APPENDIX Y
SOCIAL IMPACT ASSESSMENT

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CENTRAL EYRE IRON PROJECT

SOCIAL BASELINE AND SOCIAL IMPACT ASSESSMENT TECHNICAL REPORT

E-F-34-RPT-0037

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1. Introduction

Iron Road Limited (Iron Road) is developing plans for the Central Eyre Iron Project (CEIP) on the Eyre Peninsula in South Australia. The major components of the proposed project, shown on Figure 1-1, are:

- **Mine –** Located near the township of Warramboo, within the Wudinna District Council (DC), the proposed mine site includes an open pit mine and on-site iron ore processing facility to produce iron concentrate. Other on-site infrastructure includes accommodation for the construction workforce and operational contractors.
- **Long term employee village** –Located on the north east perimeter of the township of Wudinna, the proposed operations village would provide long term accommodation for Iron Road's permanent mine site workforce.
- **Port** – The proposed port at Cape Hardy provides for the export of the iron concentrate. The proposed port development is located on the south western shore of Spencer Gulf, within the DC of Tumby Bay and includes a temporary construction camp. The port site entrance is located approximately 5 km south of Port Neill.
- **Infrastructure corridor –** The proposed infrastructure corridor connects the mine site with the proposed port site and includes:
  - A railway line to transport iron concentrate from the mine site to the port site. The proposed railway line traverses the DCs of Wudinna, Kimba, Cleve and Tumby Bay and will be approximately 148 km long including 5 km of railway line within the proposed port site and 13 km within the proposed mine site.
  - A water pipeline to provide water from a borefield to the mine site. The proposed borefield is located approximately 7.5 km west of Kielpa within the DC of Cleve.
  - A 275 kV transmission line to connect the mine site to South Australia's electricity network via the Yadnarie substation, in the DC of Cleve.
  - A maintenance track and other ancillary infrastructure.

The CEIP will be subject to separate approvals under South Australian legislation. In this regard, the proposed port, infrastructure corridor, power transmission line, borefield and long term employee village will be subject to approval under the *Development Act 1993,* and the proposed mine will be the subject of a separate approvals process under the *Mining Act 1971.* The proposed port and infrastructure will also be subject to approvals under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

The CEIP Mine and CEIP Infrastructure are contained within four Council areas, being the DCs of Wudinna, Kimba, Cleve and Tumby Bay, as shown on Figure 1-2. The DC of Elliston abuts these areas. The area is remote and sparsely populated, with agriculture and fishing/aquaculture the dominant industry sectors and mining, tourism and renewable energy growing in importance. Local townships that would be directly impacted by the CEIP include Wudinna and Warramboo (within Wudinna DC) and Port Neill and Tumby Bay (within the DC of Tumby Bay). Lock (DC of Elliston) may also be indirectly impacted given its proximity to the proposed mine.

The Eyre Peninsula is served by a number of regional centres and may provide a source of workers, goods or services for the CEIP. This includes the City of Port Lincoln on the Lower Eyre Peninsula, Whyalla and Port Augusta in the upper eastern Eyre Peninsula / Upper Spencer Gulf, and Ceduna on the far west coast.

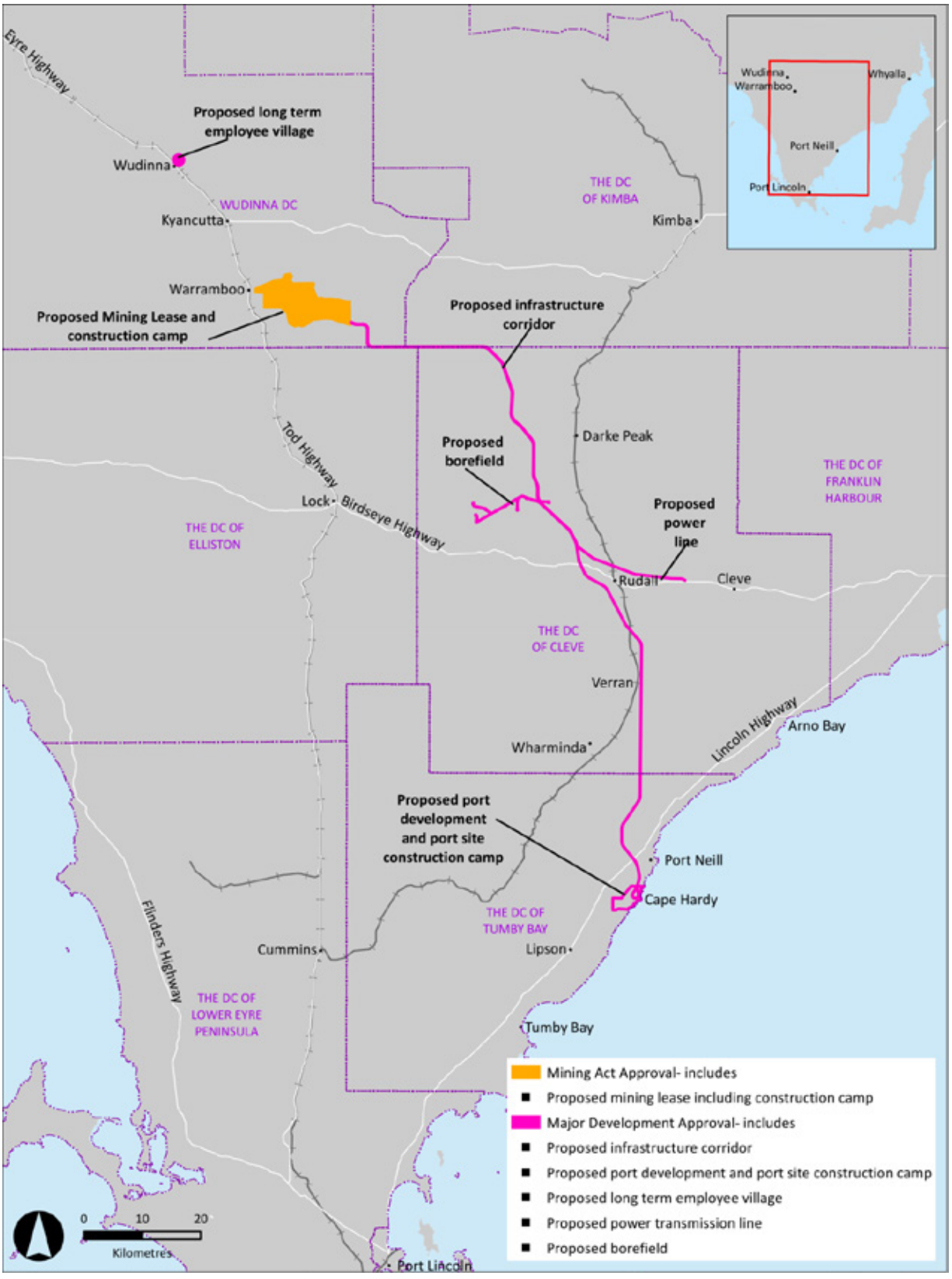


Figure 1-1 Overview of CEIP components

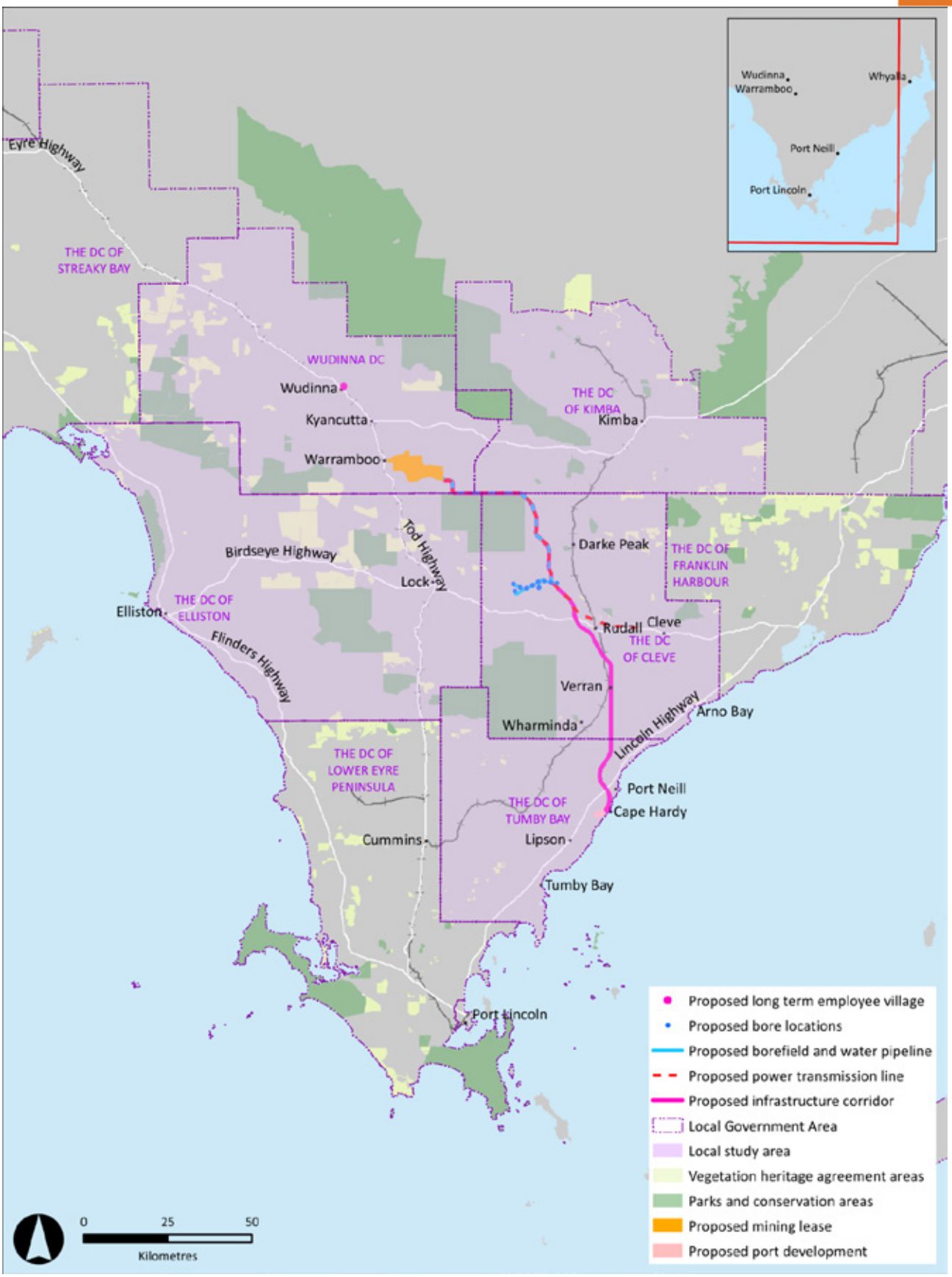


Figure 1-2 Local government areas and townships on Eyre Peninsula

1.2 Purpose and structure of the report

This report presents the findings of a social impact assessment (SIA) undertaken for the CEIP. The report has been prepared as a Technical Appendix to the CEIP Infrastructure Environmental Impact Statement (EIS) and Mining Proposal (MP).

