issue:

Concerns were expressed about the health status of Roxby Downs residents, including mental health and issues relating to drugs and alcohol. BHP Billiton was asked to undertake a health study of the reasons why Roxby Downs is below average on a number of health indicators and to take greater responsibility for these issues. The need to expand health services and strategies to promote a healthy lifestyle was also raised.

Submissions: 44, 71 and 141

Response:

BHP Billiton has a number of programs in place to monitor and promote the health of its employees.

Section 19.3.8 of the Draft EIS presented comparative health data for Roxby Downs, with detailed information provided in Appendix Q3 of the Draft EIS.

This included data from the Public Health Information Development Unit and the South Australian Department of Health and showed that, after taking account of differences in the age profile, Roxby Downs residents:

- generally experienced good health, and had a lower incidence of premature death, avoidable mortality, and total hospital admissions than South Australia
- generally rated positively on maternal and child health indicators
- had a higher rate of contact with community mental health services than other South Australians on several indicators, including mood, neurotic and stress-related disorders
- had a relatively high rate of accident and emergency presentations at the Roxby Downs Health Service, and a declining rate of hospital separations
- had a lower number of general practitioners per head of population than South Australia or country South Australia.

Section 19.3.8 of the Draft EIS described a range of existing health-related concerns among residents of Roxby Downs and service providers concerning the availability of some health services (including mental health support), problems with alcohol and drugs, and the turnover of medical staff.

Further research has been undertaken since the release of the Draft EIS to examine recent health data for Roxby Downs compared to country South Australia, South Australia, Australia and other comparable Australian mining communities (Public Health Information Development Unit 2008 and 2009a). Detailed tables on health risk factors, self-reported health, self-reported mental health status, hospital admissions and use of community mental health services can be found in Appendix J3 of the Supplementary EIS. This analysis indicates that Roxby Downs has:

- fewer people (15 years and older) who report fair or poor health
- fewer people (15 years and older) who are physically inactive
- fewer people with type 2 diabetes or high cholesterol
- fewer people (18 years and older) with high or very high psychological distress levels or with mental and behavioural problems or mood (affective) problems
- fewer female smokers (18 years and older) but more male smokers than Australia or South Australia (with lower or comparable rates among men in country South Australia and other mining communities)
- a similar rate of asthma
- fewer people (12 years and older) who eat two or more serves of fruit daily
- fewer people (15 years and older) in the normal weight range, and more people who are overweight or obese (with high rates of overweight or obesity also found in other mining communities)
- more people (18 years and older) who consume alcohol at high risk levels (with high levels also found in other mining communities)
- more people (18 years and older) who have one or more major health risk factors (smoking, harmful use of alcohol, physical inactivity and obesity) than Australia or South Australia (with similar rates as country South Australia, and lower rates than other mining communities)

- a similar rate of injury events
- fewer total hospital admissions, potentially avoidable hospital admissions, respiratory admissions and mental and behavioural admissions; fewer hospital admissions among females for diabetes and injury, poisoning or other causes; and more admissions among men for diabetes and injury, poisoning or other causes than country South Australia or South Australia
- a low use of community mental health services by men, but a high use by women, children and adolescents compared to country South Australia or South Australia.

Chapter 25 of the Supplementary EIS also discusses a number of aspects of community health associated with mining.

A number of these health characteristics have been identified in other Australian mining communities. For example, the Western Australian MineHealth system reported high rates of smoking among employees compared to the national smoking rate, particularly among blue-collar workers (Western Australian Department of Mines and Petroleum 2009). It also found a greater proportion of male mining employees were overweight or obese than either female mining employees or males in the general Australian population, although overweight and obesity rates for female mining employees mirrored the general female Australian population (Neil and Burmas n.d.).

It was suggested in one submission that the consumption of fruit and vegetables in Roxby Downs may be related to cost, and could potentially have flow-on effects in terms of health and weight. Appendix Q6 of the Draft EIS presented the findings of a price comparison of 37 grocery items (including six fruits and vegetables) purchased in seven locations: Roxby Downs, Port Augusta, Adelaide and four other comparable mining communities in Queensland and Western Australia. That study found it is relatively cheap to purchase groceries in Roxby Downs compared to other mining communities, and that Roxby Downs was the second cheapest place to purchase fruits and vegetables of the seven locations investigated, with Adelaide being the cheapest. Based on this study, cost would not appear to be a factor influencing the consumption of fruit and vegetables in Roxby Downs.

As presented in Section 19.5.2 and Appendix Q4 of the Draft EIS, studies from Australia and Canada point to certain population groups, industries and occupations and job qualities that are associated with higher alcohol and drug use, with many of these characteristics common to mining and construction. For example, higher rates of alcohol consumption are commonly found in young single men; certain industries, including mining, building, transport, agriculture and hospitality; and particular occupational groups, including trades and unskilled workers (Holland n.d.; Pidd et al. 2006). Factors relating to working conditions (such as work stress/alienation, long working hours, boredom, shift work, job insecurity, remote job sites), workplace culture, social, cultural and family norms and expectations, and individual attitudes and behaviours, may also contribute to problematic alcohol and drug use (Pidd and Roche 2008). A number of Australian studies have also reported on the high levels of alcohol consumption in mining communities (refer to Appendix Q4 of the Draft EIS for details).

Alcohol has been identified by residents and service providers as an issue in Roxby Downs (Roxby Downs Community Board 2005), and was the subject of a recent study commissioned by the Roxby Downs Alcohol and Substance Abuse Partnership (Love 2010). Respondents in that study pointed to high levels of alcohol use in Roxby Downs, an acceptance of risky alcohol use, and the prominence of alcohol at social events. They also reported a lack of drug- and alcohol-specific services in Roxby Downs, including youth-specific services, and a lack of communication and cooperation between services and workers. The study noted that while some employers in Roxby Downs and Olympic Dam have comprehensive employee programs to address substance abuse and its impact on work, these are not designed to reduce alcohol and drug problems in the general community.

The study highlighted the importance of community mobilisation in addressing drug and alcohol problems and posed the question about what strategies the Roxby Down community may accept, noting that 'unfortunately, the strategies that are most likely to significantly impact alcohol-related problems are the ones least likely to be supported by the community' (Allsop 2008). In this respect, community involvement and ownership is important in developing alcohol reduction strategies to ensure they are perceived as locally relevant and 'do-able' (Allsop 2008). The study recommended nine strategies to reduce alcohol and substance abuse in Roxby Downs, centred on strengthening the role of the Roxby Downs Alcohol and Substance Abuse Partnership, improving communication and coordination between agencies and workers, and developing specific best practice projects based on community mobilisation and primary health care models, which would be supported by the employment of a community development worker.

In response to this report and its recommendations, BHP Billiton and the Roxby Downs Council agreed (in June 2010) to jointly fund a project officer to:

- help the Roxby Downs Alcohol and Substance Abuse Partnership identify funding opportunities and apply for grants
- strengthen communication and cooperation between agencies
- organise community sector workshops to improve inter-sectoral communication and collaboration
- organise events that target national campaigns such as Drug Action Week/National Health Week

- collaborate with the Roxby Downs Area School on school-based education programs relating to alcohol and substance abuse
- develop promotional and media strategies to address issues.

In terms of workplace measures to reduce harm from drugs and alcohol, the BHP Billiton Group requires drug and alcohol programs to be conducted for all personnel. In line with this requirement, and as outlined in Section 19.5.4 of the Draft EIS, BHP Billiton would promote drug and alcohol awareness programs in the workplace and at Hiltaba Village to minimise potential impacts on community health. In addition, BHP Billiton would continue to implement the 'Fit for Work' program, including routine drug and alcohol monitoring of workers (refer Section 19.5.2 of the Draft EIS).

A number of other potential community-based strategies to address alcohol-related problems in Roxby Downs, including dry zones and liquor licensing accords, are also discussed in Section 21.5.2 of the Supplementary EIS.

BHP Billiton currently undertakes a number of projects to promote the health of its workforce. In 2008–2009, these included the following health initiatives and projects at Olympic Dam, which were available to both employees and contractors:

- the 'Health Challenge' – a program aimed at targeting physical activity participation and nutrition
- the health surveillance program – medical assessments for employees and contractors
- health clinics – run by an occupational health nurse or occupational physician throughout the worksite and attended by over 270 workers, these clinics provide information and an opportunity to informally discuss various health topics, such as cholesterol, blood pressure, body mass index, nutrition, exercise, diabetes and mental health
- 'Dry July' – promotes the benefits of reducing alcohol intake via a month-long sponsored abstinence ('Dry July' is organised by the Dry July Foundation)
- influenza vaccinations – free 'fluvax' injections to help reduce the likelihood of illness
- skin screens – a consultant physician undertook over 200 skin screens, targeting the early detection of skin abnormalities
- kidney function checks – assessments for the early detection of chronic kidney disease were offered to all employees and contractors who met inclusion criteria for increased risk of chronic kidney disease
- 'Movember' – a charity event supported by a number of employees and contractors at Olympic Dam to raise awareness of men's health issues such as prostate cancer and depression
- men's reproductive health – an inspirational speaker gave a series of presentations on men's reproductive health
- the 'Desert Dash' – promotion of the Roxby Downs triathlon
- the drug and alcohol program – approximately 12,000 individual tests were carried out across the worksite.

In addition, the BHP Billiton Group's Employee Assistance Program provides an external counselling service to assist employees and their immediate families with personal or work-related problems.

BHP Billiton also provides subsidies to secure and retain general practitioners in Roxby Downs, and funds a number of community-based organisations for health-related initiatives (including the Roxby Downs Health Service and the Queen Elizabeth Hospital).

In line with its responsibilities, SA Health has recently released a draft 10 Year Local Health Service Plan 2010–2019 for Port Augusta and Roxby Downs (SA Health 2010). The draft plan identifies the strategies to deliver new and expanded services in Roxby Downs to meet future needs, including emergency service, primary health care services and early intervention and prevention services. Among the priorities in Roxby Downs is the need for:

- an enhanced emergency service capacity
- maternity care models, given the high birth and fertility rate and disruption to families who relocate from Roxby Downs prior to birthing, because of the lack of obstetric services
- an enhanced community and allied health service capacity, given the high rates of risk-taking behaviours and chronic disease
- an enhanced drug and alcohol service to address the high rates of substance misuse in Roxby Downs and across the region
- improved mental health services, in partnership with key stakeholders.

As outlined in Section 19.5.4 of the Draft EIS, BHP Billiton has indicated it would collaborate with government and non-government organisations to maintain health services in Roxby Downs to a reasonable standard, including community health services (including health promotion and education, mental health support and drug and alcohol services), domestic violence and anger management programs, and health screening and culturally specific services. BHP Billiton would also promote safe-sex messages and drug and alcohol awareness programs in Hiltaba Village and the workplace to minimise potential impacts on community health.

A process to investigate and deliver appropriate social services and infrastructure for an expanded Roxby Downs was outlined in Section 19.5.4 and detailed in Appendix Q5 of the Draft EIS. As part of this process, BHP Billiton committed to actively participating in the development of a plan by the South Australian Government to address social services and infrastructure before the expansion proceeded.

The development and monitoring of health indicators through the Social Management Plan would provide a mechanism to monitor the health of the Roxby Downs population, and identify areas for future action by BHP Billiton, government and other relevant stakeholders, as required (see Appendix J1 of the Supplementary EIS for further details).

21.7.3 SOCIAL SERVICE REQUIREMENTS IN ROXBY DOWNS

Issue:

Submissions commented on the need for additional and improved services to be provided in Roxby Downs to meet the existing and increased demand as a result of population growth (including health, mental health and childcare services), and the need for this to be given greater priority and be further detailed in the Supplementary EIS. It was also suggested that BHP Billiton should be required to expand the health and social services in the town and prepare an exit strategy for future employees and the community in planning for the mine's closure.

Submissions: 44, 71, 72, 168, 180 and 365

Response:

The Draft EIS identified the need for increased social services and infrastructure in Roxby Downs to respond to projected population growth as a result of the expansion, including the future residential and long distance commute population, the short-term construction workforce, and overseas workers. It provided an indication of the range of services and facilities that may be required in an expanded Roxby Downs, and the provisions made in the Roxby Downs Draft Master Plan for new and expanded social services and facilities. It also noted that the type and level of services would depend on the size, characteristics and timing of the increased population.

Section 19.3 of the Draft EIS described the existing demography, character and services in Roxby Downs, nearby townships and relevant regional areas. It also outlined comments by agencies or the community on existing services in Roxby Downs, including service capacity, staffing, service gaps and issues. Further detail on existing services in Roxby Downs was provided in Appendix Q5 (refer Section Q5.2 of the Draft EIS) and a comparison of employment levels in Roxby Downs and other Australian mining communities was made in Appendix Q6 (Section Q6.4) of the Draft EIS.

Section 19.5.4 of the Draft EIS identified the need for increased social services and infrastructure in Roxby Downs to respond to projected population growth as a result of the expansion, including the future residential and long distance commute population, the short-term construction workforce, and overseas workers, with further detail provided in Appendix Q5, Section Q5.3 of the Draft EIS. This was informed by initial planning undertaken for the Draft EIS and Roxby Downs Draft Master Plan and included:

- a Social Impact Township Working Group, convened with representatives from state government service providers and planning agencies, BHP Billiton and the Roxby Downs administrator
- a survey of human service providers undertaken in 2006, and updated in 2008, which identified the services, infrastructure and resourcing requirements for an expanded Roxby Downs based on a number of population scenarios
- workshops and interviews with representatives of both government and non-government agencies conducted in 2006
- consultation and engagement with the South Australian Government, human service providers, the Roxby Downs Council, local residents and the Olympic Dam workforce to inform the preparation of the Roxby Downs Draft Master Plan
- a literature review and discussions with migrant services in South Australia and other states, to assess possible issues, service responses and other requirements associated with a large overseas workforce.

During these, and other planning processes, service providers identified additional services and facilities that may be required in Roxby Downs (refer Appendix Q5 of the Draft EIS for details). These services included:

- education, pre-school and other family support services
- medical services, such as accident and emergency, general surgery, obstetrics and paediatrics, and a paramedical ambulance service
- community health services, including mental health and counselling
- accommodation for short-term, emergency and office purposes

- increased policing and other justice-related services and programs, including juvenile justice
- culturally appropriate services and programs, depending on workforce recruitment strategies
- services to assist people with alcohol and drug problems, and smoking and gambling addictions
- youth programs, services and facilities, including support for Aboriginal youth and young people from culturally and linguistically diverse backgrounds
- family support and crisis services, including domestic violence and child protection services
- support services and facilities for people with special needs, including disabilities
- emergency services
- expanded municipal services
- public and community transport services, including expanded transport options between Roxby Downs, Port Augusta and Adelaide.

Churches were not involved in initial planning to determine existing capacity constraints or future requirements, but should be involved in future planning processes to ensure provision is made for the expansion of religious and pastoral services to meet forecast population growth at Roxby Downs and Hiltaba Village.

Section 19.5.4 of the Draft EIS noted that the type and level of services to be provided would depend on the size, characteristics and timing of the increased population and, to this end, proposed that detailed population projections be prepared and monitored over time, as further workforce planning and refinement occurred and the expansion progressed. It also indicated the need for some flexibility in service provision to meet changing, or as yet unidentified, infrastructure and servicing requirements.

The Draft EIS also outlined a process to further investigate and deliver social services and infrastructure requirements, which would be facilitated by the South Australian Government and involve a range of service providers and BHP Billiton. It identified the lead times required by providers to deliver an expanded range of services and facilities, and proposed arrangements to promote collaboration and coordination between providers in the delivery of services, including opportunities to co-locate services. These arrangements were detailed in Appendix Q5 of the Draft EIS, and included:

- preparing a Social Services and Facilities Plan, which would contain the strategies, actions, and timeframes to provide for the coordinated and timely delivery of services to meet the needs of existing and incoming populations
- establishing a Social Services and Facilities Planning Group, to develop and monitor the implementation of the social services and facilities infrastructure plan, including assessing and monitoring detailed population and demographic projections for Roxby Downs, Hiltaba Village and the region, reviewing existing services and their capacity to meet community needs, prioritising demand and requirements for new and expanded services, and securing funding for service provision
- establishing a Roxby Downs Social Services Site Planning Committee to oversee detailed service planning and site design, and maximise collaboration and coordination between services, including the co-location of compatible services.

One submission sought a contribution from BHP Billiton to establish an indoor play facility. The requirements for, and management of, such a facility may be more appropriately dealt with as part of these proposed collaborative planning processes.