The report:

- describes the existing demography, character and services in councils and communities near to the CEIP Mine and CEIP Infrastructure
- sets out how the CEIP has been designed and modified to protect the social values and amenity of local communities
- presents the findings of the SIA
- proposes management measures to maximise potential benefits and minimise potential impacts
- outlines the framework for monitoring social effects.

The remainder of the report is structured as follows:

- Section 2 outlines the approach to developing the report, including the study areas, assessment methods, key data sources and study limitations
- Section 3 profiles the characteristics of local and regional communities in the CEIP's social and cultural area of influence
- Section 4 presents the findings of the SIA, including design modifications, management measures and framework for monitoring.

Attachments to this report include:

- a report on population scenario modelling (Attachment 1)
- a list of abbreviations and acronyms
- a list of references
- a glossary.

2. Methodology

2.1 Study areas

The SIA focuses on the communities that are most likely to be affected by the CEIP. These communities, shown on Figure 1-2, comprise two distinct study areas:

- Local study area: this comprises the local government areas (LGAs) that contain components of the CEIP Mine and CEIP Infrastructure as well as townships, communities and landholders that may be directly affected within those LGAs. This includes:
  - Wudinna DC, including the townships of Warramboo and Wudinna
  - DC of Kimba
  - DC of Elliston, including the township of Lock
  - DC of Cleve
  - DC of Tumby Bay, including the townships of Port Neill and Tumby Bay.

- Regional study area: this comprises the wider regional area that may provide a source of workers, goods or services for the CEIP and includes:
  - the regional cities (LGAs) of Port Lincoln, Whyalla and Port Augusta

- the Eyre Peninsula and South West region (Eyre region), including coastal towns and settlements on the Eyre Peninsula that may provide a residential base for drive-in drive-out workers for the CEIP.

The study areas referred to in this report are generally based on geographical boundaries used by the Australian Bureau of Statistics (ABS) and, unless otherwise indicated, include:

- LGAs (including the DCs of Wudinna, Kimba, Elliston, Cleve and Tumby Bay and the Cities of Port Lincoln, Whyalla and Port Augusta)
- Urban centres/localities (UCL) (including the townships of Wudinna and Tumby Bay)
- State Suburbs (SSC) (including the townships of Port Neill, Warramboo and Lock)
- Statistical Area Level 3 (SA3) (ie the Eyre Peninsula and South West)
- Statistical Division.

Where appropriate, comparisons are also drawn with regional South Australia and South Australia.

2.2 Assessment methods

Figure 1-3 outlines the key elements of the SIA process, which is informed by community and stakeholder consultation and engagement. The SIA method was based on best practice principles and guidelines from the International Association for Impact Assessment (Vanclay 2003) and the International Finance Corporation (2003).

The methods used to identify the existing social values of potentially affected communities and to assess the social impacts of the CEIP involved desktop research, including a literature review and analysis of qualitative and quantitative data, and consultation with local service providers, landholders and other key stakeholder groups. This involved the following key activities:

- profiling the existing social environment of potentially affected communities to establish baseline social conditions
- population scenario modelling to gauge the potential population effects and implications for housing and services in the Wudinna DC from the CEIP's mine operational workforce under different scenarios
- consultation with local service providers, landholders and other key stakeholder groups to identify potential issues and service implications from the CEIP
- other social research to identify potential impacts and benefits, mitigations and enhancements.

2.2.1 Profiling the existing social environment

The profile of the existing social environment was prepared using data collected through desktop research and consultation with local service providers. This included:

- an analysis of quantitative data from the ABS, government departments and other sources (see Table 1.1)
- a review of community reports, agency plans, and planning documents relating to the socio-cultural and economic environment of the study areas
- a review of the social services and facilities available in local townships that may be affected by the CEIP, based on publically available information and discussions with local service providers.

Varying levels of detail on townships and regions is provided, depending on the availability of statistical information, their relationship to the CEIP, and its relevance to assessing potential social impacts in those communities.

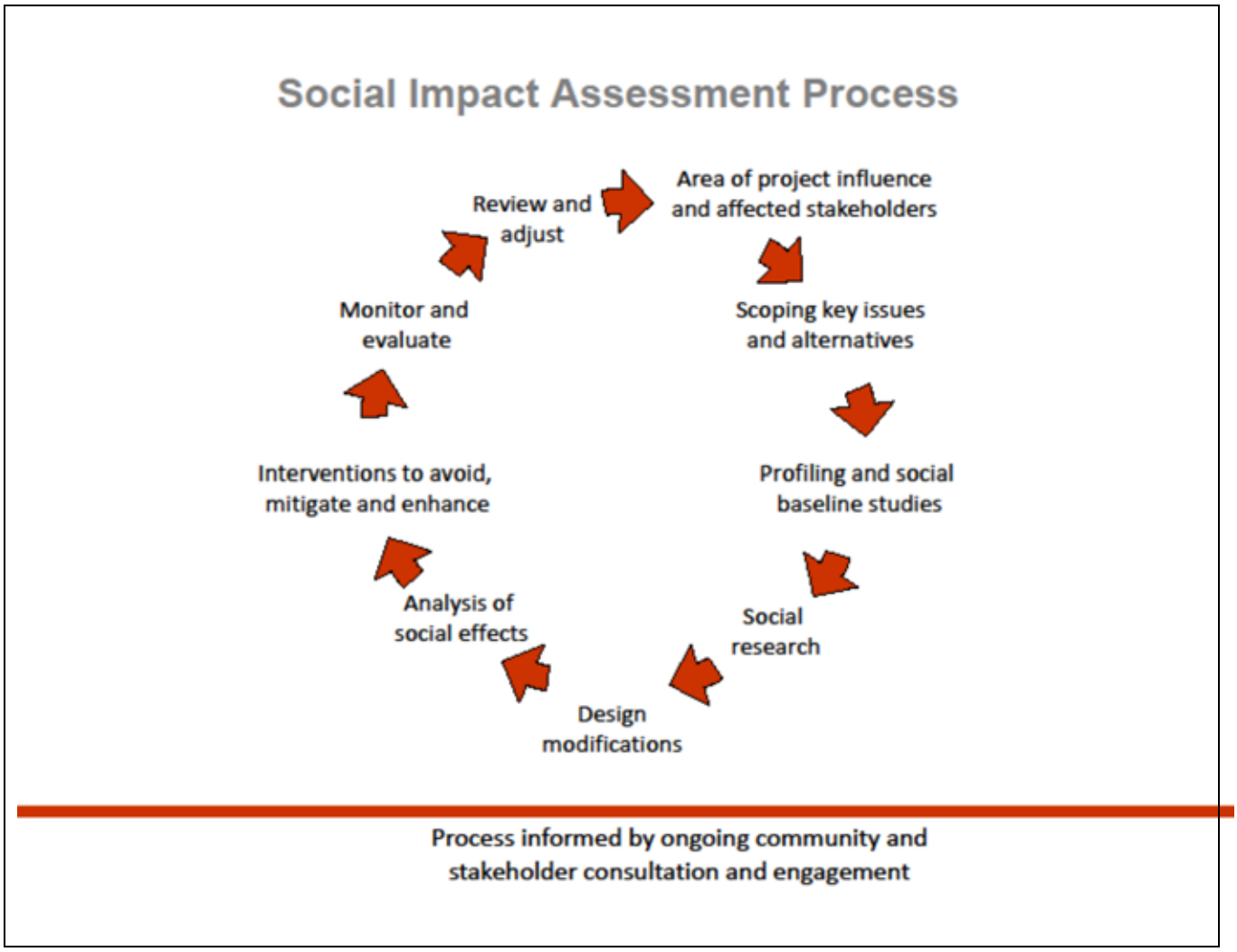


Figure 1-3 Social impact assessment process (adapted from Franks 2012)

2.2.2 Population scenario modelling

Population scenario modelling was undertaken to:

- model the potential population effects of the CEIP Mine, based on a number of different scenarios that assumed a portion of the mine's operational workforce would relocate to live and work within the Wudinna DC
- assess the implications of potential population increases on services within the Wudinna DC, based on service guidelines for South Australia compiled from the Productivity Commissions Report on Government Services (2013) and discussions with local service providers about their capacity to meet increased demand.

The results of the population scenario modelling can be found in Attachment 1.

2.2.3 Stakeholder consultation and engagement

The SIA was informed by the community and stakeholder engagement, which has been undertaken by Iron Road on the CEIP since 2011. As detailed in the CEIP EIS and MP, this has included consultation with stakeholders at the local, regional, state and broader levels to identify potential issues, impacts and opportunities arising from the CEIP.

This includes stakeholder consultation and engagement with:

- elected members and staff of the DCs of Wudinna, Kimba, Cleve, Tumby Bay and Elliston, other Eyre Peninsula LGAs and the Eyre Peninsula Local Government Association
- community members and stakeholders in the Wudinna DC, including residents, landholders, businesses and service providers in Wudinna and Warramboo and the CEIP Community Consultative Committee
- community members and stakeholders in the DC of Tumby Bay, including the Port Neill Reference Group and Tumby Bay and Districts Community Consultative Group
- residents and landholders in proximity to the proposed mine, port and infrastructure corridor
- Native Title Claimants and Aboriginal groups
- industry and business, including Regional Development Australia Whyalla and Eyre Peninsula, the tourism industry and other local and regional businesses and associations
- non-government organisations and interest groups
- South Australian and Federal governments including Local Members of Parliament and government departments
- members of the general public.

Consultation was also undertaken with local service providers in Wudinna as part of the SIA, including health, education, police, welfare and council services (see Appendix 1 for details). Discussions canvassed:

- current services, existing needs and capacity constraints
- the ability to deal with increased demand
- service thresholds and planning timeframes
- possible issues and service implications arising from population increases in Wudinna
- other issues associated with the long distance commute (LDC) construction and operational workforces for the mine.

2.2.4 Social research

Social research was undertaken to identify issues associated with the CEIP and to inform the SIA. This included:

- a review and audit of social services in Wudinna, including existing issues and capacity constraints
- a review of local and regional workforce skills and business capacity in the Eyre region
- a review of the social impacts and lessons learned from other mining projects in agricultural communities, including the Middleback Ranges (in South Australia), Bowen Basin (in Queensland), Hunter Valley (in New South Wales) and Boddington and Ravensthorpe (in Western Australia)
- a review of other developments in the Eyre region, including mining projects and other major developments
- an appraisal of other technical assessments undertaken for the CEIP, including assessments of traffic, air quality, noise and vibration, visual amenity and economic impacts
- identifying social indicators that could be used to monitor and track potential impacts and benefits from the CEIP.

2.3 Key data sources

Information on the socio-economic and demographic characteristics of local and regional communities was largely based on data from the ABS and other data sources, as identified in Table 2-1.

The analysis of Census data is generally based on place of usual residence (where people live), rather than place of enumeration (where they were counted on Census night). The count of usual residence provides information on the characteristics of people who reside in the area and excludes visitors, people who are temporary or short-term workers, or who do not permanently reside in the area, for example LDC workers.

Table 2-1 Key data sources used in preparing the social profile

Data item and source	Description
2011 Census of Population and Housing (ABS)	Count of people and their socio-demographic and economic characteristics at a number of geographic levels including LGAs, UCLs, SSCs and Statistical Area Levels. Includes data on the population, households, housing, income, education, labour force and industry
National Regional Profile (ABS)	Additional statistics not captured in the household Census; includes data on the population/people, economy, industry, and environment/energy
Socio-Economic Indexes for Areas (ABS)	Four composites indices that use Census data to provide a socio-economic summary of an area and enable a comparison of the relative advantage/disadvantage of areas: includes the Index of Relative Socio-economic Advantage and Disadvantage, Index of Relative Socio-economic Disadvantage, Index of Economic Resources, and Index of Education and Occupation
Building approvals (ABS)	**Quarterly data on building approvals by number and value for LGAs and regions**
Housing market updates (Real Estate Institute of South Australia)	Quarterly data on rental vacancy rates and housing sales for selected LGAs and regions
Quarterly rent reports (Housing SA)	Rental Bond Data Sets of the Tenancies Branch, Office of Consumer and Business Affairs: includes the number of bonds lodged and median weekly rental for houses and units for LGAs, suburbs and regions
House sales (State Valuation Office)	Sales count and median sales price at the LGA level
Key Worker Housing Affordability (BankWest)	Tracks housing affordability for five groups of key public sector workers, including nurses, teachers, police officers, fire-fighters and ambulance officers at the LGA level
Tourist accommodation (ABS)	**Quarterly data on tourist accommodation of 15 rooms or more, including number of establishment and rooms, persons employed and occupancy for LGAs and regions**
Tourism profile (Tourism Research Australia)	Number of domestic and international visitors, expenditure, purpose of visit, accommodation and experiences at the regional level
Small Area Labour Market Survey (Department of Employment)	Quarterly data on the number of unemployed persons and unemployment rates for LGAs
Major developments (SA Department of State Development, formerly the Department for Manufacturing, Innovation, Trade, Resources and Energy)	Major developments in South Australia (approved and under consideration) including minerals and energy resources, urban development, Defence, health, education and other services, water management, manufacturing and industrial development
Quality of Life Index (BankWest)	Ranks LGAs in Australia across key indicators of the labour market, the housing market, the environment, education and health
Social Health Atlas (Public Health Information Development Unit)	Compiles data from a range of sources at LGA level. Includes indicators on health and education outcomes for children and young people; income support and assistance; health indicators
Hospital data admissions (National Health Performance Authority**)**	Data on hospital admissions and outpatient services
Recorded offences (Office of Crime Statistics and Research)	Data on victim-reported offences and police detected offences by major offence category at the LGA level
Road safety (Road Safety Advisory Council)	Data on road safety, including number of road fatalities and serious injuries and crash type by region
Accessibility/Remoteness (Australian Department of Health)	Measures geographic remoteness based on physical distance from goods and services at the LGA level

The literature reviewed as part of the social profiling and SIA included:

- community reports, agency plans, and planning documents of relevance to the Eyre Peninsula
- reports, articles and studies on social impacts and benefits from other mining projects in Australia.

Literature is referenced where appropriate throughout the report and a complete list of references is provided at the end of this report.

2.4 Limitations

In undertaking the SIA, Rose Bowey and Associates have relied on information provided by Iron Road and/or Jacobs Engineering Group about the CEIP. If the information is subsequently found to be inaccurate or incomplete or changes after the completion of this report, the findings expressed in the report may require re-examination.

3. Social and economic profile

The social baseline has been prepared for Iron Road to provide detailed information on the socio-economic characteristics of local and regional communities that could be affected by the CEIP.

Social profiling is an important part of the SIA process and provides the basis to:

- understand the social context within which a project is occurring, including the social values and characteristics of potentially affected communities
- scope key elements of the social, economic and cultural environment that may be affected by a project and identify potential socio-economic interactions, including issues and/or opportunities that may be exacerbated or enhanced by a project
- assess and quantify potential social effects, both positive and negative, arising from a project
- estimate the significance of predicted changes to affected communities
- design effective impact and opportunity management strategies
- monitor changes in the existing social environment and social conditions over time.

3.1 Overview of local and regional communities

The Wudinna DC is a rural area covering approximately 5,400 km^2 (ABS 2013a) that encompasses the townships of Wudinna, Warramboo, Kyancutta, Pygery, Yaninee and Minnipa. The district's prime source of income is agriculture-related industries, predominantly cereal cropping, sheep and beef, although tourism and mining are evolving as potential key industries. At the 2011 Census of Population and Housing, the Wudinna DC had a resident population of around 1,250 people (ABS 2012a) – it has experienced population declines over the past three decades, a trend that is forecast to continue (Department of Planning and Local Government 2011). It has a younger age profile than South Australia and, like other DCs in the local study area, a large majority of its residents are Australian born, it has relatively few Aboriginal people, generally low levels of educational attainment and a high labour force participation rate (ABS 2012a).

The township of Wudinna is the main service centre for the district and offers a range of retail, recreation and social services. It has a resident population of approximately 560 people (around 45% of the district's population), but unlike the district, the population is older and there are more women than men; it also has more single-person households, relatively few unoccupied dwellings and higher rents compared to the district as a whole. The long term employee village would be located immediately adjacent to the township of Wudinna, which is approximately 25 km north-west of the proposed mining lease boundary.

The small township of Warramboo is the closest to the proposed mine site, and is located approximately 3 km west of the mine pit and 750 metres (m) west of the proposed mining lease boundary. It offers a range of recreational services and limited business services. The township and surrounding area comprised around 47 people and 30 dwellings at the 2011 Census (ABS 2012b). Compared to Wudinna, the suburb of Warramboo has a younger age profile, more men than women, a higher proportion of families and lower rents.

The DC of Tumby Bay is located on the southern Eyre Peninsula and covers an area of approximately 2,670 km^2. At the 2011 Census, it had a resident population of almost 2,600 residents, with around 60% of the district's population living in the township of Tumby Bay. Other smaller towns include Port Neill, Ungarra and Lipson. Around one-third of people working in the district are employed in the agriculture, forestry and fishing industry sectors, although it has a relatively low labour force participation rate which may be due to its older age profile. Unlike the other DCs in the local study area, it experienced a small population gain in the 2006-2011 intercensal period, a trend which is forecast to continue. It can be characterised as relatively disadvantaged on a number of indicators including income, education, economic resources and housing stress.

Plate 3-1 Farmers' statue in Wudinna

Plate 3-2 Housing in Port Neill

While housing is considered affordable for key public sector workers (BankWest 2011), housing costs are relatively high compared to other DCs, and a relatively large proportion of households (around 7%) pay more than 30% of their household income on housing (ABS 2012c). Nonetheless, in common with other DCs, it can be characterised by its strong community bonds as evidence by the high levels of volunteering, the availability of social and financial support, low crime rate and perceptions of safety (ABS 2012a, Public Health Information Development Unit 2013, Office of Crime Statistics and Research 2013).

The coastal township of Tumby Bay, on the western Spencer Gulf, is the main service centre for the district and is located approximately 30 km south of the proposed port at Cape Hardy (by road). It has a resident population of approximately 1,470 and comprises a large retirement population, the majority of whom are women.

Port Neill is a small coastal holiday town located approximately 40 km north of the township of Tumby Bay and 5 km north of the proposed port site at Cape Hardy, and offers a limited range of retail and community services. At the 2011 Census, it recorded a resident population of 136 people, whose median age was 60 years, and comprised a majority of women. Median housing costs are also high in Port Neill, and over 60% of private dwellings were unoccupied at the 2011 Census. During summer months, the population of Port Neill reportedly rises reflecting its role as a holiday destination.

The DCs of Kimba and Cleve would be traversed by the proposed CEIP infrastructure corridor and the DC of Elliston lies adjacent to the infrastructure corridor. These are predominantly agricultural communities with over 40% of people in the workforce employed in the agriculture, forestry and fishing industry sectors. These areas have an older age profile than South Australia, comprise more men than women, generally have low levels of educational attainment and high labour force participation rates.

The DC of Elliston covers an area of approximately 6,740 km^2 and includes the major township of Elliston, and the smaller township of Lock, which is located approximately 40 km south of the mine (by road). The population of the DC of Elliston at the 2011 Census was around 1,050 people (ABS 2012a) and the township of Lock had 129 people (ABS 2012b).

The DC of Kimba covers an area of approximately 3,984 km^2 and is served by the major township of Kimba, located approximately 100 km from the proposed mine (by road). The population of the DC of Kimba was almost 1,100 people at the 2011 Census.

The DC of Cleve covers an area of approximately 4,500 km^2 and includes the major township of Cleve, which is located approximately 120 km south-east of the mine site (by road), and the smaller township of Darke Peak. The population of the DC of Cleve was around 1,730 people at the 2011 Census. The CEIP infrastructure corridor would traverse a number of agricultural land holdings and be constructed in proximity to a number of small towns and settlements in the DC of Cleve, including Rudall and Verran.