Further information on the findings of the social services and infrastructure impact assessment for the proposed expansion, including service requirements and issues associated with the population expansion, construction workforce, and a culturally diverse workforce, was presented in Section Q5.3 of Appendix Q5 of the Draft EIS.

The Roxby Downs Draft Master Plan (provided in Appendix F4 of the Draft EIS) was also developed in light of population and household projections and social service requirements, and sets aside land for a range of new and expanded social services and facilities in Roxby Downs, including:

- expanded hospital and health facilities
- expanded secondary school, TAFE facilities and a library
- a new early childhood services centre and primary school
- a new police station and courthouse and expanded emergency services
- new sports, recreational and leisure facilities, including a consolidated sports and recreational complex, a new oval, playgrounds, tennis and netball courts, two regional parks, and a relocated racecourse and pony club
- expanded government and council office space and mixed-use community facilities (such as community meeting rooms, performing arts space, childcare facilities and a visitor information centre).

The South Australian Government is finalising the Master Plan and BHP Billiton would facilitate the implementation of the Roxby Downs Master Plan in collaboration with the Roxby Downs Council, the State Government, developers and the community, to enable the timely provision of facilities and services.

Detailed comments made in submissions about service requirements (including child care and children's services, health services – obstetrics, imaging, surgery, mental health and other specialist health services, youth and family support services, migrant services, preventative services, the leisure centre, religious services, and community meeting places) and delivery mechanisms (for example, local or outreach services), would need to be addressed by responsible agencies, as further information became available about the size and demography of the incoming population, and as detailed service planning was undertaken.

Chapter 23 of the Draft EIS presented a proposed strategy to progressively rehabilitate and close the expanded Olympic Dam operation and its associated infrastructure at 40 years. It noted that the timing of closure for the expanded operation is unknown, although it is likely that mining would extend beyond the 40-year timeframe assessed for the Draft EIS. Nonetheless, the same overriding principles would apply at a closure date beyond 40 years, should the operational life of the mine extend.

Planning for mine closure

One submission requested that BHP Billiton prepare, or provide provision for, an exit strategy for future employees and the community. This is understood to be about mine closure.

Among the challenges and lessons learnt in planning for mine closure from a social sustainability perspective are (Pattenden and Thomas 2009; Department of Industry, Tourism and Resources 2006):

- the economic structure of a town is critical
- the transition to closure requires forward planning and should be managed over the long term
- a collaborative approach is required between the mining company, host communities and their representatives, government and other key stakeholders
- all stakeholders need to have their interests considered during the closure process
- a process of communication and engagement with stakeholders is essential throughout planning for mine closure to ensure support for the closure plan, to minimise social impacts after closure and to provide long-term positive outcomes.

Planning the closure of the expanded Olympic Dam operation and its associated infrastructure would be integrated into the current Olympic Dam Rehabilitation and Closure Mine Plan (refer Chapter 23 of the Draft EIS and see Chapter 28 of the Supplementary EIS for details). Closure planning was started during the initial planning phase and would continue to be refined as results from research and monitoring programs became available, government regulations and stakeholder expectations changed, and technology advanced.

The development of a closure plan would take into account the legal requirements and the unique environmental, economic and social properties of the operation. The potential use of Roxby Downs and the new airport post-closure would be determined by consulting relevant stakeholders, including the local government authority, the Roxby Downs and Andamooka communities and the South Australian Government before the mine closed.

Issue:

Information was sought on BHP Billiton's contribution to the direct and indirect provision of physical and social infrastructure, and the effect on the state budget of the South Australian Government's contribution to social services in Roxby Downs and service provision elsewhere. Recommendations were proposed about public disclosure of the Government's infrastructure expenditure.

Submissions: 44, 78 and 269

Response:

BHP Billiton's contribution to the cost of construction and maintenance of the project infrastructure listed below would depend on the commercial arrangements entered into. This may involve private third party agreements. No contribution would be sought from government.

BHP Billiton would also consider future funding and in-kind support for social services and community development in Roxby Downs and other local communities.

BHP Billiton is not in a position to comment on the effect on the state budget of the South Australian Government contribution to social services in Roxby Downs and service provision elsewhere, or on recommendations about public disclosure of infrastructure expenditure by the Government.

Additional infrastructure

Chapter 5 of the Draft EIS described the main components of additional infrastructure required to support the proposed expansion of Olympic Dam, which included:

- a desalination plant at Point Lowly
- a transmission line from Port Augusta to Olympic Dam, and/or a gas pipeline from Moomba to Olympic Dam
- a rail spur between Pimba and Olympic Dam, a rail/road intermodal freight terminal at Pimba and a road over rail overpass north of Woomera
- a landing facility south of Port Augusta, and an access corridor from the landing facility to the Port Augusta pre-assembly yard and on to the Stuart Highway
- a workers' accommodation village (Hiltaba Village)
- an airport adjacent to the proposed Hiltaba Village to replace the existing airport at Olympic Village
- the development of additional port facilities at Outer Harbor
- the expansion of Roxby Downs township, including residential, commercial and retail and industrial areas.

BHP Billiton would also collaborate with the South Australian Government, the Roxby Downs Council, developers and the community to facilitate the implementation of the Roxby Downs Master Plan to provide for the future expansion of the Roxby Downs township.

The responsibilities of BHP Billiton, the South Australian Government and the Roxby Downs Council, and the matters they are required to control, administer and/or pay for, are delineated in the Roxby Downs Indenture, which has been ratified under the *Roxby Downs (Indenture Ratification) Act 1982*. This delineation is important in understanding the contribution of BHP Billiton and other parties to the delivery of social services and facilities in Roxby Downs.

Clauses 21 to 23 of the Act outline the responsibilities for ensuring social infrastructure requirements are in place in Roxby Downs. These responsibilities are currently shared between BHP Billiton, the South Australian Government, the Roxby Downs Council and the private sector, and can be broadly described as follows:

- the South Australian Government has responsibility for providing and operating public facilities normally the role of the state, such as health, education and policing
- the Roxby Downs Council has responsibility for those services normally the responsibility of local government, such as recreation, youth and community services
- BHP Billiton has responsibility for undertaking all planning in the town (other than the building design and landscaping of buildings to be owned or occupied by the South Australian Government or municipality) and developing serviced land for housing and other commercial and community facilities to serve the population
- the private sector is responsible for providing commercial facilities, such as retail and business services, to serve the community.

In keeping with these responsibilities, BHP Billiton has prepared the Roxby Downs Draft Master Plan (refer Appendix F4 and Sections 19.5.3 and 19.5.4 of the Draft EIS), which provided for the future expansion of the Roxby Downs township and considered the requirements for housing and accommodation, retail and social services, recreation and open space, access and mobility, and industry. Once the draft plan was finalised by the South Australian Government, BHP Billiton would collaborate with relevant stakeholders to implement the plan by:

- providing for the timely and orderly release of serviced land to meet housing demand in the mine and non-mine workforce
- providing the necessary infrastructure (including sewage treatment, reclaimed water irrigation, potable water, landfill and power) to support growth in the township
- expanding the supply of serviced industrial land, including the development of a new heavy industrial estate near the junction of Olympic Way and the heavy vehicle bypass, and an extension of the existing light industrial area on Olympic Way
- collaborating with relevant stakeholders to facilitate the timely provision of other facilities, including open space and recreational, civic and commercial infrastructure.

In order to investigate and deliver appropriate social services and infrastructure for the expansion, BHP Billiton has also committed to:

- actively participating in the development of a plan by the State Government to address social services and infrastructure requirements before the expansion proceeded
- working in partnership with the State Government and non-government agencies to support and contribute to the provision of essential services in Roxby Downs
- collaborating with government and non-government organisations to maintain a reasonable standard of health care in Roxby Downs.

Other support

BHP Billiton also provides a number of programs for its workforce, including the Employee Assistance Program (an external counselling service to assist employees and their immediate families with personal or work-related problems) and health and drug and alcohol awareness programs.

Under the Indenture, BHP Billiton contributes to the functions of the Roxby Downs Council, together with the South Australian Government, jointly approving the council's budget and equally funding its annual operating deficit, which in 2009–2010 was around \$1.2 million.

In addition, BHP Billiton supports more than 70 organisations in South Australia through its Community Investment Fund, with over \$10 million in investments, including:

- Arid Recovery conservation project (adjacent to the Olympic Dam mine)
- Indigenous programs, including the Olympic Dam Agreement, the Indigenous Participation Program and the Graham (Polly) Farmer Foundation in Port Augusta
- the Royal Flying Doctor Service, including the employment of two Aboriginal health coordinators to assist Aboriginal patients in the South Australian Outback
- the BHP Billiton Youth Arts Fund, a partnership with the South Australian Youth Arts Board
- the South Australian Museum and its refurbishment of the Back to Life Biodiversity Gallery
- the Community Youth Program, a partnership with the Port Adelaide Football Club, the departments of Health and Education and the Anti-Tobacco Unit, to educate young people about healthy lifestyles through elite athletes.

As part of the Community Investment Fund, BHP Billiton also provides funding and in-kind support to local communities through the Olympic Dam Community Development Program, which totalled almost \$2.5 million in 2009–2010. Funding and support provided by BHP Billiton in Roxby Downs and surrounding communities include:

- subsidies to a privately owned medical practice to secure and retain doctors in Roxby Downs
- the construction of the Roxby Downs Skate Park, in conjunction with the Roxby Downs Council
- the biennial Roxby Downs Red Earth Festival (in partnership with the Roxby Downs Arts and Culture Forum)
- a Careers Expo, held annually in Roxby Downs for young people (in partnership with the Roxby Downs Education and Workplace Training Forum)
- the Roxby Downs community garden, a volunteer-run garden (in partnership with the Roxby Downs Family and Youth Forum)

- a youth leadership/resilience program run by the Reach Foundation, with workshops held for students in Woomera, Roxby Downs and Andamooka
- ‘Dads and kids’ project – a men’s health program (in partnership with the Roxby Downs Health Service)
- new residents ‘Big Warm Welcome’ program and events (in partnership with the Roxby Downs Health Service)
- Strengthening Our Families program (in partnership with the Roxby Downs Health Service), which provides support, friendship and assistance to parents with children aged under five years in Roxby Downs, Andamooka and Woomera
- Red Dunes triathlon and Desert Dash (organised by volunteers from Roxby Downs sporting clubs)
- support for local schools, including the Roxby Downs Area School, St Barbara’s Parish School, Andamooka Primary School and Woomera Area School
- Operation Flinders, Roxby Downs chapter (in partnership with the Roxby Downs Family and Youth Forum), which enables young people at risk in Roxby Downs to participate in an adventure wilderness program
- Red Cross ‘Save a Mate’ program (in partnership with the Roxby Downs Health Service), which provides first aid training to young people
- kidney health screening (part of a national BHP Billiton-funded screening program) in Roxby Downs, Andamooka and Woomera.

Support to Roxby Downs also has flow-on benefits to the Andamooka community members, who go to school, play sport, attend events and use services in Roxby Downs. In addition, BHP Billiton provides Andamooka directly with funding and in-kind support, which totalled over \$120,000 between 2005 and 2008.

BHP Billiton also operates the Matched Giving program, where donations, fundraising or volunteering time contributed by employees to eligible not-for-profit organisations are matched by BHP Billiton. In 2009–2010, Olympic Dam employees contributed over \$275,000 to not-for-profit organisations operating locally, nationally and internationally. The top 10 recipient organisations were the:

- Roxby Downs State Emergency Service Unit
- Adventist Development and Relief Agency Overseas Aid Fund
- Arid Recovery
- Native Animal Network
- World Vision Australia
- RoxFM
- Women’s and Children’s Hospital Foundation
- Angaston and District CFS Group – Nuriootpa Brigade
- Roxby Downs Scout Group
- Salvation Army Australia.

Contribution from the South Australian Government

As stated above, BHP Billiton is not in a position to comment on the effect on the state budget of the South Australian Government contribution to social services in Roxby Downs and service provision elsewhere, or on recommendations about public disclosure of infrastructure expenditure by the Government.

However, the proposed expansion is expected to increase the Government’s capacity to raise revenues, including royalties and other taxes and charges. As presented in Section 3.5.1 of the Draft EIS and Chapter 24 of the Supplementary EIS, it is estimated that royalties from production at Olympic Dam paid to the South Australian Government would increase from an annual average of \$59 million to a forecast annual average of \$190 million. Section 1.4 of the Supplementary EIS presents the findings of an economic sensitivity analysis, which continues to demonstrate positive long-term benefits to the SA Government and regional, statewide and national economies.

In addition, the implementation of the proposed Social Management Plan by BHP Billiton and the Government, and the development of initiatives in response to emerging issues associated with the proposed expansion of Olympic Dam, would be driven by funding (subject to further negotiations with the South Australian Government).

Issue:

The opportunity to develop Roxby Downs into a regional mining hub was raised, and BHP Billiton and the South Australian Government were asked to examine the potential and requirements for Roxby Downs to develop an expanded regional services role.

Submission: 72**Response:**

As noted in Section 19.5.4 of the Draft EIS, Roxby Downs township may become a major service centre for the Far North of South Australia, attracting people from elsewhere who want to access services. The demand for goods and services in Roxby Downs may also increase as a result of other developments in the region. Chapter 25 of the Draft EIS (Cumulative Effects) identified other projects in the region of relevance to the expansion of Roxby Downs.

The Roxby Downs Draft Master Plan was prepared by BHP Billiton to plan for housing, services and facilities for an estimated population in Roxby Downs of 10,000 people. In doing so, the Draft Master Plan provided a framework for the future expansion of the Roxby Downs township and considered the requirements for housing and accommodation, retail and social services, recreation and open space, access and mobility, and industry (refer Appendix F4 of the Draft EIS). Once finalised by the South Australian Government, the Master Plan would be implemented through the actions of BHP Billiton, the Roxby Downs Council, government agencies, private developers and community groups.

The development of Roxby Downs as a major centre is consistent with the draft Far North Regional Land Use Framework, prepared by Planning SA (2008b). The key elements of the Framework's vision for the Far North are:

- population and industry growth, with a focus on Port Augusta, Roxby Downs and Coober Pedy
- building sustainable local service towns and communities, informed by strategic infrastructure and services planning
- strengthening the tourism industry in the Outback and Flinders Ranges
- expansion of mining and defence industries, and associated infrastructure
- sustainable and innovative approaches to securing water and energy supplies.

The draft Far North Regional Land Use Framework identifies Roxby Downs as a major commercial, industrial and service centre. Objectives and strategies of relevance to this role include:

- reinforcing Roxby Downs as a major hub of industrial activity by providing a supply of well-sited and serviced industrial land and encouraging clustering of related industries
- focusing major commercial developments in a selected number of towns, with Port Augusta to have a primary commercial role, and Roxby Downs a secondary commercial role
- reinforcing the major service role of Roxby Downs as the focus of major retail, commercial, administrative, education, health, justice and recreational developments for the sub-region.

Implementation of the Master Plan for Roxby Downs would reinforce the role, functionality and vibrancy of the town into the future. Specific features envisaged in the Draft Master Plan to support its role as a major centre include:

- creating over 2,500 additional allotments, a mix of housing types and styles, and a 5% vacancy rate in accommodation
- expanding the necessary infrastructure (including sewage treatment, reclaimed water irrigation, potable water, landfill, and power) to support the growth of the township
- building a new caravan park on the eastern edge of Roxby Downs
- expanding retail and commercial development to provide for a new supermarket, hotel, mixed-use civic centre, tourist information, restaurants and other social facilities
- expanding the road network
- providing upgraded education, health, justice and community facilities
- providing new and upgraded recreational and sporting facilities, including a new sports precinct
- expanding the supply of serviced industrial land by developing a new heavy industrial estate near the junction of Olympic Way and the heavy vehicle bypass, and extending the existing light industrial area on Olympic Way.

Once the Master Plan was finalised, it would be implemented through the actions of BHP Billiton, the Roxby Downs Council, government agencies, private developers and community groups.

Issue:

It was suggested that planning efforts for quality urban environments and the provision of suitable infrastructure and community and social support services would need to be sustained and well-resourced over the long term, and would require the cooperative efforts of BHP Billiton, the State Government and the Roxby Downs Council.

Submission: 72**Response:**

As presented in Section 19.5.4 of the Draft EIS, the population growth anticipated in Roxby Downs as a result of the expansion would require an increase in social services, facilities and infrastructure. It noted that detailed planning for social services and infrastructure would need to be undertaken prior to and throughout the early years of the expansion and involve a range of agencies from the public and private sectors. A process through which this could occur was outlined.

Under the provisions of the Indenture Act (Clauses 21 to 23), the State Government has primary responsibility for providing and operating public facilities normally the role of the state (such as health, education and policing), BHP Billiton has responsibility for planning the township and developing serviced land for housing and other commercial and community facilities to serve the population, and the Roxby Downs Council has responsibility for those services normally the responsibility of local government (such as recreation, youth and community services).