The Eyre region is served by a number of regional centres including the City of Port Lincoln on the Lower Eyre Peninsula, Whyalla and Port Augusta in the Upper Spencer Gulf and Ceduna on the far west coast. By road, Whyalla is approximately 245 km east of the proposed mine site at Warramboo and 200 km north-east of the proposed port facility at Cape Hardy; Port Augusta is approximately 255km east of the mine and 260 north-east of the port; Port Lincoln is approximately 190 km south of the mine site and 80 km south of the port; and Ceduna is approximately 235 km north-west of the mine and 415 km north-west of the port. These regional centres, and other towns and settlements on the Eyre Peninsula, may provide a source of workers, goods or services for the CEIP.

3.2 Socio-demographics

3.2.1 Population and demography

Table 3-1 summarises the population characteristics of the LGAs of Wudinna, Kimba, Elliston, Cleve and Tumby Bay, the Eyre region (which is based on the Eyre Peninsula and South West Statistical Area Level 3 (SA3) as defined by the ABS) and South Australia, and is based on data from the 2006 and 2011 Census of Population and Housing (ABS 2007a, 2012a, 2012b, 2012d and 2013a).

Table 3-1 Population characteristics in local study areas, Eyre region and South Australia, 2011

Census characteristics	Wudinna DC	Kimba DC	Elliston DC	Cleve DC	Tumby Bay DC	Eyre region	South Australia
Population							
Number of usual residents	1,253	1,088	1,046	1,733	2,586	56,396	1,596,572
Number of visitors[1]	103	96	151	105	129	4,039	62,312
Population change 2006-2011[2] (as %)	-4.5	-2.5	-7.7	-8.5	1.8	1.2	5.4
Ratio male: female	51:49	51:49	53:47	52:48	50:50	51:49	49:51
Population density[3] (person/km^2)	0.2	0.3	0.2	0.4	1.0	0.2	1.7
Aboriginal people[4]							
Number (persons)	19	11	18	10	20	3,225	30,431
Proportion of all people (as %)	1.5	1.0	1.7	0.6	0.8	5.7	1.9
Birthplace and language[4]							
Born in Australia (as %)	93.9	91.3	91.0	93.5	91.4	82.9	73.3
Age							
Median age (years)	38	45	43	43	48	39	39
14 years or less (as %)	22.6	19.7	19.4	20.9	17.9	20.4	18.0
15-24 years (as %)	9.1	8.5	10.0	9.2	8.0	12.1	13.1
25-64 years (as %)	53.0	51.9	56.0	51.1	50.1	52.0	52.8
65 years or more (as %)	15.3	20.0	14.5	18.8	24.0	15.5	16.1
Length of residency in 2011 Lived in the same statistical area[5]**:**							
One year ago (2010) (as %)	87.8	87.7	85.1	88.8	87.6	85.3	85.8
Five years ago (2006) (as %)	67.7	76.3	69.9	71.3	65.7	63.2	62.1

Source: ABS 2012a, *Basic Community Profile*, for LGAs of Wudinna, Kimba, Elliston, Cleve; Eyre Peninsula and South West (SA3); and South Australia, unless otherwise indicated.

[1] Visitors from a different Statistical Area Level 2.

[2] Population change is based on place of usual residence at the 2011 Census (ABS 2012a) and 2006 Census of Population and Housing (ABS 2007a, *Basic Community Profile*), for LGAs of Wudinna, Kimba, Elliston, Cleve and South Australia. Population change in Eyre Peninsula and South West (SA3) is based on place of enumeration data (ABS 2012d *Time Series Profile*).

[3] ABS 2013a, *National Regional Profile*, as at 30 June 2011.

[4] Based on ABS 2012c, 'Census Quickstats' for LGAs of Wudinna, Kimba, Elliston, Cleve, Eyre Peninsula and South West (SA3) and South Australia.

[5] Excludes persons less than one year of age in assessing residency one year ago, persons less than five years of age in assessing residency five years ago and not stated.

The DCs share a number of distinctive characteristics in comparison to South Australia, which can be summarised as follows:

- more men than women, particularly within the DCs of Elliston and Cleve
- a low proportion of Indigenous residents, particularly within the DCs of Cleve and Elliston (in contrast to the Eyre region)
- relatively low levels of cultural diversity
- relatively 'stable' populations, with more people living in the same statistical area five years ago.

A characteristic that distinguishes the DCs is their age profile, with Wudinna DC having a lower median age than the other DCs and South Australia as a whole. This is illustrated further in Figure 3-1, which shows the age structure of the DCs in the local study area, in comparison to the Eyre region and South Australia. This highlights the relatively high proportion of children (14 years or less) within the Wudinna DC, while the DC of Elliston has a higher proportion of working aged people (15-65 years) and a lower proportion of seniors (65 years or more). In contrast, the DC of Tumby Bay has the highest proportion of seniors (aged 65 years or more) and the lowest proportions of children (aged 14 years or less) and people of working age (15-65 years).

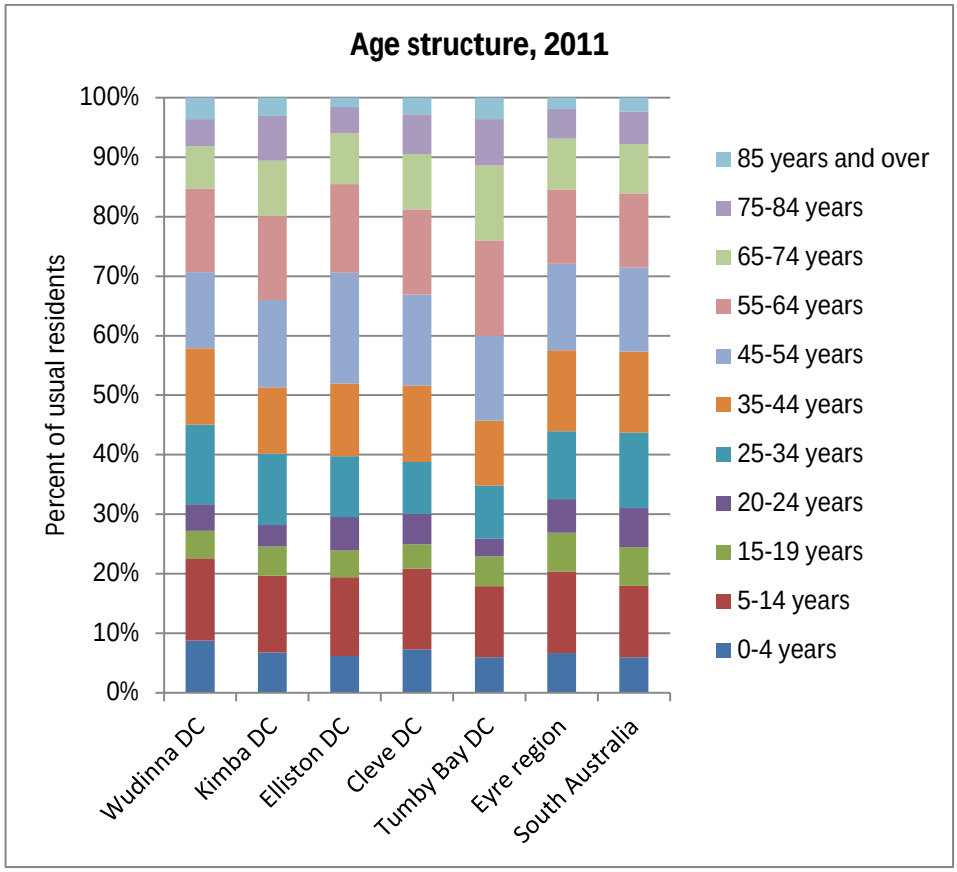


Figure 3-1 Age structure in local study areas, Eyre region and South Australia, 2011
Source: ABS 2012a, *Basic Community Profile*

With the exception of Tumby Bay, the DCs in the local study area experienced population losses between the 2006 and 2011 Census, with the greatest losses occurring within DCs of Cleve and Elliston. In the case of Wudinna and Kimba DCs, this compounds population losses between 2001 and 2006 as illustrated in Figure 3-2. Population change within Wudinna DC (and the former Le Hunte DC) from 1976 to 2016 is shown in Figure 3.3.

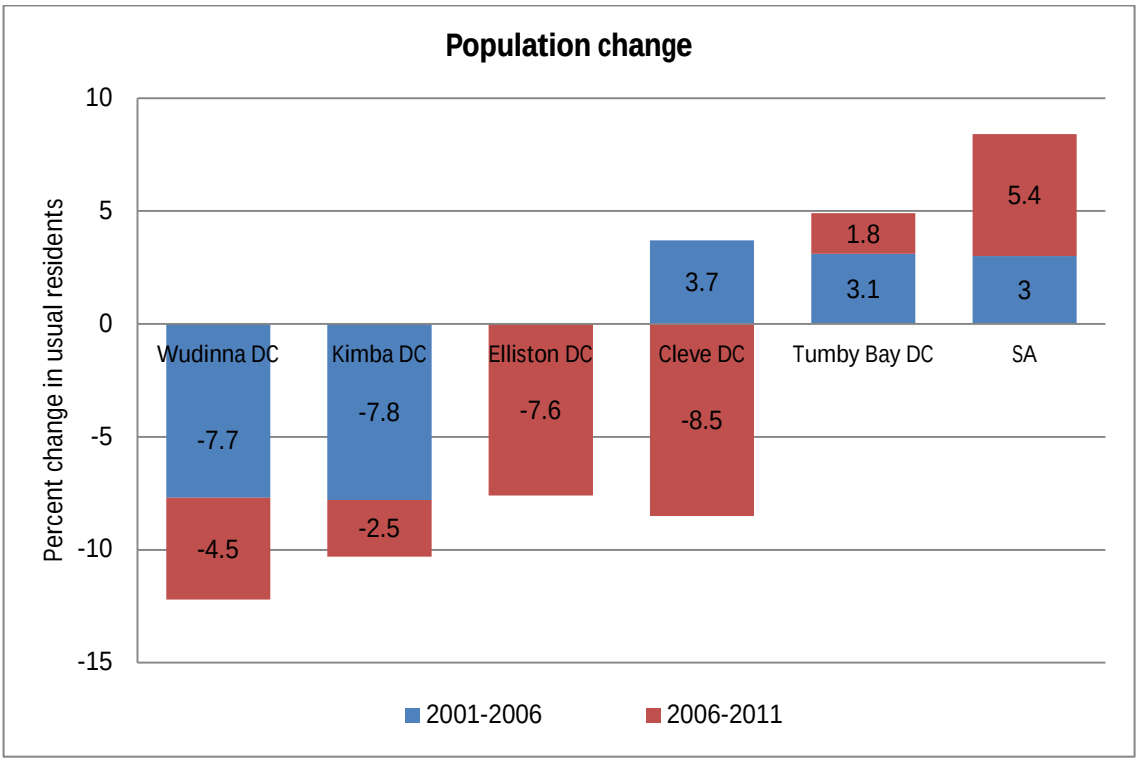


Figure 3-2 Population change in local study areas and South Australia, 2001-2011
Source: ABS 2002, *Usual Residents Profile*, ABS 2007a and 2012a, *Basic Community Profile*