While the State Government has primary responsibility for the provision of social services in Roxby Downs, BHP Billiton and the Roxby Downs Council provide advocacy, support and assistance in planning and delivery of these services to ensure the community's needs are appropriately met. BHP Billiton and the State Government, together with the Roxby Downs Council, are expected to continue to collaborate on the implementation of their respective obligations pursuant to the Indenture.

Issue:

Information was sought about how transport-related access needs arising from an increased population in Roxby Downs would be addressed.

Submission: 2**Response:**

Access needs for an expanded population in Roxby Downs were considered in the preparation of the Roxby Downs Draft Master Plan, and were assessed as part of the traffic impact assessment undertaken for the Draft EIS. BHP Billiton has also proposed an expansion of its existing workforce commute bus service between Roxby Downs and Olympic Dam and would be willing to support a study into the feasibility of a public transport system for Roxby Downs as part of the next phase of the project.

The Roxby Downs Draft Master Plan provided for the majority of housing to be located within 2 km of the town centre and for a network of pedestrian and cycle pathways to enhance accessibility to major facilities and reduce the reliance on public and private transport. This included the design of new development precincts for pedestrian, cyclist and vehicular safety, with pedestrian and cyclist paths separated from road traffic where possible. The network of paths would also link existing and new precincts with central facilities and provide safe and easy access across the town to reduce vehicle use for local trips.

To meet the transport needs of its workforce, BHP Billiton has committed to expanding the existing workforce commute bus service between Roxby Downs and Olympic Dam as the township expands. A workforce bus service would also be provided between Hiltaba Village and Olympic Dam.

A public transport system depends on the users of the system. The geographic isolation and demographic characteristics of Roxby Downs have led to high levels of vehicle ownership. An analysis of 2006 census data on vehicle ownership in Roxby Downs, undertaken after the release of the Draft EIS, showed over 65% of private dwellings in Roxby Downs had two or more motor vehicles, compared to less than 50% in South Australia and the Northern Statistical Division (ABS 2007a).

Nonetheless, the expanded population of Roxby Downs may be sufficient for a public transport system. BHP Billiton commits to supporting any study that may be initiated by the State Government into the feasibility of such a system.

Responsibility for transport in South Australia lies with the Department for Transport, Energy and Infrastructure (DTEI), and includes Transport SA, the Public Transport Division and TransAdelaide. The *Passenger Transport Act 1994* requires the Public Transport Division to oversee the creation and maintenance of an integrated network of transport services involving all modes of transport by public passenger vehicles in the state.

There are a number of public passenger transport services operating in regional South Australia, including government-subsidised town bus services, integrated passenger transport services, special services, and a network of commercially operated route services linking regional South Australia to metropolitan Adelaide (DTEI, Public Transport Division 2005a).

Town bus services operate in six regional cities – Port Augusta, Whyalla, Port Pirie, Port Lincoln, Murray Bridge and Mount Gambier – which have populations ranging from 12,000 to 23,000. The South Australian Government funds two-thirds of the operating losses of these services and local government the remaining one-third. These intra-town services are similar to those provided in metropolitan Adelaide, operate under a service contract with DTEI and are overseen by transport advisory committees, which include representatives of the service provider, the Public Transport Division, key stakeholders and the community (DTEI, Public Transport Division 2005b and 2005c).

Integrated passenger transport services also operate across parts of regional South Australia, and encompass a variety of travel services including stand-alone services (providing access to major service centres); feeder services (into existing passenger transport services to major service centres such as Adelaide); and unscheduled services (for example, for young people and the elderly). As at June 2009, integrated passenger transport services were offered in Alexandrina (Strathalbyn and surrounds), the Barossa, Coorong, Karoonda East Murray, Mid-Murray, Mount Barker, the Riverland, Southern Mallee, Southern Yorke Peninsula, Tatiara and the Upper North (DTEI, Public Transport Division 2005d).

In addition, 11 community passenger networks have been established to provide information on passenger transport, coordination of service delivery, transport brokerage and last-resort service delivery for the transport-disadvantaged and are jointly funded by the Public Transport Division and Home and Community Care (a joint Commonwealth, state and territory initiative) (DTEI, Public Transport Division 2005e). Specialist medical transport services are also available in some country areas.

In other parts of the state, community transport schemes may be provided by council, non-government or community-based organisations. For example, in Andamooka, a 12-seat community bus is run by volunteers through the Andamooka Progress and Opal Miners Association, and is used for sport and recreation activities and visits elsewhere in the region. A number of councils of similar size to Roxby Downs, including the councils of Goyder, Kangaroo Island, and Yankalilla (see Table 21.8 of the Supplementary EIS), also provide community transport services.

If a demonstrated demand for public transport in Roxby Downs became apparent in the future, consideration could be given to providing a service, for example via:

- a private bus service, run by an existing or new private or community-based enterprise (and which could represent a new business opportunity)
- a community bus service, managed by the Roxby Downs Council
- some other arrangement or a combination of the above.

Traffic- and access-related issues associated with the expansion in the immediate surrounds of Roxby Downs were also assessed in the Draft EIS (refer Appendix Q9 and Section 19.5.6) and in subsequent research undertaken for the Supplementary EIS (see Chapters 1 and 22 and Appendix A6), including the effects of:

- introducing a second entry gate and eastern access road to provide a dedicated access to the mine site from Hiltaba Village (see Section 1.4, and Figure 1.11 of the Supplementary EIS)
- relocating Borefield Road to a route outside the expanded Olympic Dam Special Mining Lease (SML)
- changes in traffic flow levels on major road links during forecast peak traffic conditions and post-construction using the 'level of service' (LoS) measurement
- changes in the operation of four key intersections around Roxby Downs during forecast peak traffic conditions and post-construction, namely:
 - the Heavy Vehicle Bypass and Olympic Way, south of Roxby Downs
 - the Heavy Vehicle Bypass and Olympic Way, north of Roxby Downs
 - the Heavy Vehicle Bypass and Andamooka Road
 - the Heavy Vehicle Bypass and Axehead Road
- the new roundabout at the intersection of Olympic Way, and the Olympic Dam–Pimba Road (Roxby heavy vehicle bypass) on traffic flows.

The conclusions of those assessments follow.

The relocation of Borefield Road would increase travel time along this road (for example, to Arid Recovery and towns north of Olympic Dam, including Marree and William Creek) by an estimated 10 to 15 minutes. This is not considered significant given the large distances to sites of interest and towns in this relatively isolated area (refer Sections 5.9.4 and 19.5.6 of the Draft EIS).

The assessment of changes in traffic flow levels on major public roads showed that, despite increased traffic volumes as a result of the expansion, there would be no reduction in terms of the LoS, with the exception of two local roads, being Olympic Way, north of Roxby Downs, between Roxby Downs and the intersection with the heavy vehicle bypass, and Andamooka Road. Note that this assessment took account of increased traffic volumes associated with off-site infrastructure, including the proposed new airport, heavy industrial estate, and the relocation of the Borefield Road, as well as on-site construction activities at Olympic Dam and the proposed new eastern access road from Hiltaba Village to Olympic Dam.

As outlined in Section 1.4 of the Supplementary EIS, the effect of the proposed new eastern access road would be to reduce traffic numbers along Olympic Way and the western access road, but would increase traffic numbers along Axehead Road and Andamooka Road. While Olympic Way and Andamooka Road would experience a reduction in the level of service, these roads would continue to operate within acceptable operational limits and under ongoing operational conditions traffic would be stable, comfortable and convenient (see Appendix A6 for details). Axehead Road attracts less traffic and would perform better than Andamooka Road.

The assessment of the operation of the intersections on Olympic Way showed that there would be no adverse impacts. The development of a new roundabout is also not expected to impact the traffic flow on Olympic Way, as the design would incorporate suitable slip lanes to accommodate turning traffic (see Section 22.2 of the Supplementary EIS).

As noted in Section 1.4 of the Supplementary EIS, there would be a reduction in the level of service and the operating capacity of the staggered 'T' intersection at Axehead Road, the heavy vehicle bypass and Andamooka Road as a result of the proposed new eastern access road. Nonetheless, the proposed traffic volumes would operate well within the design capacity of the intersection, although there would be an increase in the average wait for vehicles turning right out of Andamooka Road, resulting in an acceptable, but uncomfortable delay (see Appendix A6 for details). Traffic conditions along this section of road would be monitored and BHP Billiton would work in partnership with the relevant South Australian Government agencies and the Roxby Downs Council to coordinate and align safety initiatives that can be applied to all road users (see Section 22.2 of the Supplementary EIS).

An assessment of the capacity of the local road and street network to safely and efficiently carry increased traffic flow was undertaken as part of development of the Roxby Downs Draft Master Plan. Provision was also made for minor intersection and path improvement works in the existing town areas to provide for additional traffic as a result of the town expansion (refer Chapter 5.9.4 of Draft EIS).

As part of the off-site Traffic Management Plan (a draft of which is in Appendix K1 of the Supplementary EIS) BHP Billiton would develop suitable traffic safety plans and procedures around key areas of safe road use, safe speeds and safe vehicles for expansion-related traffic movements on the public network. While the Roxby Downs Council is responsible for traffic planning and appropriate road safety programs for Roxby Downs, BHP Billiton would continue to work closely with the council in relation to traffic management strategies.

Issue:

It was suggested that there would be a likely increase in the rate of accident and emergency presentations as a result of a larger population and increased traffic, while difficulties in recruiting and retaining emergency service volunteers would remain due to the high population turnover, shift rosters and the age of the population. The need for the local ambulance service to include both paramedics and volunteers was also suggested.

Submissions: 71 and 72

Response:

The Draft EIS noted the relatively high rate of accident and emergency presentations at the Roxby Downs Health Service and indicated that additional ambulance staff and resources, including paramedic support, may be required to support the expansion of Olympic Dam. It also noted the difficulties experienced by emergency services in recruiting and retaining volunteers in Roxby Downs, and suggested that the expanded population and workforce in Roxby Downs may provide a larger membership base for local volunteer organisations.

As was shown in Appendix Q3.2 of the Draft EIS, the rate of accident and emergency presentations in Roxby Downs has varied over time, but has been relatively high compared to other hospitals in country South Australia. An increase in the population and workforce at Roxby Downs and Hiltaba Village is likely to increase the number of accident and emergency presentations at the Roxby Downs Health Service, although it may not increase the rate of presentations (i.e. on a pro-rata population basis).

The draft 10-Year Local Health Service Plan 2010–2019 for Port Augusta and Roxby Downs has also identified trends toward increasing emergency presentations at Roxby Downs Health Services and the need to plan for an enhanced emergency service capacity in the future in light of the proposed expansion of Olympic Dam (SA Health 2010).

As presented in Appendix Q5 (Section Q5.3.1) of the Draft EIS, the SA Ambulance Service may require additional staff and resources to support the expansion of Olympic Dam, which may include paramedic support. A planning process was also outlined in Section 19.5.4 of the Draft EIS to address existing and/or future needs, and is discussed in detail in this section of the Supplementary EIS.

Section 19.3 of the Draft EIS noted the difficulties currently experienced by a number of community-based groups in recruiting and retaining volunteers in Roxby Downs, including the SA Ambulance Service, emergency services, and recreation and sporting groups. It also suggested that in the medium to long term the population increase in Roxby Downs could have a positive impact by providing an expanded membership base for local volunteer organisations (refer Section 19.5.5 of the Draft EIS).

Subsequent to the release of the Draft EIS, further research has been undertaken to compare volunteering rates in Roxby Downs with Australia (as a whole), South Australia (as a whole), and other comparable mining communities (see Table 21.9 of the Supplementary EIS), and to illustrate the potential effect of population turnover, age and shift rosters on volunteering. The research shows that Roxby Downs has a higher rate of volunteering than either South Australia or Australia (as a whole), and a lower rate than country South Australia. Volunteering rates are variable across comparable mining communities. Assuming that shift rosters apply in all selected mining communities, the differing rates across this sample of communities suggest there may be other factors that influence volunteering. Factors including changing social and cultural values and entertainment patterns, the increasing demands, responsibilities and workload placed on volunteers, changing family dynamics and complex whole-of-life pressures, as well as socio-demographic changes, the ageing of the population, and work commitments may also impact on the willingness and ability of individuals to volunteer (Aitken 2000; Parkin 2008).

BHP Billiton, through its Matched Giving Program, seeks to encourage and support volunteering, and help create a healthy and sustainable social fabric in local communities, by matching the donations, fundraising or volunteering time contributed by employees to eligible not-for-profit organisations. Among the top 10 recipient organisations of the Matched Giving Program in Roxby Downs in 2009–2010 were the State Emergency Service, Arid Recovery, RoxFM and the town's Scout Group.

Table 21.9 Volunteering rates across Australia, 2006

Area ¹	Voluntary work for an organisation or group, people 15 years or older (%) ²	Median age (years) ³	Residential mobility (% of residents living at a different residential address) ⁴	
			One year ago	Five years ago
Nhulunbuy SLA (NT)	27.6	33	25.4	60.6
Peak Downs Shire (Qld)	26.7	30	22.2	54.4
Weipa (Town) (Qld)	25.0	31	29.3	62.8
Belyando Shire (Qld)	24.4	30	25.3	52.0
Broadsound Shire (Qld)	22.9	32	23.4	50.6
Roxby Downs Municipality	22.3	29	31.5	64.2
Ashburton Shire (WA)	21.7	31	23.8	65.6
Roebourne Shire (WA)	18.0	31	29.3	61.5
Port Hedland Town (WA)	13.9	31	31.8	59.2
Country South Australia ⁵	27.7	n.a.	n.a.	n.a.
South Australia	20.4	39	18.8	41.9
Australia	17.9	37	21.7	47.1

Source: Public Health Information Development Unit 2008

¹ The criteria used to select comparable mining communities to Roxby Downs are similar to those used in Appendix Q6 of the Draft EIS (i.e. a large proportion of the population is employed in mining, live in a remote or very remote location and have a similar demography), but do not exclude areas because of population size or the number of towns in the area. The areas that were selected for benchmarking in the Draft EIS are shaded (refer Appendix Q6 of the Draft EIS for details).

² Based on ABS 2006 census data on people who did voluntary work for an organisation or group in the 12 months prior to census night (ABS 2007a).

³ Based on ABS 2006 Quickstats (ABS 2007b).

⁴ Based on the 2006 census, place of usual residence (ABS 2007a).

⁵ Excluding the Adelaide Statistical Division and Gawler.

Issue:

It was requested that the coverage of RoxFM be extended to cover Andamooka and Woomera, and that the South Australian commercial television broadcast footprint also be extended.

Submissions: 63, 71 and 72

Response:

An extension to the coverage of RoxFM or South Australian commercial television would be determined by the Australian Communications and Media Authority (ACMA) at the request of licensees.

RoxFM is an incorporated not-for-profit community radio station which operates 24 hours a day, seven days a week in the Roxby Downs area, and is staffed largely by volunteers (Our Community Pty Ltd n.d.).

The *Broadcasting Services Act 1992* mandates that commercial and community broadcasting services are licensed to serve geographic areas, which are referred to as licence areas, and are determined in a licence area plan. These plans determine the number and characteristics, including geographic areas and technical specifications, of broadcasting services in particular areas of Australia with the use of the broadcasting services bands (Australian Communications and Media Authority (ACMA) 2009).

ACMA is responsible for preparing licence area plans under subsection 26 (1) of the Broadcasting Services Act and may vary these plans under subsection 26 (2) of the same Act.

The licensee of a community broadcasting service may ask the ACMA to consider an extension to its licence area. In considering a licensee's request to vary a licence area plan, the ACMA must have regard to the planning criteria in Section 23 of the Broadcasting Services Act. These criteria include demographics; social and economic characteristics; the number of existing broadcasting services, and demand for new broadcasting services in the licensing area, neighbouring licence areas and in Australia generally; technical restraints; the demand for radio frequency spectrum for services other than broadcasting services; and other matters ACMA considers relevant. ACMA must also make provision for wide public consultation in considering whether to make or vary a licence area plan, in accordance with Section 27 of the Act.

BHP Billiton would support an application by the licensee of RoxFM to extend its range as this may help communicate project-related initiatives and road traffic messages.

Similarly, any changes to the geographical area of commercial television in Remote Central and Eastern Australia, which currently serves Roxby Downs, would need to be made by ACMA in accordance with the requirements of the Broadcasting Services Act, and are outside the scope of the EIS.