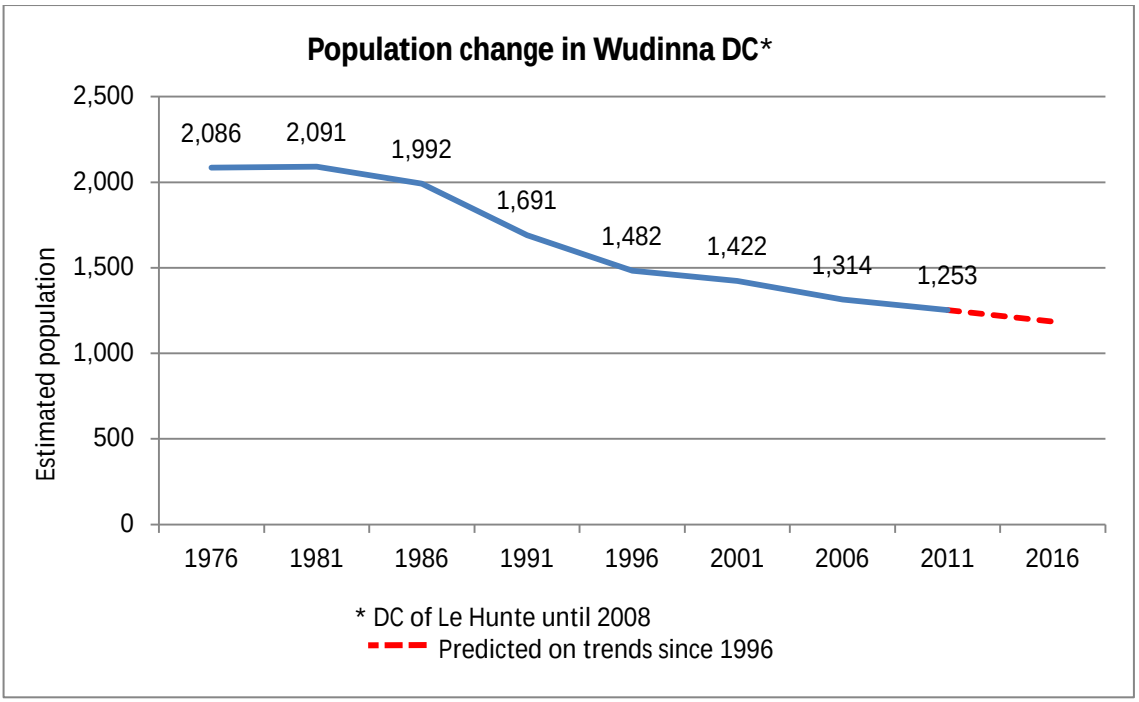


Figure 3-3 Population change in Wudinna DC from 1976 to 2016
Source: ABS Census 1976 to 2011

The declining population in some inland centres and ongoing drift of young people away from regional towns to the metropolitan area has been identified as a challenge for the Eyre region by Regional Development Australia Whyalla and Eyre Peninsula (RDAWEP 2011a).

Table 3-2 details the projected population and population change in the local study areas and the Eyre Statistical Division to 2026, prepared by the Department of Planning and Local Government (2011). As illustrated in Figure 3-4, the population of the local study areas is predicted to continue to decline, except in Tumby Bay. It should be noted that actual population losses (based on Census data) in these DCs is greater than predicted and the actual population gain in Tumby Bay was less than predicted; more current projections are not yet available. The RDAWEP (2011a) has identified the capacity for population growth as one of the strengths and opportunities for the Eyre region.

Table 3-2 Population projections in local study areas and the Eyre Statistical Division, 2006-2026

Estimated resident population at 30 June[1]	2006	2011	2006-2011	2016	2011-2016	2021	2016-2011	2026	2021-2026
	Number	Number	Change (as a %)	Number	Change (as a %)	Number	Change (as a %)	Number	Change (as a %)
Wudinna DC[2]	1,364	1,335	-2.1	1,299	-2.7	1,255	-3.4	1,210	-3.6
Kimba DC	1,163	1,162	-0.1	1,153	-0.8	1,141	-1.0	1,125	-1.4
Elliston DC	1,180	1,189	0.8	1,190	0.1	1,187	-0.3	1,177	-0.8
Cleve DC	1,973	1,983	0.5	1,975	-0.4	1,962	-0.7	1,946	-0.8
Tumby Bay DC	2,644	2,709	2.5	2,752	1.6	2,791	1.4	2,819	1.0
Eyre region	57,214	58,742	2.7	59,842	1.9	60,685	1.4	61,362	1.1

Source: Department of Planning and Local Government 2011, 'Local government area projections 2006 to 2026', medium series.
[1] Based on 2006 data from ABS 2006, *Population by Age and Sex*, South Australia - Electronic Delivery, Catalogue no. 3235.4.55.001.
[2] Reported as Le Hunte DC.

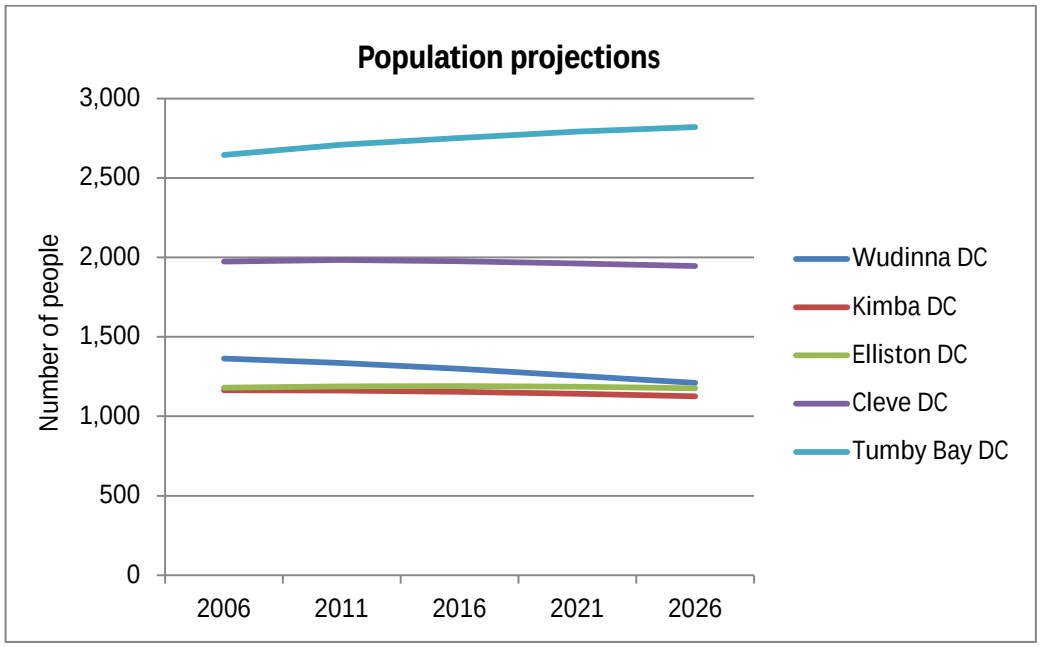


Figure 3-4 Population projections in local study areas, 2006-2026
Source: Department of Planning and Local Government 2011

Table 3-3 summarises the key population characteristics in the local towns (UCLs) of Wudinna and Tumby Bay and the suburbs (SSCs) of Warramboo, Lock and Port Neill. Caution should be taken in interpreting ABS statistics for Warramboo and Lock SSCs, as the suburbs comprises a significantly larger area than the townships alone and should be treated as indicative only. Figure 3-5 shows the age structure in these townships and suburbs.

The townships of Wudinna and Tumby Bay account for a relatively large proportion of the population of their respective DCs and have both experienced population growth since the 2006 Census. At the 2011 Census, the township of Wudinna (UCL) had 557 residents, almost 45% of the population of Wudinna DC, and Tumby Bay (UCL) had 1,475 residents, around 57% of the population of the DC of Tumby Bay. These townships, as well as the smaller township of Port Neill, differ in a number of characteristics from the larger DC area, including their older age profile and higher proportion of women to men. This may be a result of people choosing to move to townships to retire because of the availability of services, aged accommodation or the coastal location. In contrast, the suburb of Warramboo (SSC) had a younger age profile and more men than women compared to Wudinna.

Table 3-3 Key population characteristics of townships and suburbs in the local study area, 2011

Census characteristics	Wudinna (UCL)	Warramboo (SSC)	Lock (SSC)	Tumby Bay (UCL)	Port Neill (SSC)
Number of usual residents	557	300[1]	432[2]	1,474	136
Number of visitors on Census night[3]	59	17	15	88	14
Change in resident population 2006-2012 (as %)	8.6	21.0	49.0	9.0	-10.5
Ratio male: female	48:52	54:46	52:48	48:52	48:52
Age					
Median age	41	36	43	54	60
0-14 years (as %)	19.7	25.5	24.1	15.3	8.8
15-24 years (as %)	10.4	8.0	10.4	7.5	6.6
25-44 years (as %)	23.4	29	23.6	18	9.5
45-64 years (as %)	26.2	27.4	29.7	26.6	43.0
65 years or more (as %)	20.3	10.1	12.2	32.6	32.1

Source: ABS 2007a and 2012a, *Basic Community Profile*, for UCLs of Wudinna and Tumby Bay and SSCs of Warramboo, Lock and Port Neill.