Issue:

One submission sought a secure long-term agreement to use the Roxby Downs swimming pool to meet specific requirements, including an appropriate fee structure, access to a clubroom for the swim club, best practice water temperatures for teaching and training, and occupational health and safety.

Submission: 74

Response:

The Roxby Downs swimming pool is managed by Roxby Leisure, which provides a range of leisure, recreation and cultural support and services to the community. Roxby Leisure is under the direct management and operation of the Roxby Downs Council through a separately created council business unit. The council is directly responsible for all revenue and expenditure associated with Roxby Leisure, although operational and maintenance staff are externally sourced (Roxby Downs Council 2009a). Any requirements and agreements for the use of the swimming pool would therefore need to be negotiated with the council, through Roxby Leisure.

The council has foreshadowed major changes to leisure facilities in light of the potential expansion of the town and high demand for space. In 2008–2009, the council undertook some preliminary investigations into the feasibility of constructing an indoor aquatic and hydrotherapy facility and had concept plans prepared and put on public display. It also commissioned a feasibility study on the provision of aquatic services in Roxby Downs, which showed there was community support for the project (Roxby Downs Council 2009a).

21.7.4 HILTABA VILLAGE AND ANDAMOOKA

Issue:

Further information was requested on the social services and facilities to be provided in Hiltaba Village, and when they would be provided.

Submissions: 1, 44 and 326

Response:

As outlined in Sections 19.5.3 and 19.5.4 of the Draft EIS and Section 21.5.3 of the Supplementary EIS, a range of social facilities and amenities would be provided at Hiltaba Village, including sport and recreational facilities, taverns, dining halls, internet cafes, small-scale retail outlets and places of worship. Hiltaba Village would be built in stages as the construction workforce expanded, and would be decommissioned in stages as it contracted.

Hiltaba Village would also contain an on-site first aid facility (to be staffed by qualified nursing or other paramedical staff), security, and culturally specific services as necessary. In addition, recreation officer(s)/events coordinator(s) would be appointed to organise recreational, cultural, social and sporting activities for the construction workforce. The village would offer a standard of accommodation and facilities commensurate with best practice contemporary remote villages for the mining and construction sector. In this regard, the quality of amenities to be provided at Hiltaba and the management of the facility are expected to be critical to securing, managing and retaining an expanded workforce.

Further detailed planning would be undertaken to determine the range of services and facilities required at Hiltaba Village. This would take account of the demography and age profile of the construction workforce and the needs of particular population groups, including women, Indigenous people and overseas workers. As noted in the Draft EIS, the concept plan would also be reviewed to enable service providers (for example, police or health services) to have facilities at Hiltaba Village, as appropriate. Other facilities and services that might be considered during detailed design could include retail facilities (such as hairdressers and barbers); library services; training facilities with internet (for example, to access external online education and training institutions/courses); and a bicycle pool.

With regard to when services might be provided, Hiltaba Village would be built in stages as the construction workforce expanded. It would then be decommissioned in stages as it contracted. The village would be provided with amenities and facilities in modular precincts of approximately 2,000 rooms (for about 3,000 people), and each module would be fully self-contained, and include the dining facilities, taverns/clubs, indoor and outdoor sports facilities, internet cafes and small-scale retail outlets (see Figure 21.11 of the Supplementary EIS for the proposed staging plan for Hiltaba Village). Some key facilities such as taverns, gym, recreation and leisure areas would be developed prior to initial occupancy. Cable or internet protocol television (i.e. free-to-air and pay TV) would be supplied, with internet access available in each room and at internet cafes. This would be provided by satellite for the pioneering workforce at Hiltaba Village, until the necessary infrastructure was developed.

At the end of the construction period, the average capacity of the village would be reduced to approximately 2,000 rooms to accommodate short-term and maintenance workers, with the remaining rooms and facilities decommissioned and retained on-site for future use. A portion of Hiltaba Village, including the main community facilities and amenities, would therefore be retained as a permanent facility.



Figure 21.11 Proposed staging plan for Hiltaba Village

Issue:

The Andamooka Progress and Opal Miners Association (APOMA) expressed a need for the range of services and facilities in Andamooka, including health, mental health and emergency services, to be expanded if the project were to go ahead. APOMA sought the expanded services to address unmet needs and potential increased demands as a result of a larger population and more visitors to the area. Expansion to services included health, mental health, drug and alcohol and emergency services.

APOMA also requested that BHP Billiton recognise the requirement for adequate public services in Andamooka, expressing the view that Andamooka would provide an alternative place for Olympic Dam workers to live.

Submission: 6**Response:**

The Draft EIS outlined a process to identify the social service requirements of Andamooka and other regional areas that may be affected by the Olympic Dam expansion and other major projects in the region. The South Australian Government has the key responsibility to administer, plan and provide services in regional areas, in collaboration with other service providers. In addition, because the governance structures in Andamooka are essentially different from those at Roxby Downs, this affects the extent of BHP Billiton's influence and involvement. BHP Billiton has indicated it would participate in the development of a plan for the Government to address social services and infrastructure before the expansion proceeded. In addition, BHP Billiton would continue to provide support to Andamooka, as it has previously done (see Section 21.7.3 of this chapter).

Section 19.5.4 of the Draft EIS discussed the need for planning services to respond to the projected population growth of Andamooka, Woomera and Upper Spencer Gulf as well as Roxby Downs. This section of the Draft EIS also suggested that ongoing monitoring of the population trends and service capacity would be required to ensure services were available to meet emerging needs in these areas.

After the release of the Draft EIS, a specific study was undertaken on the social effects of the Olympic Dam expansion on Andamooka (see Appendix J2 of the Supplementary EIS). The study predicted that, based on the current population who live in Andamooka and work at Olympic Dam (approximately 220 people), a doubling of the workforce at Olympic Dam could see a commensurate increase in the population of Andamooka to over 400 workers associated with Olympic Dam. It also predicted that the demographic profile of the population in Andamooka would be different from that of Roxby Downs (and South Australia as a whole), and would have a higher proportion of lower-income, single, separated or divorced men; more workers in the trades and in semi-skilled and labourer occupations; lower-income workers and families; lower educational attainment; and greater cultural diversity. The predicted demographic characteristics and isolated environment point to high community and social support needs in Andamooka, and a potential for increased mental health issues associated with alcohol and drug abuse, domestic violence and relationship breakdown.

The study noted that while some services are provided in Andamooka, Roxby Downs is the key service centre for the region. Consequently, planning for social services and facilities in an expanded Roxby Downs should take account of population increases in Andamooka and provide an opportunity for emerging issues and needs to be considered, in consultation with the Andamooka community. Andamooka residents should also benefit from access to a greater range of services in Roxby Downs.

The draft 10-Year Local Health Service Plan 2010–2019 for Port Augusta and Roxby Downs recognises the need to support the Andamooka community to meet its health needs (SA Health 2010). It notes that Andamooka is growing quickly and predicts this trend will continue, which will directly impact on the emergency and community-based services at the Andamooka Health Clinic. Strategies outlined in the draft local health service plan to meet the health needs of the Andamooka community are to:

- strengthen the relationship between Frontier Services and the Roxby Downs Health Service
- explore expanding outreach community and allied health services and local capacity to maintain care between visits
- in partnership with Frontier Services, undertake a capital master plan to design capital needs to achieve a sustainable health service model
- explore multi-purpose service models for Andamooka, as well as Roxby Downs, Woomera and Pimba
- explore options to improve the patient journey for Andamooka residents needing to access (medical/health) services in Roxby Downs
- develop targeted population health strategies for key population groups, including the elderly, Aboriginal people, residents of non-English-speaking background, young people and men.

As noted in Section 19.5.7 of the Draft EIS, the proposed Social Management Plan would also cover Andamooka and include indicators for the provision of social services.

21.7.5 POPULATION GROWTH IN PORT AUGUSTA

Issue:

The Port Augusta Council sought an indication of the likely range of population impacts on the city during the construction and operation phases in order to confirm or vary its planning scenarios.

Submission: 67

Response:

The Draft EIS presented information on the number of BHP Billiton employees who live in Port Augusta and commute to work at Olympic Dam. It also estimated the number of people from the Upper Spencer Gulf region who may be employed in the expansion. While it is understandable that the Port Augusta Council is seeking information on likely population impacts during the construction and operational phases of the expansion, it is difficult to provide an accurate estimate at this stage of the project beyond that provided in the Draft EIS, and that takes account of spin-off industries and other northern region projects and developments relevant to Port Augusta.

As presented in Section 19.3.4 of the Draft EIS, approximately 12% of BHP Billiton employees at Olympic Dam come from the wider northern region, including Whyalla, Port Augusta and Port Pirie. Of these, approximately 90 workers live in Port Augusta. This is similar to the proportion of workers drawn from northern region South Australia at OZ Minerals' Prominent Hill mine (OZ Minerals 2009).

Section 19.5.1 of the Draft EIS estimated that approximately 1,000 workers from Upper Spencer Gulf and surrounding areas would be employed on the expansion project in the peak construction period, and in the operations phase, based on current residential arrangements. Assuming a similar proportion of the workforce came from Port Augusta, this would equate to approximately 400 workers from Port Augusta who would work at Olympic Dam.

In addition to the direct employment at Olympic Dam, other business and employment opportunities are likely to arise for service providers, such as engineering, equipment supply and maintenance, and training and education to support activities associated with the landing facility and access corridor, and other construction and operations activities at Olympic Dam.

In terms of population impacts, it is difficult to assess the proportion of the workforce that might be drawn from the existing population of Port Augusta or who might move to Port Augusta to take up job opportunities at Olympic Dam or in spin-off industries. In addition, population growth may occur in Port Augusta as a result of other developments in the northern region. Sections 19.3.4 and 25.4 of the Draft EIS identified a number of projects that may be relevant to Port Augusta.

The experience in Queensland's mining communities, notably the Bowen Basin, is that many employees and their families are choosing to live in coastal cities and larger centres along the coast, such as Rockhampton, Mackay, Gladstone and Yeppoon, and commute to mining centres. This has resulted in rapid population growth in these coastal centres, which have developed as key bases for the mining industry, service companies and many employees (Rolfe et al. 2007). These long distance commuting arrangements can offer a number of advantages to mine workers, by enabling partners and dependants to stay in larger metropolitan centres, where there are greater work opportunities and a choice of housing, education, health, recreation and leisure facilities.

In 2009, the Australian Bureau of Statistics (ABS), as a consultant to the Australian Government Department of Health and Ageing, prepared customised population projections for Statistical Local Areas, using preliminary 2007 census-based estimated residential population; later years are projected (note the projections are not official ABS data). Assumptions about fertility, mortality and migration assumptions are primarily based on historical patterns and trends specific to each area. The (medium population scenario) projections for the Port Augusta Local Government Area are reproduced in Table 21.10 of the Supplementary EIS. These projections estimate a larger increase in the population of Port Augusta than the medium projection series for local government areas provided by Planning SA (Planning SA 2008c).

Table 21.10 Population projections for Port Augusta Local Government Area¹

Year	Number of people
2010	14,422
2015	14,753
2020	15,015
2025	15,189

Source: Department of Health and Ageing (Public Health Information Development Unit 2009b)

¹ Specific conditions of use apply in respect of the data prepared for the Australian Government Department of Health and Ageing. These terms and conditions are acknowledged, understood and accepted.

Table 21.11 outlines three population scenarios for Port Augusta. These scenarios are based on assumptions about the proportion of the expansion workforce who may be drawn as new residents to Port Augusta and commute to Olympic Dam, rather than those who are already residents of Port Augusta. This suggests that an increase in the population of Port Augusta as a result of the Olympic Dam expansion is likely to be modest – assuming that 75% of the expansion workforce who commute from Port Augusta to Olympic Dam are new (incoming) residents of Port Augusta, this would represent a 5% increase in the current estimated population of Port Augusta in 2008.

Table 21.11 Population impacts in Port Augusta from the proposed expansion of Olympic Dam¹

Proportion of workers who are new residents (%) ²	Estimated number of workers who are new residents	Estimated number of new residents (workers and their families) ³	Population increase (%) ⁴
25	100	240	1.6
50	200	480	3.3
75	300	720	5.0

¹ Based on three scenarios about the proportion of the Olympic Dam expansion workforce who are new (incoming) residents of Port Augusta.

² It is assumed that some of the estimated 400 additional workers who commute to Olympic Dam from Port Augusta would be new (incoming) residents to Port Augusta. This reflects current labour force statistics, which indicate there were approximately 400 unemployed people in Port Augusta in March 2010 (DEEWR 2010), and assumes there is no change in existing employment in Port Augusta.

³ Based on the average household size in Port Augusta (2.4 people per household) at the 2006 census (ABS 2007b Quickstats).

⁴ Based on an estimated resident population of 14,450 in Port Augusta in 2008 (ABS 2010a National Regional Profile).

As noted in Section 19.5.4 of the Draft EIS, detailed population projections would need to be prepared and monitored over time, as further workforce planning and refinement occurred and the proposed expansion progressed. These projections would need to take account of the expansion at Olympic Dam, and other non-mine developments, to inform planning in Roxby Downs, Andamooka, Woomera and Upper Spencer Gulf cities.

BHP Billiton would continue to have regular and ongoing dialogue with the Port Augusta Council about the project in order to manage social impacts and contribute to sustainable community development in Port Augusta.

21.8 LONG DISTANCE COMMUTING

Issue:

Submissions were received on the topic of long distance commuting relating to:

- the effects of increasing the proportion of long distance commuters on community cohesion, population mobility, demography and the provision of education services
- the effects of fly-in/fly-out on workers' health and family relationships
- encouraging employees to live in Roxby Downs, rather than commuting, while also offering diverse working arrangements

Submissions: 71, 72 and 78

Response:

Chapter 19 of the Draft EIS identified some of the advantages and disadvantages of long distance commuting (LDC) from the perspective of workers and their families, government and communities, and employers. It also noted that a range of strategies may be required for BHP Billiton to meet its Olympic Dam employment needs. One option to attract staff in a tight labour market is LDC, which may be preferred by some workers.

As reported in Section 19.3.4 of the Draft EIS, approximately 65% of the existing operational workforce at Olympic Dam lived in the local area (Roxby Downs, Andamooka and Woomera) and 35% were LDC workers (either fly-in/fly-out or drive-in/drive-out). BHP Billiton anticipates an increase in the proportion of LDC may occur during the initial growth period. However, the intention is that Olympic Dam would remain a predominantly residential site and at the completion of the construction phase the proportion of LDC to residentially based operational workers is expected to be around 50:50.

The National Resources Sector Employment Task Force (2010) noted that, historically, mining operations in Australia were based on a township model, but since the 1980s and the growth of the resources sector there has been an increasing reliance on LDC 'as a cost-effective way to address skills shortages, to increase efficiencies, and to avoid some of the social problems that may arise from developing a "mining town" or "company town"... and the attendant pressure on local housing supply'.

Research undertaken for the Draft EIS (and presented in Appendix Q7.4) showed that almost one-third (31%) of Australian mine sites had a long distance commute workforce (either fly-in/fly-out or drive-in/drive-out). This figure may be higher in individual states – for example, the Western Australian Chamber of Minerals and Energy (2008) reported that about 45% of employees in the WA resources sector were fly-in/fly-out or drive-in/drive-out.

Views about the social effects of LDC are varied. Appendix Q7.4 of the Draft EIS identified some of the advantages and disadvantages of long distance commuting from the perspective of workers and their families, government and communities, and employers (Table Q7.3), which were summarised in Section 19.5.1 of the Draft EIS.

Effects on community cohesion and service provision

Section 19.5.5 of the Draft EIS highlighted the potential impacts of a larger LDC workforce on social character and identity in Roxby Downs, particularly in the early phases of the project, and the concerns that may arise among Roxby Downs residents because of the larger male population, mobility of the workforce, and perceived effects on the social, cultural and economic fabric of the community. It also noted that perceptions of inequity (in conditions, call-out or benefits such as free meals, accommodation and facilities) can affect community acceptance. Other disadvantages for the community identified in Appendix Q7.4 included potential impacts on the provision of community services as a result of reduced economies of scale, less local spending and less rate revenue for local government.

As identified in Appendix Q7.4 of the Draft EIS, long distance commuting can, however, also be advantageous to the community and government by alleviating land and accommodation shortages and high housing costs; lowering the costs and funding support required to develop and manage town services; easing labour and skills shortages for support services; and stimulating investments in regional services.

Integration of the LDC operational workforce with the existing community would be supported by locating accommodation for the permanent Olympic Dam workforce in Roxby Downs and by continuing to support community building activities.