[1] Warramboo and the surrounding area had a resident population of 47 people at the 2011 Census, based on the Mesh Block count for Warramboo (Mesh Block ID 40064060000, Line 7309) (ABS 2012b, *Mesh Block Counts*). Mesh Blocks are the smallest geographic unit used by the ABS for which Census data are available and only include counts of the number of dwellings and number of usual residents.

[2] The township of Lock had a resident population of 129 people at the 2011 Census, based on Mesh Block counts for Lock (Mesh Block IDs 4004937200, 40049371000, 40049260000, 40049340000 and 40049210000) (ABS 2012b, *Mesh Block Counts*).

[3] Visitors from a different SA2.

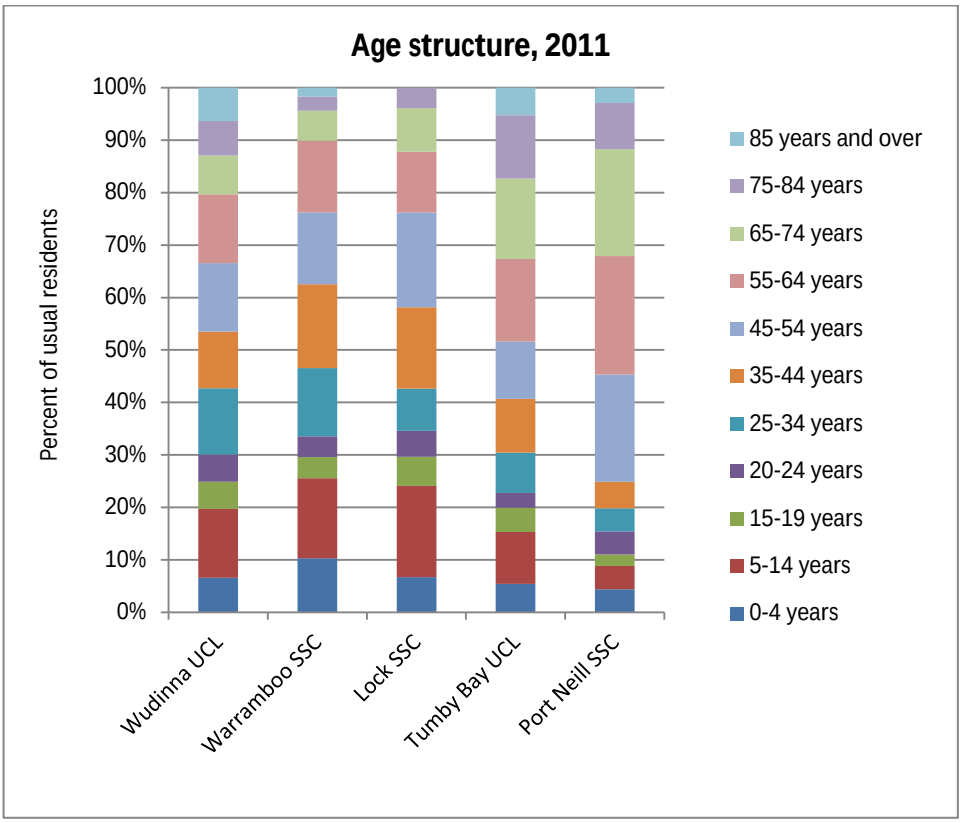


Figure 3-5 Age structure in selected local townships and suburbs, 2011
Source: ABS 2012a, *Basic Community Profile*

Table 3-4 shows the percentage of residents who were counted at home on Census night in the local study area, including local townships and suburbs and the greater Eyre region, in comparison to South Australia. There were fewer residents counted at home in all study areas compared to South Australia and, with the exception of Port Neill, fewer young people were counted at home. With the exception of Cleve and Port Neill, young people were less likely to be counted at home than residents as a whole, which may be as a result of young people leaving the area for education or work.

Table 3-4 Percentage of usual residents counted at home on Census night, 2011

Area	All residents	15-24 year olds
Wudinna DC	92.6	90.4
– Wudinna UCL	92.4	85.5
– Warramboo SSC	91.1	54.3
Kimba DC	90.8	87.2
Elliston DC	90.7	77.1
– Lock SSC	90.6	77.8
Cleve DC	92.1	92.4
Tumby Bay DC	89.9	87.5
– Tumby Bay UCL	88.3	86.1
– Port Neill SSC	80.3	100.0
Eyre region	92.8	91.8
South Australia	95.1	94.2

Source: ABS 2012a, *Basic Community Profile*, for LGAs of Wudinna, Kimba, Elliston, Cleve; Eyre Peninsula and South West (SA3); and South Australia.

3.2.2 Households and families

Table 3-5 compares the characteristics of families and households in the local study areas, the Eyre region and South Australia. Figure 3-6 shows the proportion of different household types in the local study areas, the Eyre region and South Australia.

Table 3-5 Household characteristics in local study areas, Eyre region and South Australia, 2011

Census characteristics	Wudinna DC	Kimba DC	Elliston DC	Cleve DC	Tumby Bay DC	Eyre region	South Australia
Households							
Average household size (persons)	2.4	2.4	2.3	2.3	2.2	2.3	2.4
Family households (as %)	66.9	70.1	65.5	65.9	66.8	67.1	68.5
Single-person (as %)	31.2	27.7	31.7	31.2	31.7	30.2	27.9
Group households (as %)	1.9	2.2	2.8	2.9	1.4	2.6	3.6
Families[1]							
Average children per family	2.0	1.9	1.8	2.0	1.9	1.9	1.8
Couples with children (as %	48.5	44.2	43.8	41.2	36.0	39.5	41.5
Couples without children (as %)	43.3	50.3	47.3	49.3	53.8	42.8	40.6
One-parent families (as %)	5.8	5.2	8.9	8.6	9.1	16.4	16.3

Source: ABS 2012c, 'Census Quickstats', for LGAs of Wudinna, Kimba, Elliston, Cleve; Eyre Peninsula and South West (SA3); and South Australia.

[1] As a percentage of all families. Excludes other family types, so totals may not equal 100%.

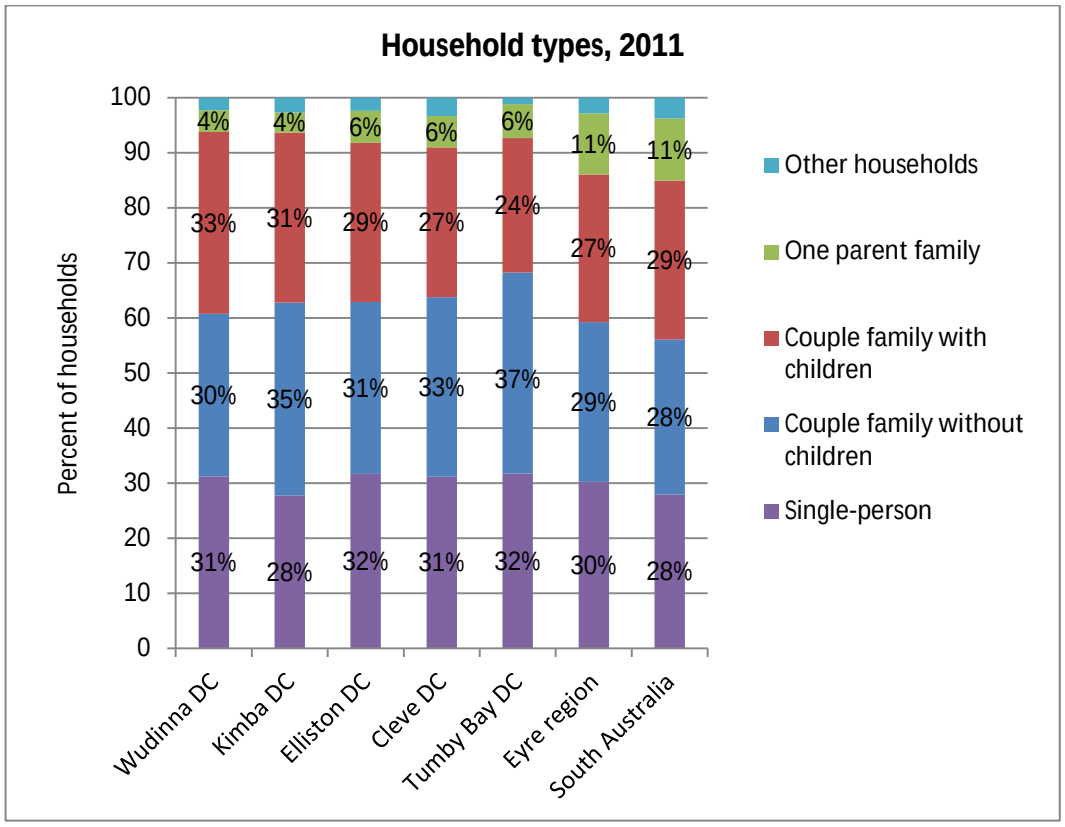


Figure 3-6 Household types in local study areas, Eyre region and South Australia, 2011

Source: ABS 2012c, 'Census Quickstats'

The DCs share a number of household characteristics in comparison to South Australia including:

- a relatively high proportion of single-person households and fewer family households, except in Kimba
- a relatively high proportion of families without children, particularly in Tumby Bay, and a lower proportion of single parent families
- a relatively high average number of children per family (except in Elliston, which has the same average as South Australia).

The characteristics of families that distinguish the DCs are:

- the smaller than average household size, particularly in Tumby Bay, and also in Elliston and Cleve
- the higher proportion of family households and lower proportion of single-person households in Kimba
- the higher proportion of families with children in Wudinna and the lower proportion in Tumby Bay.

The townships of Wudinna, Tumby Bay and Port Neill differ in a number of characteristics from the DC areas at large, and have a smaller average household size, a higher proportion of single-person households and fewer family households. In contrast, the small township and surrounding areas of Warramboo (SSC) have a higher than average household size, more families and fewer single person households.

3.2.3 Income

Table 3-6 compares median weekly income in the local study areas, the Eyre region and South Australia (ABS 2012a). Figure 3-7 shows the proportion of households by weekly income ranges in the local study areas, the Eyre region and South Australia.