To maximise the number of operational workers who live in the township and to support the development of ongoing relationships between residential and non-residential workers, BHP Billiton has committed to developing a new accommodation site for permanent LDC workers in Roxby Downs, as outlined in the Roxby Downs Draft Master Plan. In addition, providing transitional housing and increasing accommodation for permanent LDC workers in the township is planned to moderate housing demand during the initial growth period, and contribute to maintaining stability in house prices and housing affordability. Short-stay LDC workers would be accommodated at Hiltaba Village and encouraged to remain there for social and recreational activities.

In addition, in order to facilitate positive cultural and social interactions in the community, and to encourage community identity and cohesion, BHP Billiton would:

- work with the council to provide an ongoing and proactive new residents' program and support community-building activities
- hold regular community forums about the expansion project
- maintain the community development grants program
- continue to support community groups and community-based activities, volunteer programs, and community liaison.

As part of the Social Management Plan, BHP Billiton would also promote understanding, acceptance and integration between the long distance commute workforce and the existing community. This would be based on community consultation and engagement with stakeholder groups, including residents and workers.

It is recognised that the demography of Roxby Downs may change as a result of the increase in the LDC workforce, particularly during the peak construction period. Nonetheless, Roxby Downs is expected to continue to have a large residentially based population, comprising approximately 8,000 residents, in addition to around 2,000 permanent operational long distance commuters, at the completion of the expansion.

Section 19.5.4 of the Draft EIS outlined annual population estimates in Roxby Downs as a result of the proposed expansion for both the residential and LDC population. It also provided an indication of the demographic profile of an expanded Roxby Downs community, which is expected to be similar to the present profile but with some differences: a higher proportion of men to women, an increase in the population aged 50 and over and, potentially, greater cultural diversity.

As outlined in Section 19.5.4 of the Draft EIS, detailed population projections would need to be prepared and monitored over time, as further workforce planning and refinement occurred and the proposed expansion progressed, to ensure service planning was responsive to community needs and demographics.

Effects of LDC on workers' health and family relationships

Appendix Q7.4 and Section 19.5.1 of the Draft EIS identified a number of benefits and drawbacks of LDC arrangements for employees and their families. Among the benefits are the opportunity for employees and their families to retain the lifestyle and choices of larger population centres, including access to services and existing social networks, extended periods with family and friends during rostered time off, and continuation of current employment by partners. Disadvantages include separation from family and friends, disruption of family routines, less daily interaction with a partner and children, reduced ability to participate in the local community, and increased travel.

A number of studies have looked at the effects of LDC on workers' health, family relationships and job/life satisfaction and show mixed results. For example, research by Watts (2004), for the Pilbara Regional Council, identified both positive and negative experiences with long distance commuting and the effects on workers and their families. Some of the factors that were identified as contributing to the acceptance or rejection of long distance commuting were the strength of personal relationships, relationship characteristics, personality style, personal support mechanisms and the ability to maintain communication.

A recent study by Clifford (2009) built on existing research to examine the impacts of fly-in/fly-out (FIFO) commuting on employees' stress, lifestyle, relationships and health. The main findings of her study were that while FIFO and extended working hours had negative impacts on work satisfaction and was frequently reported as being disruptive to employees' and partners' lifestyle, it did not lead to poor-quality relationships, high stress levels or poor health. She also found there were no significant differences in these characteristics between FIFO workers and daily commute workers or the wider community. Among the implications reported in her study were that less compressed and shorter rosters may reduce work stress and improve the suitability of FIFO; that social supports (such as social groups) may buffer against life and work stressors; and that reducing work stress may reduce employee turnover (Clifford 2008).

Research by Gent (2004) similarly suggested that rosters may be important to job and life satisfaction of workers. Gent (2004) also found that dissatisfaction with FIFO was related to the presence of children and the age of children – and that the younger the child, the more likely the worker was to be dissatisfied. She also suggested companies look into creating programs that assist in the transition between work and home, including relationship, parenting, and lifestyle-related skills and development options for workers.

Likewise, Sibbel (2008) found that many people move between FIFO and residentially based employment, depending on their individual and family's needs at a particular time and stage of their life cycle. These include education, health, career, social and support needs, which will vary according to the position in the family life cycle.

Similar strategies to support FIFO workers and their families have been put forward in other reports (Watts 2004, Gallegos 2006), and can be broadly categorised as:

- improving communication links between workers and their partners and families
- ensuring partners and families of FIFO workers are adequately supported and can build their own social support networks
- ensuring FIFO workers are adequately supported and can access counselling, mental health or other professional services as required
- reviewing shifts and rotation cycles, as well as other policies and procedures that may impact on time spent at home.

BHP Billiton recognises that communication systems are critical to enable regular contact between workers and their families during work cycles, and would ensure telephone and internet access was available in village accommodation to facilitate this communication.

As presented in Section 19.5.1 of the Draft EIS, BHP Billiton would also review workforce rosters for the expanded operation to meet safety requirements, employee preferences, productivity objectives and contemporary practice. In addition, all BHP Billiton employees and their families would continue to have access to free confidential advice and support through the Employee Assistance Program (EAP).

A number of mining sites in Australia have developed other support programs for the long distance commute workforce. In keeping with industry best practice, BHP Billiton would consider mechanisms to improve the support available to workers and their partners, in order to sustain workers' well-being and good family functioning. As part of the Social Management Plan, BHP Billiton would consider initiatives such as family visiting days; establishing an online social network forum; holding social events for workers and their partners to meet; providing information and training on strategies to manage long distance commute relationships; and other support programs to assist positive relationship functioning.

Encouraging a residential workforce and the option of LDC

The arrangements proposed by BHP Billiton offer permanent operational staff at Olympic Dam the option to live in the town, or to live elsewhere and commute to work at Olympic Dam on a LDC basis. In this respect, the Roxby Downs Draft Master Plan provided accommodation for a long-term operational workforce of 50:50 residentially based and LDC workers but it has the flexibility to allow for variances in the residential:LDC ratio. Nonetheless, BHP Billiton's intention is that Olympic Dam would remain a predominantly residential site.

As noted in Section 19.5.1 of the Draft EIS, maintaining and enhancing the amenity and lifestyle of Roxby Downs is critical to workforce recruitment and retention and includes the provision of high-quality education, health and other services. To this end, BHP Billiton would work with the government and community to improve amenities and facilities in Roxby Downs and provide high-quality living environments and workplace conditions.

The conclusions of research by Sibbel (2008) is that mining employees and their families generally make informed choices about FIFO or residentially based employment and that depending on the stage of their life cycle, one particular lifestyle option may be perceived as preferable to another. The arrangements proposed by BHP Billiton would give people the choice of LDC or residentially based employment to meet their preferences and individual and family needs.

21.9 COMMUNITY GOVERNANCE

21.9.1 ROXBY DOWNS

Issue:

Concerns were raised about the existing governance model for Roxby Downs, including the ability of residents to elect or advise the council. Its effect on residents' satisfaction, and alternative governance arrangements, were proposed for consideration.

Submissions: 44 and 168

Response:

As noted in Section 19.3 of the Draft EIS, the Roxby Downs municipal governance is unique in South Australia for a township of its size. It is noted that the expansion of Roxby Downs may lead to pressure for greater community involvement in town decision-making and this may include consideration of an elected council.

The principles and procedures that the Roxby Downs Council follows to involve the community in planning and decision-making in the local area and ensure its accountability to the community are outlined in its Public Consultation Policy (Roxby Downs Council 2009b). The Roxby Downs Community Board and nine associated forums and partnerships also provide a mechanism for community participation in the town's development via the implementation of the Roxby Downs Community Plan.

An Olympic Dam Community Survey undertaken for BHP Billiton in 2007 (Centre for Social Responsibility in Mining, University of Queensland and the University of Queensland Social Research Centre 2007) found that on the question of governance, Roxby Downs respondents were divided almost equally between those who felt they did have influence (44%) and those who felt they did not (40%). Respondents were also asked about their trust in local organisations, with 45% of residents indicating they trusted the Roxby Downs Council – rating the level of trust to be the same felt for the South Australian Government, but less than for BHP Billiton/Olympic Dam or the Roxby Downs Community Board.

The same survey also explored residents' satisfaction with regularly used public services and facilities. The survey found that the facilities attracting the highest rates of dissatisfaction in Roxby Downs were retail services, particularly supermarkets and other food stores (with about 44% of respondents very dissatisfied or dissatisfied), followed by activities for young people (33% dissatisfied), and coffee shops and restaurants (30% dissatisfied). The private sector, rather than the council, operates most of these services (except for some youth services and facilities in the cultural precinct). The survey also found facilities managed, or jointly managed by the council had the highest levels of satisfaction, including library services (with 91% very satisfied or satisfied) and sports and recreation facilities (87% satisfied).

Data compiled by the Public Health Information Development Unit (2009c), based on a survey undertaken by the South Australian Department of Families and Communities in 2006, suggests similar findings, with 99% of respondents in Roxby Downs and the unincorporated areas of Whyalla, Flinders Ranges and Far North indicating they liked living in the community; 92% rating the environment, planning, open spaces and lack of pollution as excellent, very good or good; 77% said facilities and services were good (or better); 75% said recreation areas such as sports areas and parks were good (or better); and 89% felt they were part of the local community. In terms of community participation, 40% had been involved in community issues and 25% were on a decision-making board or committee.

The Roxby Downs Municipal Council Administrator is appointed under the provisions of the Schedule to the *Roxby Downs (Indenture Ratification) Act 1982*, and exercises all the powers and discharges all the functions of the municipal council. The Act also provides that an Administrator would replace an elected council for so long as the South Australian Government and BHP Billiton agree. Until that time the State Government and BHP Billiton share the cost of the council's operations, which exceed its revenue from rates, charges, grants and other sources. BHP Billiton considers this arrangement to be working satisfactorily. It is envisaged that an elected council would replace the Administrator when the municipality had sufficient capital infrastructure in place and was in a position to be financially sustainable in the long term.

Issue:

Some comments were made about inaccuracies in the Roxby Downs Council 2007–2008 Annual Business Plan and Budget, the management of council funds, and the transparency with which the Administrator exercises his powers and functions.

Submission: 168

Response:

Comments made in a submission about inaccuracies in the Roxby Downs Council budget, the management of council funds, and the transparency with which the current Administrator exercises his powers and functions are beyond the scope of the Olympic Dam EIS.

The provisions of the *Roxby Downs (Indenture Ratification) Act 1982* provide for the Administrator to be appointed by the Minister for Mineral Resources Development, to be under the control and direction of the Minister, and to be subject to the Indenture and provisions of the Local Government Act. Under the Indenture, the Administrator has the powers, functions and duties of a municipal council in relation to the municipality and is able to exercise and discharge those powers, functions and duties as he/she sees fit, subject to directions of the Minister.

Issue:

The accuracy of information on the role and governance of the Roxby Downs Community Board, as stated in the Draft EIS, was questioned.

Submissions: 71 and 72

Response:

It is acknowledged that the Roxby Downs Community Board is registered as an incorporated association (Australian Securities and Investment Commission 2010), and is not an advisory committee under the Local Government Act, as stated in the Draft EIS. It is also recognised that the core role of the board is the implementation of the Roxby Downs Community Plan.

The board was initially established as a committee of the council pending incorporation (Roxby Downs Community Board 2008).

As presented in Section 19.3 of the Draft EIS, the board consists of 12 appointed members (10 from the community, one from BHP Billiton, and the Administrator), who are responsible for implementing a community plan. Members of the Roxby Downs community are invited to nominate for a position on the board annually. To enable broad participation in implementing the community plan, nine subcommittees have been established.

According to Section 3 of the Rules of Association for the Roxby Downs Community Board Incorporated (Roxby Downs Council 2007), 'the purpose of the association is to promote interests of the community by satisfying the following:

- enquiring into and reporting to the council and the community on the functions as described and those matters conferred upon it as set out in these rules
- acting as the peak community body in Roxby Downs to work towards achieving the community's vision by overseeing the implementation of the Roxby Downs Community Plan (and any succeeding documents)
- to ensure the wider community is fully represented by a Community Board and other community forums and partnerships in the skilful and caring implementation of the Roxby Downs Community Plan
- to act as the overseeing body of the forums and the community partnerships
- to do all other lawful things incidental or conducive to the attainment of the Objects of the Association'.

Among the roles and functions of board members, identified in the 2009 Board Member Recruitment Information, are to 'represent the wider community on the broad social issues that face the community and guide Council as the community's legal representative in terms of broader social policy and in operational areas that fit into the Board's portfolio'. It is noted that 'the implementation of the Community Plan is the Community Board's core role' (Roxby Downs Community Board 2008).

Members of the Roxby Downs community are invited to nominate for a position on the board (i.e. they are not elected). According to the 2009 Board Member Recruitment Information, 'positions on the Community Board are open to all residents and stakeholders in Roxby Downs aged eighteen years or over. Application is by the lodging of a nomination form with names and contact details of at least two referees. Successful applicants will be appointed by a panel comprising the Chair or Deputy Chair of the Board, the representative from BHP Billiton and the Administrator of the Council'. The recruitment Information also notes that 'the aim is for Board members to have a diverse set of experiences and skills' and that 'balancing the mix of experiences and skills is important'.

21.9.2 OUTBACK AREAS

Issue:

The Andamooka Progress and Opal Miners Association (APOMA) asked that BHP Billiton support Andamooka's development aspirations to manage and benefit from the proposed expansion of Olympic Dam.

Submission: 6

Response:

BHP Billiton will continue to consult, and have regular and ongoing dialogue, with APOMA, local residents and other local stakeholders as planning for the proposed expansion progresses.

BHP Billiton will also continue to work collaboratively with the South Australian Government to maximise the social benefits and minimise the social impacts in Roxby Downs, Andamooka and other local, regional and statewide communities.

Management of Outback communities

Since the release of the Draft EIS, new arrangements have been progressed to address the management challenges faced by many Outback communities, including Andamooka.

As presented in Section 19.5.3 of the Draft EIS, the Department of Planning and Local Government has been working with the Outback Areas Community Development Trust (OACDT), the Andamooka Progress and Opal Miners Association (APOMA) and government agencies to develop a structure plan to facilitate the coordinated and orderly development of the town and enable infrastructure and services to be provided.

In 2010, a community manager was appointed to Andamooka, as part of a partnership between the OACDT and APOMA. The partnership is supported with funds from the South Australian and Australian governments and aims to 'establish a model of good governance in Outback towns' (Barker 2009).

In December 2009, the South Australian Parliament passed the *Outback Communities (Administration and Management) Act 2009* to provide new governance arrangements for all 'lands not within a Council Area' (including the township of Andamooka). The Act replaces the *Outback Areas Community Development Trust Act 1978*, and provides for an incorporated body with enhanced responsibilities for overseeing the strategic management of, and business planning for, the Outback region. The objectives of the new Act are to:

- provide for the efficient and accountable administration and management of Outback communities
- promote participation of Outback communities in their administration and management
- raise revenue for public services and facilities in the Outback.

Under the new Act, the Outback Communities Authority has replaced the Outback Areas Community Development Trust. The authority's objectives are to manage and promote improvements in the provision of public services and facilities to Outback communities and to articulate the views, interests and aspirations of these communities. The new Act and Authority came into operation on 1 July 2010 (Outback Communities Authority 2010).

Among the key changes envisaged by the new Act are (OACDT 2009 and 2010):

- increased community consultation to inform the development of a five-yearly strategic management plan for the provision of public services and facilities for Outback communities; an annual business plan and budget; and community affairs resourcing and management agreements (a type of service level agreement with Outback community organisations)

- new revenue raising arrangements, including an asset sustainability levy (a fixed charge across the Outback Communities Authority area to be used to maintain public services and facilities of broad public benefit in the Outback) and a locally instigated and applied community contribution (a fixed charge to be used for the purposes and activities specified in a community affairs resourcing and management agreement) to provide additional resources to those provided by the Outback Communities Authority
- increased regulatory powers to deal with issues such as rubbish collection, litter and abandoned vehicles; hazards including animals causing a nuisance; regulating the use of caravans and vehicles for habitation; carrying out surveys, inspections and other works; and emergencies.

These new arrangements are expected to assist APOMA to manage town affairs during the proposed expansion of Olympic Dam.

Support for Andamooka

BHP Billiton recognises Andamooka as an important neighbouring community, and would work to manage potential negative risks and social impacts, contribute to sustainable community development and enhance the company's licence to operate and grow its business.

The establishment of a social management system, including a social management partnership, and proactive discussion and engagement with the community and other stakeholders would also enable issues to be identified and, where necessary, acted upon by BHP Billiton, government and other relevant stakeholders. Further detail of the purpose and scope of the Social Management Plan and social management partnership can be found in Section 19.5.7 of the Draft EIS. A draft Social Management Framework is in Appendix J1 of the Supplementary EIS, which has been prepared for the purpose of ongoing discussion with government.