Table 3-6 Median weekly income in local study areas, Eyre region and South Australia, 2011

Median weekly income[1] ($)	Wudinna DC	Kimba DC	Elliston DC	Cleve DC	Tumby Bay DC	Eyre region	South Australia
Personal income	$544	$557	$497	$536	$457	$503	$534
Family income	$1,262	$1,365	$988	$1,136	$1,012	$1,224	$1,330
Household income	$973	$1,017	$804	$938	$787	$933	$1,044

Source: ABS 2012b, *Basic Community Profile*, for LGAs of Wudinna, Kimba, Elliston, Cleve; Eyre Peninsula and South West (SA3); and South Australia.

[1] For people aged 15 years and over.

This highlights the relatively low median weekly household incomes in all of the DCs in the study area, particularly in Elliston and Tumby Bay, where there is a relatively high proportion of households on low incomes (less than $600 per week). However, comparatively, the DC of Kimba has higher median personal and family incomes than South Australia and fewer households on low incomes.

Weekly household income in the township of Wudinna (UCL) and the suburbs of Warramboo and Lock were higher than the district as a whole at the 2011 Census, in contrast to the townships of Tumby Bay (UCL) and Port Neill (SSC) where household income were considerably lower than the DC (ABS 2012a).

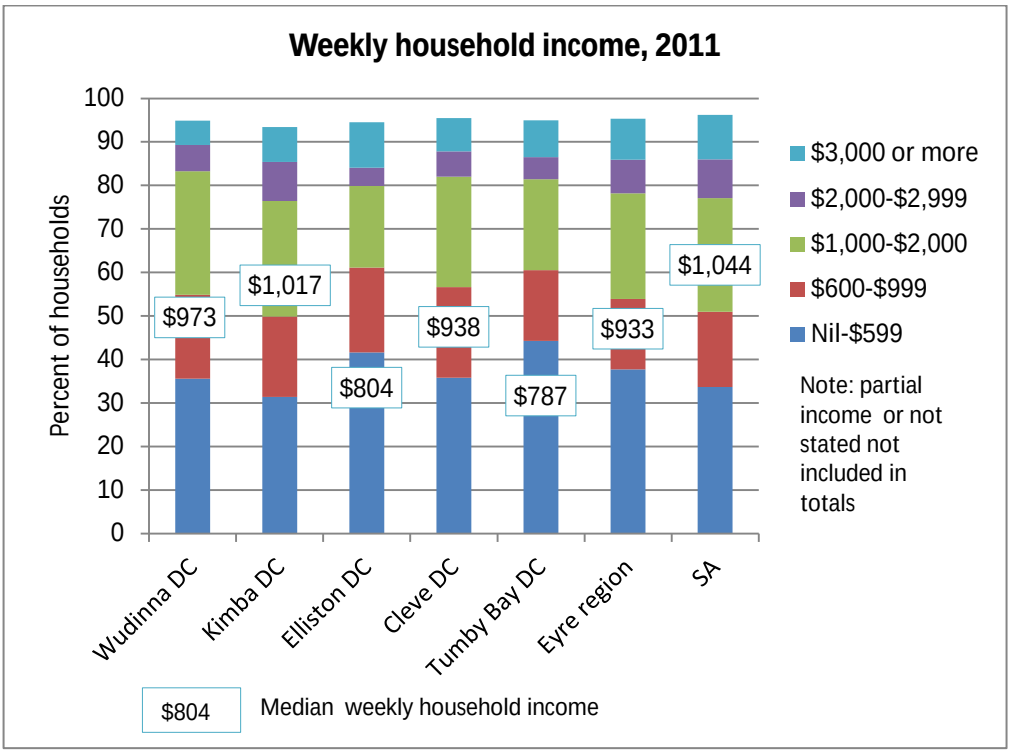


Figure 3-7 Weekly household incomes in local study areas, Eyre region and South Australia, 2011
Source: ABS 2012a, *Basic Community Profile*

3.2.4 Education

The Eyre region has an extensive network of over forty primary and secondary school facilities. The Eyre and Western Multi Trade Training Centre also operates through a consortium of eleven schools (including schools in the townships of Wudinna, Cleve, Kimba, Port Lincoln and Whyalla) to provide trade training opportunities for students.

TAFE SA has major regional campuses at Port Lincoln, Whyalla, Ceduna and Port Augusta, which offer a range of award and short courses, and smaller facilities at Wudinna, Kimba and Cleve (TAFE SA 2013). Tertiary institutions in the region include the University of South Australia's Centre for Regional Engagement in Whyalla (one of two regionally-based university campuses in South Australia), the Flinders University's Lincoln Marine Science Centre at Port Lincoln, and the University of Adelaide's Port Augusta Learning Centre (DEEWR 2013a).

Despite the presence of these facilities, levels of educational participation and attainment are relatively low in the local study areas. Some people may also leave the community to undertake higher education or vocational training, particularly where access to courses is limited in their local area or town (RDAWEP 2011a).

Table 3-7 shows the educational participation and attainment in the local study area, the Eyre region and South Australia at the 2011 Census (ABS 2012a). This highlights the low levels of attendance at an education institution, including at a technical or tertiary institution within the local DCs, and the low levels of educational attainment including Year 12 completion or a non-school qualification.

The lowest levels of educational participation and completion of Year 12 is within the DC of Tumby Bay, and the highest levels of educational attainment (Year 12 and a non-school qualification) are within the Wudinna DC.

Table 3-7 Educational participation in local study areas, Eyre region and South Australia, 2011

Educational participation	Wudinna DC	Kimba DC	Elliston DC	Cleve DC	Tumby Bay DC	Eyre region	South Australia
Attending an educational institution (all people) (as %)	23.9	24.4	23.4	22.4	21.8	27.9	28.7
Attending a tertiary or technical institution[1] (as %)	3.7	1.3	3.6	2.6	2.3	4.0	7.7
Completed Year 12[1] (as %)	36.2	31.7	35.0	35.0	30.7	32.4	44.8
Attained a non-school qualification[1] (as %)	35.4	30.5	32.4	34.7	33.6	35.3	42.0

Source: ABS 2012a, *Basic Community Profile*, for LGAs of Wudinna, Kimba, Elliston, Cleve; Eyre Peninsula and South West (SA3); and South Australia.
[1] People aged 15 years and over.

Table 3-8 shows the educational participation and attainment in the regional cities and similarly highlights the low levels of educational attainment compared to South Australia, particularly in Port Augusta, although there is a relatively high attendance at an educational institution.

Table 3-8 Educational participation in regional cities, 2011

Educational participation	City of Port Lincoln	City of Whyalla	City of Port Augusta	South Australia
Attending an educational institution (all people) (as %)	27.2	29.2	32.1	28.7
Attending a tertiary or technical institution[1] (as %)	4.1	5.0	3.1	7.7
Completed Year 12[1] (as %)	31.9	31.1	23.9	44.8
Attained a non-school qualification[1] (as %)	36.9	36.3	31.4	42.0

Source: ABS 2012a, *Basic Community Profile*, for LGAs of Port Lincoln, Whyalla and Port Augusta.
[1] People aged 15 years and over.

Table 3-9 presents information on enrolments in primary and secondary schools in the local study areas or other townships that may be affected by the CEIP. This shows that student enrolments have generally increased in Wudinna, Cummins and Ungarra over the six year period from 2008 to 2013, were relatively stable in Kimba, but declined in Lock, Cleve, Elliston, Streaky Bay and Karcultaby (with Wharminda Primary School closing in 2009). All schools had relatively small class sizes in 2013 compared to the student teacher average for South Australian government schools; this ratio is affected by a range of factors, including population dispersion, remoteness and special needs students.

Table 3-9 School enrolments and student-teacher ratios in selected townships, 2008 to 2012

School[1]	School enrolments[2]						ICSEA value (2013)[3]	Student teacher ratio (2013)[4]
	2008	2009	2010	2011	2012	2013		
Wudinna Area School	170.3	173.4	175	168	181	177.8	1021	10.8
Lock Area School	97.0	90.8	91.6	77.3	74.8	67	1016	10.0
Karcultaby Area School	72.7	61.2	67.2	68.4	67.3	61.4	1055	7.6
Port Kenny Primary School	14	16	18	22	18	19	1090	9.5
Streaky Bay	266.5	258.3	267.4	240.8	238.5	238.5	1002	11.7
Elliston Area School	77.4	68.8	69.3	62.5	66.0	64.0	993	9.7
Kimba Area School	170.1	169.4	171.4	168.7	172.2	169.4	1026	12.6
Cleve Area School	324.2	326.7	319.4	284	290	294.6	1013	12.5
Cummins Area School	385.4	378.4	376.7	394.9	398.1	399.8	1036	13.6
Cowell Area School	179.9	171.4	182.5	178	180.8	156	1003	10.5
Port Neill Primary School	14	6	11	11	17	14	1031	6.4
Tumby Bay Area School	280.3	278.1	287.6	288.9	293.4	275.6	986	13.4
Ungarra Primary School	25	30	35	31	32	43	1026	10.8

Source: Australian Curriculum, Assessment and Reporting Authority (ACARA) 2013, 'My school'.

[1] All schools are government schools. All Area Schools provide for students from reception to Year 12, and Primary Schools provide for students from Reception to Year 7.

[2] Fulltime equivalent (FTE).

[3] The Index of Community Socio-Educational Advantage (ICSEA) takes account of student family backgrounds (parents' occupation, school education and non-school education) and school-level factors (a school's geographical location and the proportion of Indigenous students) to enable a comparison of schools. The average ICSEA value across Australian schools is 100, with a higher score indicating it is relatively more advantaged.

[4] Student-teacher ratios reported to be 14.9 students per teacher in government primary school, 13.2 per government secondary school and 14.2 for all government schools in South Australia in 2013 (ABS 2014a).

3.3. Housing and accommodation

3.3.1 Housing profile

Table 3-10 summarises the characteristics of private dwellings in the local study areas, the Eyre region and South Australia based on the 2011 Census (ABS 2012a).