Issue:

The Outback Areas Community Development Trust (OACDT) asked that the intended future role and responsibilities of the Outback Communities Authority (OCA) in Outback areas be recognised.

Submission: 62

Response:

BHP Billiton recognises the intended future role and responsibilities of the Outback Community Authority.

Since the Draft EIS was completed, the *Outback Communities (Administration and Management) Act 2009* was passed by the South Australian Parliament. This Act replaces the *Outback Areas Community Development Trust Act 1978*, and provides for a new Outback Community Authority to be established with seven members, to replace the *Outback Areas Community Development Trust (Outback Areas Community Development Trust 2009)*. The new Act and Authority came into operation on 1 July 2010 (Outback Communities Authority 2010).

The functions of the Outback Communities Authority are (see Part 2, Section 6 of the *Outback Communities (Administration and Management) Act 2009*):

- to manage and promote improvements in the provision of public services and facilities in Outback communities
- to articulate the views, interests and aspirations of Outback communities.

To achieve this, the Authority will (Outback Areas Community Development Trust 2010):

- provide support to Outback communities for the provision of public services and facilities
- consider long-term requirements for the maintenance, replacement or development of infrastructure for public services and facilities in Outback communities
- work with all levels of government to plan and deliver appropriate services to Outback communities
- commit to undertaking regular community consultation to ensure that community needs and wants are fully understood
- advocate on behalf of Outback communities at state and national forums
- be accountable and efficient in the way it conducts its business
- effectively manage resources and continue to maintain public assets.

21.10 AMENITY OF UPPER SPENCER GULF

Issue:

Concerns were raised about the effect of the project on the amenity of the Upper Spencer Gulf region and its social and economic values.

Submissions: 106, 183, 211, 263, 272, 274, 310, 355 and 385

Response:

Chapter 19 of the Draft EIS assessed the social impacts of the proposed expansion on residents, visitors and landholders around Port Augusta and Point Lowly (refer Section 19.5.6) and found that:

- residents and visitors to properties near the proposed access corridor, landing facility and pre-assembly yard would experience some disturbance, inconvenience and loss of amenity associated with the construction and operation of these facilities, with minimal impacts on recreational, boating or marine activities associated with the landing facility
- coastal home owners and visitors near the proposed desalination plant may experience some minor short-term disruption, disturbance and loss of amenity during the construction of the plant and its associated intake and outfall pipes, with minimal impacts on recreational, leisure or maritime activities.

As presented in Section 19.4.1 of the Draft EIS, maintaining the amenity and social fabric of communities in the EIS Study Area was a project planning, design and operational management objective. A major element of the project design for the Draft EIS and subsequent to its publication is siting project infrastructure to reduce potential social impacts, and includes:

- locating the landing facility to minimise the number of coastal homes in its proximity, in addition to environmental and other factors
- realigning the access corridor to take account of existing and future residential development, in order to minimise the number of residences potentially affected by noise and visual impacts and to reduce access and traffic impacts.

Further information on amenity impacts associated with proposed project infrastructure around Port Augusta and Point Lowly, as presented in the Draft EIS and established in subsequent research undertaken for the Supplementary EIS, is provided below. This is based on a review of impacts associated with visual amenity; noise and vibration; traffic and access; dust; and recreation, leisure and marine activities, which may impact on the amenity of the region (defined as the 'natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes' in the New Zealand *Resources Management Act 1991*, section 2 (i)) and affect its social and economic values. A summary of the predicted impacts on amenity associated with project infrastructure at Port Augusta and Point Lowly is provided in Table 21.12 of the Supplementary EIS.

Visual amenity

The findings of the assessment of the proposed landing facility, access corridor, pre-assembly yard, and desalination plant on visual amenity (refer Chapter 20 and Appendix R of the Draft EIS) were that:

- the visual impact of the landing facility would be slight to moderate, depending on the distance from the facility and the line of sight when viewing the jetty from adjacent homes. Although the landing facility area is relatively natural, its visual character is affected to some extent by views of the Playford and Northern power stations across Spencer Gulf to the north-east (refer Plate 20.13 of the Draft EIS, reproduced in the Supplementary EIS as Plate 21.1)
- the visual impact of the access corridor would vary from slight to substantial, depending on the openness of the terrain, the presence of screening vegetation and the offset from existing roads and viewpoints. A number of strategies would be adopted for fencing along the corridor, depending on the location. Where the corridor runs alongside or crosses private property BHP Billiton would consult with the landowners on a fencing approach. Tree planting would also be used to screen the corridor
- the visual impact of the pre-assembly yard was not assessed in the Draft EIS. The site is industrial-zoned land and comprises 27 ha of Crown land (a building and pad make up 8 ha) which is fenced (see Plate 9.27 of the Draft EIS, reproduced in the Supplementary EIS as Plate 21.3). The facility is currently vacant, but was used previously by the Department of Transport, Energy and Infrastructure for vehicle inspections and during the 1997 Olympic Dam expansion. One residential property is adjacent to the facility, and several others are nearby.
- the visual impact of the desalination plant is consistent with the area's industrial character, and was assessed as moderate (refer Plate 20.12 of the Draft EIS, reproduced in the Supplementary EIS as Plate 21.2). Safety lighting may be required during night-time operations at the site of the desalination plant (at the tunnel shaft, for example) and on the offshore platform, which would be similar to the lighting currently in place at the Santos plant and jetty.

Table 21.12 Amenity impacts presented in the Draft EIS and the Supplementary EIS from proposed project infrastructure at Port Augusta and Point Lowly

Off-site infrastructure	Source of impact on amenity				
	Visual	Noise and vibration	Dust	Traffic/access and delays ¹	Restrictions on recreational and marine activities
Landing facility	Slight to moderate, depending on the distance from the facility and the line of sight	Moderate for the 12 nearby properties during unloading operations (daytime only during the construction period and intermittently thereafter, at the outside of residences) Noise may be audible at distances of up to about 2 km during operations but would not exceed the noise criteria	n.a.	Minor increase in local traffic (including 10 light vehicles per day when a vessel is unloading)	Minor impacts on recreational, boating or other marine activities during operations The public would not be permitted to access or use the landing facility, with minor impacts on public access to the coastline Some minor limitations on swimming, diving, mooring or anchoring in the immediate vicinity of the facility and around vessels during berthing, unloading and departure No restrictions on vessels transiting past the landing facility, accessing the coastline, or moving into the channel
Access corridor	Slight to substantial, depending on the openness of the terrain, the presence of screening vegetation, and the offset from existing roads and viewpoints	Insignificant, given the distance between the nearest residence and the access corridor, and the relatively minor increase in traffic	Insignificant, given the distance between the nearest residence and the access corridor, the hard surface of the access corridor and the use of dust suppression mitigations as necessary	Moderate, as a result of intermittent delays of 5–10 minutes from the movement of loads across public roads during the construction period and intermittently thereafter	n.a.
Pre-assembly yard	Slight for the adjoining residences	Some localised and short-term (intermittent) exceedance of noise criteria at the adjacent residence during the construction period and intermittently thereafter	Insignificant, given the distance between the nearest residence and the access corridor, the hard surface of the access corridor and the use of dust suppression mitigations as necessary	Minor increase in local traffic, with 28 two-way movements per day from the landing facility, access corridor and pre-assembly yard at the peak period of construction	n.a.
Desalination plant	Moderate, but consistent with the area's industrial character	Low during construction, given the distance between the source of noise and sensitive receivers and the short-term nature of construction activities Minor short-term surface level vibration at the threshold of perception in the immediate vicinity of tunnelling site No adverse effects on human comfort and building damage as a result of blasting or tunnelling Noise levels below applicable limits during operations	n.a.	Minor increase in traffic during the construction or operation, which is not expected to impact other road users or change the level of service of Port Bonython Road Some short-term minor disruptions to local traffic during construction of the intake pipe, with no change in access in the short or long term	Minor impacts on recreational, leisure or maritime activities Blasting, if required, would only occur intermittently, for short periods, during daylight hours, and not on a Sunday or public holiday Temporary restrictions during the construction of the intake and outfall pipes would limit recreational and marine activities in the vicinity of the construction area, but would be limited to the six-to-eight-month construction period No restrictions on vessels transiting the intake and outfall pipes during operations Some minor operational restrictions on anchoring, mooring, diving and fishing in the vicinity of the intake and outfall structures, but limited to a small area

¹ The traffic impact assessment undertaken for the Draft EIS, and subsequent research for the Supplementary EIS, showed that:

- there would be no reduction in the level of service (LoS) on the Princes Highway (based on assessments undertaken at six locations south of Port Augusta) at the peak of construction or at the end of construction
- the proposed expansion would more than double overall vehicle traffic on the Stuart Highway and increase heavy vehicle movements by approximately 40%, but this would not affect the level of service on the Stuart Highway.



Plate 21.3 Proposed site for Port Augusta pre-assembly yard

Noise and vibration

Sections 14.5.2 and 19.5.6 of the Draft EIS, and Sections 15.2, 15.3 and 15.4 of the Supplementary EIS, discuss the expected noise and vibration impacts at residences adjacent to the landing facility, access corridor, pre-assembly yard and desalination plant and found that:

- noise criteria would likely be exceeded at residences up to 450 m away from the proposed landing facility during barge and ship unloading operations when there were calm winds (i.e. less than 1.0 m/s), and up to 750 m away during adverse wind conditions (i.e. when the wind was blowing from the landing facility to residences). This would affect up to 12 residences during daytime operations (approximately three days every 11 days; unloading of vessels would not occur during night hours), at the outside of residences. As noted in Section 1.4 of the Supplementary EIS, in the event of a slower ramp-up in metal production, the facility would accommodate the 280 vessels less frequently, but over a period longer than seven years (see Sections 1.4 and 15.3 of the Supplementary EIS for further details)
- noise at residences adjacent to the access corridor is expected to be insignificant, given the distance between the nearest residence and the corridor (about 100 m), and the relatively minor increase in traffic. The realignment of the northern section of the corridor would further reduce the potential for noise and vibration impacts on residences along Slade Road and Kittel Street (see Section 15.4 of the Supplementary EIS for further details)
- there may be some localised and short-term exceedance of noise criteria at the residence nearest to the pre-assembly yard during the construction phase of the Olympic Dam expansion, and sporadically thereafter, to support ongoing operational and maintenance requirements at Olympic Dam. Major noise-generating activities would be intermittent, and no night-time construction-related activities would be undertaken at the pre-assembly yard, although some over-dimensional load movements may be required to minimise traffic disruption. A monitoring program would be established to monitor noise levels, and, if necessary, noise attenuation measures would be implemented, such as installation of noise barriers or the relocation of noise-generating activities to an area of the pre-assembly yard more distant from residences. No significant increase in vibration levels is expected (see Section 15.4 of the Supplementary EIS for further details).

- noise generated during construction of the desalination plant and associated intake and outfall pipes would be general construction noise. The local community would be informed in advance of significant noise-generating activities and the installation of temporary noise attenuation barriers, if required, would be detailed in environmental management specifications. During operations, noise levels at the proposed desalination plant are predicted to be well below applicable limits, and would typically be inaudible at the closest residence (approximately 500 m from the plant). As a result, the impact of noise and vibration during the construction and operation of the desalination plant was categorised as low (see Section 15.2 of the Supplementary EIS for further details)
- visitors and residents to the lighthouse, cottages or nearby homes may perceive some vibration as a result of tunnelling, although this is likely to be at the threshold of perception. This would be limited to about a six-to-eight-month period during tunnelling (and less in the vicinity of an individual residence). The predicted levels are well below those likely to cause structural building damage to the lighthouse or residences
- should blasting be required to construct the intake pipe for the desalination plant, it would only occur intermittently, for short periods, during daylight hours, would not occur on a Sunday or public holiday and, where practicable, would be scheduled to minimise disruptions during peak holiday periods. As outlined in Section 19.5.6 of the Draft EIS, the adverse effects on human comfort and building damage as a result of blasting could be readily managed.

Dust

Chapter 14 of the Supplementary EIS discusses the potential for dust associated with the proposed access corridor, and concludes that, given the distance between the nearest residence and the access corridor, the hard surface of the access corridor, and the use of dust suppression (such as water carts during transport/transfer operations) as necessary to mitigate potential dust emissions, the impacts are likely to be insignificant (see Section 14.1 of the Supplementary EIS for details).

Traffic and access

The results of the traffic impact assessment for the proposed expansion of Olympic Dam were summarised in Section 19.5.6 of the Draft EIS and presented in full in Appendix Q9. Since the release of the Draft EIS, additional studies have been undertaken on traffic impacts around Port Augusta and the Princes and Stuart highways. Further details of traffic and access impacts associated with the proposed landing facility, access corridor, pre-assembly yard and desalination plant, and major public roads are detailed in Sections 21.11.2, 22.1, 22.3 and 22.4 of the Supplementary EIS and summarised below.

Port Augusta

The findings from the assessment of traffic and access issues as it relates to amenity are:

- there would be an increase in traffic volumes associated with the landing facility, access corridor and pre-assembly yard of approximately 28 two-way movements per day at the peak of construction
- the movement of over-dimensional loads across public roads in the vicinity of Port Augusta (including Shack Road, Caroona Road and the Eyre Highway) would require temporary road closures, and may create delays in the order of five minutes per crossing (for single loads) and 10 minutes for multiple loads (if permitted by the Department of Transport, Energy and Infrastructure). Similar delays could be expected on Press Road as a result of the movement of over-dimensional loads from the north-east corner of the pre-assembly yard
- the average and maximum number of vehicles that would be delayed by a five- or 10-minute road closure is shown in Table 21.13 of the Supplementary EIS (see Section 22.3 of the Supplementary EIS for details). While this may lead to some inconvenience for local landholders and road users, the delays would only occur intermittently (with an average of approximately seven and a peak of up to 12 individual load movements per week during construction). At all other times, when the access corridor was not in use, public roads would continue to operate for normal public road traffic use
- the realignment of the access corridor was undertaken in response to submissions received and it reduces the impact on land use and access requirements, and generally remains on land that the general public cannot access. Designated crossing points would be established by BHP Billiton, in consultation with landholders, to ensure access and activities could continue on either side of the corridor (see Section 21.11.1 of the Supplementary EIS for details)
- BHP Billiton would continue to consult with landholders potentially affected by the proposed landing facility, access corridor and pre-assembly yard plant and provide regular updates as detailed planning progressed. An environmental management plan for the construction and operation of the access corridor and landing facility would also be communicated to residents. Advance notice would also be given of transport movements to reduce access or delay issues
- there would be no reduction in the level of service (LoS) on the Princes Highway (based on assessments undertaken at six locations south of Port Augusta) at the peak of construction or at the end of the construction phase. The two locations nearest Port Augusta are predicted to continue to operate at a LoS 'A' (i.e. free-flowing) (see Section 22.1 and Appendix K3 of the Supplementary EIS for further details)

- policy guidelines adopted by the Department of Transport, Energy and Infrastructure allow over-dimensional loads to move in convoys of two vehicles per day on the Stuart Highway. The traffic impact assessment undertaken for the Draft EIS was based on a single-vehicle convoy movement as the 'worst case'. Assuming two-vehicle convoys were used, then the impact on other road users would be reduced: convoys would travel to Olympic Dam every eight to 10 days for loads up to 8 m wide and every six to eight days for loads wider than 8 m (see Section 22.1 of the Supplementary EIS for further details)
- the traffic impact assessment undertaken for the Draft EIS found that, based on two-way traffic movements (both direct and indirect/ancillary) in the peak road transport year, the proposed expansion would more than double overall vehicle traffic on the Stuart Highway and increase heavy vehicle movements by approximately 40%. Despite these changes in traffic flow, the level of service on the Stuart Highway would not be affected.

Table 21.13 Average and maximum number of vehicles delayed by the movement of over-dimensional loads across public roads around Port Augusta West

Road name	Average number of vehicles delayed (6am–9pm)		Maximum number of vehicles delayed (6am–9pm)	
	5-minute delay	10-minute delay	5-minute delay	10-minute delay
Shack Road	5	9	7	13
Caroona Road	6	12	11	21
Press Road	2	4	3	6
Eyre Highway	14	28	20	40

Point Lowly

The findings from the assessment of traffic and access issues as it relates to amenity are that:

- daily traffic during construction is estimated to be approximately 28 two-way movements a day for construction activities at the desalination plant, and a peak of 23 two-way movements a day associated with tunnelling. At peak, these volumes would increase the current annual average daily traffic (AADT) by approximately 13% during outfall shaft and tunnel construction (see Section 22.4 of the Supplementary EIS for details)
- operations at the desalination plant would involve approximately 14 two-way movements a day associated with the workforce and other related requirements, which would represent a 3.5% increase in traffic volumes on the Port Bonython Road and a 1% increase on the Lincoln Highway (see Section 22.4 for further details)
- the anticipated traffic movements for the construction and operations of the desalination plant are not expected to affect other road users or change the LoS capacity of Port Bonython Road or the intersection with the Lincoln Highway (see Section 22.4 of the Supplementary EIS for details)
- construction of the intake pipe would involve some short-term disruption to local traffic, but access would remain largely unchanged for coastal homeowners and visitors, with alternative access provided around the immediate construction site. After construction was completed, the pipe would be buried, and there would be no long-term change in access during operations (see Section 21.11.2 of the Supplementary EIS for details)
- BHP Billiton would continue to consult with landholders potentially affected by the proposed desalination plant and provide regular updates as detailed planning progressed. It would also give advance notice of construction activities to reduce disruption and delays to local home owners and visitors to Point Lowly.

Recreational, boating and marine activities

Section 19.5.6 of the Draft EIS considered the impacts on recreational, leisure or maritime activities during the construction and operation of the proposed landing facility and the desalination plant, and concluded these would be minimal. These issues are examined in more detail in Sections 21.11.1 and 21.11.2 of this chapter. The findings from these assessments are:

- impacts on recreational, boating or other marine activities as a result of the operation of the landing facility are expected to be minimal. While the public would not be permitted to access or use the facility, impacts on public access to the coastline in its vicinity are expected to be minor. There would be some minor limitations on swimming, diving, mooring or anchoring in the immediate vicinity of the landing facility and around vessels during berthing, unloading and departure, but no restrictions on vessels transiting past the facility, accessing the coastline, or moving into the channel (see Section 21.11.1 of the Supplementary EIS for details)

- the development and operation of the landing facility is not expected to adversely impact fishing, and it is more likely that the jetty, wharf and rock pad area would create a reef habitat that would attract reef fish, and may improve catches of these species
- should land-based or marine blasting be required to construct the intake pipe for the desalination plant, there may be some minor disturbance for coastal home owners and visitors. The impact on recreational, leisure or maritime activities is expected to be minimal as blasting would be short-term, occur intermittently and during daylight hours. It would not take place on a Sunday or public holiday and, where practicable, would be scheduled to minimise disruptions during peak holiday periods
- temporary restrictions would be required during the offshore construction of the intake and outfall pipes to separate construction activities from the general public and ensure public health and safety. This would potentially restrict recreational and marine activities in the vicinity of the construction area, but would be limited to the six-to-eight-month construction period. There may be some minor ongoing restrictions during the operation of the desalination plant, but these would be limited to a small area, and represent only a small proportion of the total area available for recreational and marine activities in the region. No restrictions would be expected on vessels transiting the intake and outfall pipes (see Section 21.11.2 of the Supplementary EIS for details).

These findings suggest that there are unlikely to be significant impacts from off-site project infrastructure on the general amenity of the Upper Spencer Gulf region and its social and economic values, although residents and visitors to properties near the landing facility, access corridor and pre-assembly yard in Port Augusta may experience some disturbance, inconvenience and delays, and loss of amenity associated with the construction and operation of these facilities. There may also be some minor short-term disruption, disturbance and loss of amenity for coastal home owners and visitors at Point Lowly during the construction of the plant and its associated intake and outfall pipes. Impacts on recreational, leisure or maritime activities are expected to be minor in the short and long term at Port Augusta and Point Lowly.

Impacts on amenity would be further reduced by:

- undertaking appropriate consultation with affected landholders and local stakeholders
- providing regular updates of activities as detailed planning progressed
- providing advance notice of construction activities and transport movements to reduce access or disturbance issues
- implementing other proposed mitigation measures and undertaking ongoing monitoring.

Issue:

Concern was expressed about the effects of fencing and the transport of over-dimensional loads on the access corridor on visual amenity.

Submission: 357

Response:

BHP Billiton has proposed a number of strategies to minimise the impact on visual amenity of the access corridor as a result of fencing and the transport of over-dimensional loads.

As presented in the Draft EIS, the visual impact of the access corridor would vary from substantial to slight, depending largely on the distance from the viewpoint (with distances of less than 100 m generally having a substantial visual impact), as well as other factors such as the topography and the openness of the terrain, and the presence of screening vegetation.

As discussed in Section 19.5.6 of the Draft EIS, the proposed access corridor would be used to transport pre-assembled modules from the landing facility to the pre-assembly yard in Port Augusta West and onto the Stuart Highway. The corridor would be located in the Department of Defence's Cultana Training Area (CTA) on the western side of Shack Road, and on vacant freehold and Crown land north of the CTA and east of the Port Augusta airport. In response to a submission received and in further discussion with the South Australian Government, the northern end of the access corridor has been realigned to cross the Eyre Highway, and would run parallel to the highway on the northern side. Details of this realignment are provided in Section 1.4 of the Supplementary EIS.

The selected route remains generally on land that the general public either cannot access, or to which public access is restricted. Public access to the corridor would be restricted by fencing or other barriers, with designated crossing points to enable access and activities to continue on either side of the corridor and at crossings with Shack and Caroona roads, the Eyre Highway, and the Port Augusta–Whyalla rail line (see Figure 21.3 of the Supplementary EIS).

A number of strategies would be adopted for fencing requirements along the access corridor, depending on the location. For example, where the corridor lies in the CTA, the existing boundary fence (a five-strand wire fence) would be retained and a similar-style fence would be installed on the westward side of the corridor. Where the corridor runs alongside or crosses private property, BHP Billiton would consult with the landowners on a fencing approach, to align with the existing fencing on the property, and to ensure crossing points were suitably located.

Section 20.5.3 of the Draft EIS presented the findings of a visual amenity assessment of project infrastructure, including the access corridor, from sensitive viewing locations such as residences (refer Appendix R of the Draft EIS for further details). The conclusions of that assessment were that the visual impact of the corridor would vary significantly from substantial to slight, depending largely on the distance from the viewpoint (with distances of less than 100 m generally having a substantial visual impact), as well as other factors such as the topography and the openness of the terrain, and the presence of screening vegetation. It is noted that the realignment of the access corridor would reduce the number of residences within 100 m of the corridor and, consequently, much of this visual impact. In order to further minimise visual impacts, the access road would be screened by tree planting, with native species common to the Upper Spencer Gulf area.

21.11 ACCESS AND DISTURBANCE

21.11.1 EFFECTS ON LANDHOLDERS AND VISITORS AROUND PORT AUGUSTA

Issue:

Questions were raised about the operation of the access corridor and impacts on public access.

Submissions: 68 and 357

Response:

BHP Billiton would take care to ensure the access corridor was operated in a way that minimised impacts on public access.

Designated crossing points would be established in consultation with landowners to ensure access and activities continued on either side of the corridor. BHP Billiton would be responsible for security at the designated crossings when the corridor was in use, and at other times, when it was not in use, the gates would be secured.

As presented in Section 19.5.6 of the Draft EIS, the corridor would be used to transport pre-assembled modules from the landing facility to the pre-assembly yard in Port Augusta West and onto the Stuart Highway. Figure 5.53 in the Draft EIS showed the conceptual layout of the proposed Port Augusta landing facility, and the entrance to the access corridor from the landing facility. In response to submissions received and in further discussion with the South Australian Government, the northern end of the corridor has been realigned to cross the Eyre Highway, and would run parallel to the highway on the northern side. Details of this realignment are provided in Section 1.4 of the Supplementary EIS.

In planning the initial and revised alignment of the corridor, a key consideration was to select a route that would minimise the impact on land use and access requirements for landowners and the surrounding community. The selected route remains primarily on land that the general public and the local community cannot access, or where access is restricted (i.e. Cultana Training Area and Port Augusta airport land). Where the access corridor interacts with private landowners, the proposed route follows existing boundary lines where possible to minimise the loss of access and use.

Designated crossing points would be established to ensure access on either side of the corridor. The position of crossing points would also be discussed with landowners to ensure they were suitably located. The access corridor would traverse Shack and Caroon roads, the Eyre Highway and the Port Augusta–Whyalla rail line.

At all other times, when the access corridor was not in use, public roads would continue to operate for normal traffic (see Section 22.3 of the Supplementary EIS for further discussions regarding traffic movements associated with the proposed access corridor).

Section 19.5.6 of the Draft EIS estimated that the movement of over-dimensional loads across public roads around Port Augusta would require temporary road closures and may create delays in the order of five minutes (for single loads) and 10 minutes for multiple loads (if permitted by Department of Transport, Energy and Infrastructure). This would be similar at other crossing points.

Issue:

Concerns were expressed about the effects of shipping associated with the landing facility on other recreational and marine activities in Upper Spencer Gulf. Further information was also requested about the operation of the landing facility, including the use of the rock pad for berthing of boats and the navigation plan for multiple vessel movements.

Submissions: 2, 68, 135, 183, 211, 261, 274, 276, 285 and 354

Response:

As presented in Section 19.5.6 of the Draft EIS, impacts on recreational, boating or other marine activities as a result of the operation of the landing facility were assessed as minimal. There would be no restrictions on boats accessing or using the channel for marine-related activities and every effort would be made to minimise the impact of vessel movements to and from the facility.

The facility would be expected to accommodate about 280 vessels over the seven years (on average, about one vessel every 11 days) and about one vessel a week during the peak period. It would also be used infrequently to unload or load equipment for ongoing operational replacement and maintenance. As presented in Section 1.4 of the Supplementary EIS, in the event of a slower ramp-up in metal production, the facility would accommodate the 280 vessels less frequently, but over a period longer than seven years.

A navigation plan and procedures would be prepared in consultation with the Department for Transport, Energy and Infrastructure, and approved before vessels began unloading at the facility.

The plan for the facility shows a ramp area (to the south) for ocean-going roll-on/roll-off vessels to berth and 'dolphins' (i.e. secure points for vessels to tie up while berthed at the facility). As the pre-assembled modules would be unloaded from the vessels via their stern ramp, the vessels would berth with the bow facing south. The northern end of the landing facility would contain the submerged rock pad where barges would be positioned, then ballasted to 'bottom' onto the rock pad, so loading could proceed independent of tidal conditions. The ballasting operation for barges would utilise the onshore storage tank's pumping and piping system as the barges either sit or rise off the rock pad. The vessels at the southern end of the landing facility would have onboard ballast control systems for stability purposes as well as for loading and unloading operations.

Only a small proportion of the landing facility would be located in the channel (approximately 50 m or one-twelfth of the 600 m-wide gulf at the proposed location), and most of it would lie in the shallow sub-tidal zone (presented graphically as Figure 19.24 in the Draft EIS and reproduced in the Supplementary EIS as Figure 21.4). Vessels, tugs and barges accessing the landing facility would be restricted to the marked channel. As currently occurs, recreational and other marine boat owners would be able to continue to use the channel, along with other vessels. As larger vessels have a limited ability to deviate from their course or manoeuvre quickly, and may not always be able to sight smaller boats (for example, when berthing and departing from the landing facility), boat owners would be expected to continue to adopt practical measures to maintain a safe distance, steer clear of other marine traffic, avoid accidents and comply with other marine safety requirements. For example, under the *Harbours and Navigation Regulations 2009*, it is illegal to anchor in channels and fines of up to \$4,000 may apply.

As indicated in Section 19.5.6 of the Draft EIS, a safety zone of approximately 25 m would operate around the landing facility when a vessel or tug was berthed. During this period, other commercial, recreational and community vessels would be able to transit unimpeded in the Port Augusta channel and pass safely through the safety zone. This is similar to other locations in South Australia, such as Outer Harbor/Port River in Adelaide and Port Pirie, where large commercial and recreational vessels operate safely together. To ensure public safety, activities such as swimming, diving, mooring or anchoring would not be allowed in the immediate vicinity of the landing facility, or around vessels during berthing, unloading and departure. When the landing facility was not in use, the safety zone would not apply, however the facility would remain private property and no unauthorised access would be allowed.

Detailed planning would be undertaken in conjunction with Department of Transport, Energy and Infrastructure and Australian border protection authorities (i.e. customs, quarantine and immigration) as the project planning progressed. Planning would develop suitable:

- hydrographical studies to update relevant nautical charts between Point Lowly and the landing facility
- operational plans for transiting vessels to and from the landing facility
- border protection and pilot embarkation/disembarkation points in the Point Lowly region before vessels transited the channel to or from the landing facility.

BHP Billiton would develop and implement other strategies and management systems to minimise the impact of vessel movements on other boating activities in the channel and to maintain public safety. This may or may not include initiatives such as:

- requiring vessels or tugs to use standard VHF marine channels 6, 8 and 12, and emergency communication on VHF 16 so recreational boats could contact either the vessel or tug on VHF radio
- using their whistles, if vessels or tugs were unsure of the intentions of recreational or other marine traffic (i.e. standard is five short blasts)
- developing a coordinated community communication and engagement program to provide detailed information on activities associated with the landing facility
- working with the South Australian Government and community groups to promote marine safety in and around Port Augusta, through initiatives such as information signs at boat ramps, information booklets and pamphlets.

Issue:

Concerns were expressed about the potential restrictions and exclusions around the proposed landing facility, access to the beach, and recreational and marine activities.

Submissions: 68, 135, 183, 211, 212, 272, 273, 274, 276, 310, 354 and 386

Response:

As discussed in the response above, impacts on recreational, boating or other marine activities as a result of the operation of the landing facility are expected to be minimal. While the public would not be permitted to access or use the facility, impacts on public access to the coastline in its vicinity are expected to be minor. There would be no restrictions on recreational boats accessing or using the channel for marine-related activities.

Figure 19.24 of the Draft EIS, reproduced in the Supplementary EIS as Figure 21.4, illustrates the conceptual layout and configuration of the landing facility, including the customs and quarantine laydown area and the entrance to the access corridor, in relationship to nearby homes. In order to meet maritime security requirements and ensure its secure use by BHP Billiton, unauthorised access to, and use of, the landing facility would not be allowed. Nonetheless, in developing more detailed plans for the facility, the intention would be to retain freedom of access to coastline land and marine activities.

Figure 19.24 of the Draft EIS (provided as Figure 21.4 in the Supplementary EIS) illustrates the relationship of the landing facility to the coastline and shows there would be approximately 100 m between the waterfront and the safety zone at low tide. The ability of nearby homeowners or visitors to access the coastline or use the waterfront area in the vicinity of the facility is therefore not expected to be affected to any significant extent. While there would be some minor limitations on swimming, diving, mooring or anchoring in the immediate vicinity of the facility (similar to those in place at the Port Augusta boat ramp), and around vessels during berthing, unloading and departure, there would be no restrictions on vessels transiting past the facility, accessing the coastline, or moving into the channel. As discussed in the response above, BHP Billiton would also develop and implement other strategies and management systems to minimise the impact of vessel movements to and from the facility on other boating activities in the channel, while maintaining public safety.

As outlined in Section 17.16.1 of the Supplementary EIS, the development and operation of the landing facility is not expected to adversely affect fishing, and it is more likely that the jetty, wharf and rock pad area would create an artificial habitat that attracted reef fish, and may improve catches of these species.

21.11.2 EFFECTS ON LANDHOLDERS AND VISITORS AROUND POINT LOWLY

Issue:

Further information was sought about the impact of the proposed desalination plant on access to residences and fishing areas at Point Lowly, and how BHP Billiton would ensure continued access during the construction and operational phases.

Submissions: 2, 79 and 120

Response:

The construction of the desalination plant and associated marine structures would involve some short-term increase in, and disruption to, local traffic, but access would remain largely unchanged for coastal home owners and visitors during the construction and operational phases. BHP Billiton would continue to consult with landholders who may be potentially affected by the desalination plant and provide regular updates as detailed planning progressed. BHP Billiton would also give advance notice of construction activities in order to reduce disruption and delays to local home owners and visitors to Point Lowly.

The investigation area for the site of the proposed plant is located near the existing Santos facility at Port Bonython. An access road and intersection would be constructed to link the Port Bonython Road to the desalination facility (see Figure 21.12 of the Supplementary EIS), with the intersection to be designed in consultation with Department of Transport, Energy and Infrastructure.

Section 5.7.4 of the Draft EIS indicated the preferred alignment of the intake and outfall pipes, recognising that these alignments may be modified slightly during the detailed planning phase as geotechnical drilling information became available. Irrespective of the final alignment, both pipelines would be buried on land that is vacant or alongside the existing road corridor.

The current preferred alignment for the intake pipe is due east of the desalination plant and about 300 m offshore into Fitzgerald Bay, and the current preferred alignment for the outfall pipe is alongside the Point Bonython Road to the Point Lowly Lighthouse, and then about 1,150 m offshore.

Construction of the intake pipe would involve some short-term disruption to local traffic, but access would remain largely unchanged for coastal home owners and visitors. Temporary barriers would be established during construction of the pipeline, and alternative access provided around the immediate construction site to ensure continued access by coastal home owners and visitors to properties, public facilities and local attractions. After construction was completed, the pipe would be buried, and there would be no long-term change in access during operations.

As described in Section 1.4 of the Supplementary EIS, in response to concerns raised in submissions about marine blasting, a change in the method of constructing the outfall pipe from trench and fill to tunnelling is now proposed, which would minimise ground disturbance in installing the outfall pipe. This has also resulted in some minor modification to the currently preferred alignment of the outfall pipe because of restrictions on the angle of tunnel bends. The indicative outfall pipe tunnelling alignment is shown in Figure 1.7 of the Supplementary EIS, originating from the desalination plant.

Access would remain largely unchanged during construction of the outfall pipe. Tunnelling would involve an increase in heavy vehicle traffic of up to 23 two-way movements per day (at peak) to remove spoil from the site along Port Bonython Road to the Lincoln Highway and beyond. This is in addition to the 28 vehicle movements per day associated with the construction of the desalination plant. At the peak of construction, these volumes would increase the current average annual daily traffic (AADT) by 13% on Port Bonython Road and 3% on the Lincoln Highway. Once operations commenced at the desalination plant, traffic volumes would increase by 3.5% on Port Bonython Road and 1% on the Lincoln Highway. This is not expected to affect other road users or change the level of service capacity of Port Bonython Road or the intersection with the Lincoln Highway (see Section 22.4 of the Supplementary EIS for further details).



Figure 21.12 Vehicle access to Point Lowly

Issue:

Further information was sought about likely restrictions associated with the proposed desalination plant and intake and outfall pipes and the effect of restrictions and exclusions on access to offshore recreational and fishing areas.

Submissions: 26, 68, 176, 227, 302 and 346

Response:

Section 19.5.6 of the Draft EIS assessed the social impacts of the desalination plant on coastal home owners and visitors to Point Lowly. It noted that there may be some minor disturbance and loss of amenity during the construction of the plant and its associated intake and outfall pipes as a result of increased road traffic, noise and blasting, but predicted these impacts would be short-term and limited to the construction period. The Draft EIS also assessed the impacts on recreational, leisure or maritime activities from the desalination plant, and concluded these would be minimal during its construction and ongoing operation.

The Draft EIS described the indicative features plant and construction methods. Figures 5.30 and 5.31 provided conceptual drawings of the design and indicative locations of the associated intake and outfall pipes, with the intake pipe to be located about 300 m offshore and the outfall pipe about 800 m offshore.

Since the release of the Draft EIS, and as presented in Chapter 1 of the Supplementary EIS, in response to submissions received, BHP Billiton has committed to tunnelling the outfall pipe. This has resulted in some minor modification to the indicative alignment of the outfall pipe, which is shown in Figure 1.7 of the Supplementary EIS. It has also removed the need for blasting to install the outfall pipe. The intake pipe would remain a full trench and fill option, with the requirement for, and extent of, blasting to be further investigated prior to detailed design. Marine and land-based blasting, if required to construct the intake pipe, would, however, be considerably less than originally proposed and assessed for the two pipelines in the Draft EIS.

Temporary restrictions would be required during the construction of the intake and outfall pipes to separate construction activities from the general public and ensure public health and safety. These requirements would be determined in discussion with the Department for Transport, Energy and Infrastructure (DTEI) and other stakeholders (including the aquaculture industry) during detailed design and then communicated to relevant stakeholders. This would potentially restrict recreational and marine activities in the vicinity of the construction area, but these restrictions would be limited to the construction period. Given the method of constructing the pipelines, these restrictions are likely to be limited to a small area around the construction site and would represent only a small proportion of the total area available for recreational and marine activities in the region.

Such safety restrictions are common to marine construction activities in order to separate and limit potential interactions between construction activities and vessels and the general public. For example, during the construction of the Sydney desalination plant, two offshore construction areas were established, which were marked by buoys, referenced on marine charts and communicated to stakeholders and the general public.

If land-based or marine blasting was required for the intake pipe, safety exclusion zones would be established for people on land (approximately 300 m for land-based blasts), and on or in the water (1,350 m for people in the water and 70 m for a boat or other ship or vessel) and would involve surveillance of the blast area for two hours before a blast. In order to minimise potential impacts on breeding cuttlefish, marine blasting would be confined to the period from 1 November to 1 May, and therefore outside the breeding season. In addition, blasting would not take place on Sundays or public holidays to avoid disturbance to home owners and visitors, and would where practicable be scheduled to minimise disruptions during peak holiday periods. Blasting would only occur intermittently, for short periods, during daylight hours.

The requirement for restrictions or limitations during operations would also be discussed with DTEI during detailed design, and these are likely to be similar to those around interstate desalination plants, fine-tuned to local conditions at Point Lowly. For example, during the operation of the Sydney desalination plant, navigational restrictions and no-anchoring zones were established around the intake and outlet structures. In the case of the Kwinana desalination plant in Western Australia, exclusion zones were not required during the construction or operation of the plant. The intake structure is indicated by a 'danger' marker buoy.

Given the design and location of the proposed intake and outfall pipes at Point Lowly, it is unlikely they would pose a marine or navigational risk, and any restrictions on marine activities during operations are expected to be limited. It is expected that commercial, community or recreational vessels would have free passage in the area, with no restrictions on vessels transiting the intake and outfall pipes. There may be some operational restrictions on anchoring, mooring, diving and fishing near the intake structure and the outfall pipe's diffuser, which would be located between 950 m and 1,150 m off Point Lowly. These restrictions are considered to be minor, and would represent only a small proportion of the area available for recreational and marine activities in the region. Restrictions would be communicated to local boat owners and people in the Point Lowly and surrounding area, at the two dive shops in Whyalla and at regional boat ramps, including at Point Lowly, and updated on marine charts.

21.11.3 EFFECTS ON OTHER LANDHOLDERS AND VISITORS

Issue:

It was requested that BHP Billiton recognise the issue of mobility and traffic in Andamooka, which the submission suggests would become a destination for extracurricular and recreational activity among the expanded Roxby Downs population and the large construction workforce accommodated at Hiltaba Village. The submission also identified the large number of car parking spaces at Hiltaba Village in support of its view.

Submission: 6

Response:

Section 15.5.11 of the Draft EIS noted that the proposed population increase in Roxby Downs and Hiltaba Village would be likely to increase recreational use of areas surrounding the township, including Andamooka. The traffic impact assessment undertaken for the Draft EIS and subsequent research for the Supplementary EIS considered the effects of increased traffic volumes in the vicinity of Andamooka and concluded that the expansion, and its associated infrastructure (including Hiltaba Village and the new airport), are not expected to impact on public access along Andamooka Road due to the existing low traffic volumes in this area.

As outlined in Section 5.10.2 of the Draft EIS, the workforce accommodated at Hiltaba Village would comprise short-term construction workers, the majority of whom would arrive and depart via the proposed new airport, on a fly-in/fly-out (FIFO) basis. In addition to the existing workforce bus service between Upper Spencer Gulf and Olympic Dam, a workforce commuter bus service would link the village to the airport and worksites. The design of Hiltaba Village also incorporates a range of on-site facilities, including swimming pools, gymnasiums, indoor and outdoor ball game and sporting areas, a perimeter running track and landscaped areas for passive outdoor recreation and socialising, as well as dining halls, taverns, internet cafes and retail outlets to encourage workers to remain at the village for social and recreational activities.

Given the facilities to be provided at Hiltaba Village, work rosters, FIFO arrangements and limited access to alternative transport, it is anticipated that most workers would spend their free time at the village while working at Olympic Dam.

The concept plans for Hiltaba Village include car parking principally for the large bus fleet that would be required to transfer workers between the village and Olympic Dam. Car parking is also provided for specialist tradespeople who have vehicles set up with their tools, and contractor work vehicles required for work on-site (i.e. not private vehicles). It is also possible that personnel commuting from Upper Spencer Gulf might park at the village to access the bus service to Olympic Dam. This is expected to be similar to the situation that occurs currently at Olympic Village (i.e. where there are very few private vehicles and the majority are contractor vehicles).

The concept plans for Hiltaba Village have been designed to enable facilities to be commissioned/decommissioned to meet changing workforce and accommodation requirements. The number of car parking spaces that would ultimately be provided at Hiltaba Village would be determined during detailed design, as more refined workforce projections were determined.

The traffic impact assessment undertaken for the Draft EIS considered the effects of increased traffic volumes on Andamooka Road, including ancillary traffic generated by the workforce accommodated at Hiltaba and Roxby villages and in the township, and the proposed new airport.

Chapter 22 of the Supplementary EIS also discusses the potential effect on traffic as a result of the proposed realignment of Borefield Road. The assessment concluded that the traffic that would be re-routed to Andamooka Road would represent only a small volume of the forecast total inflow into the Andamooka Road intersection (see Section 22.2 for details).

As outlined in Section 1.4 of the Supplementary EIS, a new second entry gate and eastern access road is proposed to provide dedicated access to the mine site from Hiltaba Village (see Figure 1.11). This would reduce traffic numbers along Olympic Way and the western access road, but increase traffic numbers along Axehead Road and Andamooka Road (see Appendix A6 of the Supplementary EIS for details).

An additional traffic study undertaken following the release of the Draft EIS assessed the effect of traffic increases on Andamooka Road and the staggered 'T' intersection at Andamooka Road, the heavy vehicle bypass and Axehead Road (see Figure 1.12).

The conclusions of that assessment were that Andamooka Road would experience a reduction in the level of service during the construction period and ongoing operations at Olympic Dam, although it would continue to operate within acceptable operational limits and under ongoing operational conditions, traffic would be stable, comfortable and convenient (see Appendix A6 of the Supplementary EIS).

In addition, there would be a reduction in the level of service and operating capacity of the staggered 'T' intersection as a result of the increased traffic associated with the new eastern access road. While the proposed traffic volumes would operate well within the design capacity of the intersection, there would be an increase in the average wait for vehicles turning right out of Andamooka Road, resulting in an acceptable, but uncomfortable delay (see Appendix A6 for details). In addition, neither the intersection nor Andamooka Road complies with Australian Standards for the safe movement of B-doubles, and double and triple road trains. As such, BHP Billiton would collaborate with the South Australian Department of Transport, Energy and Infrastructure (DTEI) to develop an appropriate strategy for the intersection and Andamooka Road to allow the movement of B-doubles, and double and triple road trains to the proposed eastern access gate.

BHP Billiton would continue to implement workforce inductions and education strategies to communicate safety and security expectations and to promote responsible social and environmental behaviour and ethics. The on-site and off-site workforce would also be required to sign a code of practice/behaviour, and would be subject to the BHP Billiton Group's drugs and alcohol policies and testing to reduce the potential for adverse impacts associated with the construction workforce.

Issue:

Further information was requested about security measures and lighting at the Pimba intermodal facility, including potential light spill and effects on Pimba residents, and confirmation that night-time operations are not contemplated.

Submission: 2

Response:

As presented in Section 19.5.6 of the Draft EIS, the intermodal facility would operate only until the proposed rail spur from Pimba to Olympic Dam was completed. BHP Billiton intends to operate the Pimba intermodal facility (i.e. unloading trains and trucks, moving items to and from storage and other activities) during daylight hours (typically 7am to 7pm). As night-time operations are not envisaged, no operational lighting is planned to be installed.

While night activities at the Pimba intermodal facility are not planned, there may be occasions when a train or load would arrive from Port Augusta in low light or at night. In this situation, portable lighting (similar to that used during night-time roadworks) to cover a limited area in the terminal would be used temporarily, but only for a specific task, and for a short period.

It is proposed that the site would be suitably fenced with wire mesh material to minimise the likelihood of unauthorised access, and access gates at road and rail entrances would be locked when not in use. Electric fences and/or intruder alarms would not be used, as the facility would be staffed during daylight hours, and is not considered critical infrastructure for ongoing operations at Olympic Dam. In addition, items to be transported to Olympic Dam would be stored in the facility in packed containers that could not be easily accessed and would not pose a security risk. Security lighting would be provided but this would be shielded so as not to spill significant light into Pimba residences.

Issue:

Further information was requested on how the environmental impacts associated with increased visitors, off-road activities and unregulated camping and recreational activities would be managed.

Submissions: 2 and 62

Response:

As presented in Chapter 15 (Terrestrial Ecology) of the Draft EIS, the proposed population increase in Roxby Downs and Hiltaba Village would be likely to increase recreational use of the areas surrounding the township and environmentally significant sites in the wider region, such as the GAB springs, Lake Torrens, Lake Eyre and Andamooka. This may include off-road driving and riding, bush camping, sightseeing and, after periods of heavy rainfall, boating and kayaking. It noted that if uncontrolled, these activities could degrade the natural environment through increased littering, degradation and erosion of vehicle and pedestrian tracks, wood collection, lighting of bushfires, disturbance to wildlife and degradation of native vegetation and habitats (refer Section 15.5.11 of the Draft EIS).

Section 19.5.2 of the Draft EIS also noted the potential for off-road driving, unauthorised access to properties, and irresponsible behaviour around Roxby Downs, surrounding pastoral stations and Arid Recovery, to damage flora and fauna and culturally sensitive sites, particularly during the construction phase.

BHP Billiton supports controls on off-road driving, and has strict rules and procedures relating to work-related driving activities. Responsibility for control of recreational off-road driving rests with local law enforcement agencies, but BHP Billiton would work with these agencies and the community to seek to manage this activity.

In common with many other Australian mine sites, only drivers who have completed an authorised four-wheel-drive training program are able to use BHP Billiton four-wheel-drive vehicles for work-related purposes. Other strategies adopted in remote mine sites include in-vehicle monitoring systems to regulate speed, braking, use of seatbelts, location and road surface, which are principally used in response to occupational health and safety requirements. Such systems would only be useful to monitor off-road driving where the workforce was predominantly fly-in/fly-out (FIFO), and there are few private vehicles available for recreational use. Driver awareness training is also conducted as part of workforce inductions at Olympic Dam and includes environmental and cultural heritage considerations. In some FIFO sites, management plans about exiting a site are in place, or drivers are required to register with security on leaving an accommodation facility, whether the planned trip is work-related or not. In addition, some sites have organised group trips to enable local sites and attractions to be visited in a controlled manner.

A range of management measures was identified in the Draft EIS to address the potential issues associated with recreational and off-road activities and the impact on the natural environment. These included developing and implementing a management plan by BHP Billiton, in collaboration with the Roxby Downs Council, to minimise the environmental impact of recreational activities around Roxby Downs and Andamooka. This would be developed as part of the Social Management Plan (see Appendix J1 of the Supplementary EIS). BHP Billiton would also implement an active education program promoting responsible social and environmental behaviour and ethics for all employees, contractors and residents on a range of social considerations, including care for the environment, and incorporating guidelines relating to recreational driving on pastoral or BHP Billiton land.

The Roxby Downs Draft Master Plan also provided for a range of new and upgraded recreational facilities, which may assist in limiting off-road recreational activities, and included areas of natural vegetation for passive recreational purposes, such as walking and picnicking outside the Roxby Downs township. Facilities identified in the Draft Master Plan included a new town park, two new ovals west of Olympic Way, provision for an integrated sports and community complex west of Olympic Way, residential neighbourhood parks, a new cycleway from Roxby Downs to the proposed Heavy Industrial Estate, additional tennis and netball courts, and two new regional parks west and south-east of the township.

Other measures outlined in the Draft EIS to manage recreational and off-road activities included:

- encouraging the use of existing designated recreational driving areas (such as the motocross track, go-kart track and Roxby Raceway/Speedway (the dirt circuit car club))
- continuing to implement education, training and awareness programs for BHP Billiton employees and contractors via inductions
- informing the new residents of Roxby Downs and Hiltaba Village about appropriate recreational sites, opportunities and practices
- working with community groups to increase community support for better management of recreational activities in the vicinity of Roxby Downs
- encouraging membership of four-wheel-drive and motorbike clubs to promote responsible off-road driving
- investigating the feasibility of establishing and signposting four-wheel-drive and motorbike circuits near Roxby Downs and managing unauthorised off-road driving
- continuing discussions with government to ensure sufficient resources were available to monitor inappropriate off-road driving, and closing off and rehabilitating inappropriate tracks
- implementing education strategies which address outdoor ethics and principles for the appropriate management of natural areas.