Table 3-10 Profile of private dwellings in local study areas, Eyre Peninsula region and South Australia, 2011

Private dwellings[1]	Wudinna DC	Kimba DC	Elliston DC	Cleve DC	Tumby Bay DC	Eyre region	South Australia
All private dwellings							
Total (number)	618	536	769	978	1,485	26,976	702,815
Occupied (as %)	78.3	76.7	55.5	70.2	70.5	81.3	88.1
Average number of bedrooms[2]	3.1	3.0	3.0	3.1	2.9	3.0	3.0
Type of dwelling (as %)[3]							
Separate house	100	97.6	90.9	97.2	91.2	78.5	79.9
Semi-detached, flat, unit	0.0	1.2	1.2	0.6	3.2	15.6	10.7
Other dwelling type	0.0	0.0	5.4	1.6	1.4	1.2	0.5
Not stated	0.0	1.2	0.7	0.6	0.0	0.1	0.1
Tenure (as %)[3]							
Owned or purchasing	68.8	73.7	71.8	73.1	70.7	62.6	68.1
Rented	26.2	22.2	24.4	23.3	25.3	33.7	27.9
Real estate agent	*0.6*	*0.0*	*0.9*	*1.5*	*4.6*	*9.0*	*10.8*
State housing authority	*4.8*	*2.9*	*3.3*	*3.5*	*1.3*	*12.6*	*6.1*
Person not in same household	*14.0*	*11.5*	*13.4*	*11.1*	*13.2*	*7.6*	*7.8*
Housing co-operative/ community/church group	*0.0*	*0.7*	*0.0*	*0.6*	*1.8*	*0.9*	*1.1*
Other landlord type	*4.3*	*3.7*	*3.8*	*4.4*	*2.3*	*2.5*	*1.4*
Landlord type not stated	*2.5*	*2.4*	*3.1*	*2.3*	*2.1*	*1.1*	*0.6*
Other tenure	2.1	3.2	1.6	1.5	0.3	0.8	1.4
Not stated	2.9	2.0	2.1	2.2	3.7	2.9	2.5

Source: ABS 2012a, *Basic Community Profile* for LGAs of Wudinna, Kimba, Elliston, Cleve; Eyre Peninsula and South West (SA3); and South Australia.
[1] Excludes visitor only and other non-classifiable households.
[2] ABS 2012c, 'Census Quickstats' for LGAs of Wudinna, Kimba, Elliston, Cleve; Eyre Peninsula and South West (SA3); and South Australia.
[3] Of occupied private dwellings.

This shows that the local study areas had a relatively high proportion of unoccupied private dwellings in comparison to South Australia (particularly in Elliston), and a high proportion of separate dwellings with the majority being owned or purchased. Of the local study areas, Wudinna DC had fewer unoccupied dwellings, more separate dwellings and more rented dwellings (of which around 50% were rented from a 'person not in same household', but only a small percentage (0.6%) were rented from a real estate agent); and the DC of Elliston had a relatively high proportion of other dwelling types (which can comprise caravans, cabins, houseboats or houses or flats attached to a shop, office or similar) and other tenure types.

In contrast, the Eyre region had a lower percentage of unoccupied dwellings compared to the local study areas, a higher proportion of semi-detached housing, and more rental dwellings, than either the local DCs or South Australia. Of the rental dwellings, almost 40% were rented from a state housing authority, followed by real estate agent and person not in the same household.

Table 3-11 presents information on private dwellings in local townships and suburbs that may be directly affected by the CEIP Mine or the port. Please note, suburb data for Warramboo and Lock extends beyond the township areas, and should be regarded as indicative only.

A large proportion (85%) of private dwellings in Port Neill were owned or being purchased and over 65% were unoccupied at the 2011 Census - this may be because they are holiday homes. In contrast, only around 10% of private dwellings were unoccupied in the township of Wudinna and a high percentage were rented. Comparatively, the township of Tumby Bay had a high proportion of semi-detached housing, which comprise some aged care accommodation and holiday rentals.

Table 3-11 Profile of private dwellings in local townships and suburbs in the local study area, 2011

Private dwellings[1]	**Wudinna (UCL)**	**Warramboo (SSC)**	**Lock (SSC)**	**Tumby Bay (UCL)**	**Port Neill (SSC)**
Total (number)	246	145[2]	228[3]	832	177
Number of unoccupied dwellings (and as %)	24 (9.8%)	37 (25.5%)	64 (28.1%)	196 (23.6%)	118 (66.7%)
Average number of bedrooms	3.1	3.2	3.2	2.8	2.8
Type (as %)[4]					
Separate house	100.0	100.0	95.7	86.0	89.8
Semi-detached, flat, unit	0	0	2.4	11.9	5.1
Other/not stated	0	0	1.8	2.1	5.1
Tenure (as %)[3]					
Owned or purchasing	64.1	70.3	69.3	66.8	85.0
Rented	32.3	24.3	28.8	28.0	15.0
Real estate agent	*2.2*	*0.0*	*1.8*	*6.0*	*5.0*
State housing authority	*9.4*	*0.0*	*4.3*	*2.0*	*0*
Person not in same household	*16.1*	*17.1*	*15.3*	*13.2*	*10.0*
Housing co-operative/ community/church group	*0.0*	*0.0*	*0.0*	*3.0*	*0.0*
Other landlord type	*3.1*	*4.5*	*1.8*	*2.2*	*0.0*
Landlord type not stated	*1.3*	*2.7*	*5.5*	*1.6*	*0.0*
Other tenure	2.2	2.7	1.8	0.5	0.0
Not stated	1.3	2.7	0.0	4.7	0.0

Source: ABS 2012a, *Basic Community Profile*, for UCL of Wudinna and Tumby Bay and State Suburbs (SSCs) of Warramboo, Lock and Port Neill.

[1] Excludes visitor only and other non-classifiable households.

[2] Warramboo and the surrounding area had 30 dwellings at the 2011 Census, based on the Mesh Block count (ABS 2012b).

[3] The township of Lock had 73 dwellings at the 2011 Census, based on Mesh Block counts (ABS 2012b).

[4] Of occupied private dwellings.

Table 3-12 presents information on private dwellings in the regional cities of Port Lincoln, Whyalla and Port Augusta. In comparison to South Australia, there were fewer separate houses and more semi-detached houses in Whyalla and Port Lincoln; fewer houses were owned or being purchased in the regional cities and there was more rental housing, with a high proportion of housing being rented from a State housing authority in Whyalla.

Table 3-12 Profile of private dwellings in regional cities, 2011

Private dwellings[1]	Port Lincoln	Whyalla	Port Augusta	South Australia
All private dwellings				
Total (number)	6,318	10,079	5,971	702,815
Occupied (as %)	87.3	88.7	84.2	88.1
Average number of bedrooms[2]	2.9	3.0	3.0	3.0
Type of dwelling (as %)[3]				
Separate house	75.7	67.5	86.6	79.9
Semi-detached, flat, unit	23.5	32.1	12.4	10.7
Other	0.8	0.4	0.9	0.5
Not stated	0.0	0.0	0.1	0.1
Tenure (as %)[3]				
Owned or purchasing	59.6	58.1	59.6	68.1
Rented	36.1	39.0	36.1	27.9
Real estate agent	*12.9*	*11.3*	*12.9*	*10.8*
State housing authority	*10.8*	*21.1*	*10.8*	*6.1*
Person not in same household	*9.2*	*3.9*	*9.2*	*7.8*
Housing co-operative/ community/church group	*0.6*	*0.3*	*0.6*	*1.1*
Other landlord type	*1.9*	*1.9*	*1.9*	*1.4*
Landlord type not stated	*0.7*	*0.5*	*0.7*	*0.6*
Other tenure	0.9	0.3	0.9	1.4
Not stated	3.4	2.6	3.4	2.5

Source: ABS 2012a, *Basic Community Profile* for LGAs of Wudinna, Kimba, Elliston, Cleve; Eyre Peninsula and South West (SA3); and South Australia.
[1] Excludes visitor only and other non-classifiable households.
[2] ABS 2012c, 'Census Quickstats' for LGAs of Wudinna, Kimba, Elliston, Cleve; Eyre Peninsula and South West (SA3); and South Australia.
[3] Of occupied private dwellings.

3.3.2 Housing supply

Table 3-13 presents information on the rental vacancy rate in the Eyre region, Upper Spencer Gulf (including Whyalla, Port Augusta and Port Pirie) and Regional South Australia over six quarters from March 2012 to March 2014. Rental vacancy rates in the March Quarter 2013 in all regions were above 5%, an increase from the previous two quarters. The vacancy rate provides an indication of the availability of rental housing and the capacity of the housing rental market to absorb increased demand, with a vacancy rate of three percent 'generally accepted as the market being in balance' (Housing Industry Prospects Forum 2013).

Table 3-13 Rental vacancy rate in the Eyre region and Upper Spencer Gulf

	Eyre	Upper Spencer Gulf	Regional South Australia
March Quarter 2012	6.0%	3.2%	4.4%
June Quarter 2012	2.7%	2.9%	3.7%
September Quarter 2012	3.7%	2.2%	4.0%
December Quarter 2012	5.0%	3.6%	3.7%
March Quarter 2013	5.6%	6.7%	5.2%
March Quarter 2014	5.9%	8.7%	na

Source: Real Estate Institute of South Australia 2012a, 2012b, 2012c, 2013a, 2013b and 2014a, 'Market Update: Vacancy Rates'.

Table 3-14 presents information on building approvals for residential dwellings (houses and other residential dwellings) in local study areas, regional cities, the Eyre region and South Australia from 2009-2010 to 2013-2014 (ABS 2012e, 2013b and 2014b). The Eyre region accounts for almost 4% of the State's total building approvals, with the highest number of approvals in the previous two years occurring in the City of Whyalla. Of the local DCs, Tumby Bay had the most approvals.

Table 3-14 Building approvals in local and regional study areas and South Australia, 2009-2010 to 2012-2013

Houses and other residential dwellings	2009-2010	2010-2011	2011-2012	2012-2013	2013 to end March 2014
Wudinna DC	0	4	1	5	4
Kimba DC	3	3	4	0	1
Elliston DC	3	9	8	7	2
Cleve DC	5	5	5	2	4
Tumby Bay DC	24	26	16	14	17
City of Port Lincoln	100	54	47	45	55
City of Port Augusta	60	46	61	59	64
City of Whyalla	83	37	80	140	121
Eyre[1]	300	227	204	343	302
South Australia	12,560	11,387	6,740	8,777	6,217

Source: ABS 2012e, 2013b and 2014, *Building approvals* for 2009-2010, 2010-2011, 2011-2012, 2012-2013 and March 2014
[1] Eyre and South West region in 2012-2013 and 2013-March 2014

The RDAWEP (2103) has noted the growth in coastal sections of the Eyre region, accelerated by the 'sea change' phenomenon, which has resulted in new housing construction, particularly in the coastal towns of Ceduna, Coffin Bay, Port Lincoln, Streaky Bay, Tumby Bay and Whyalla. The Housing Industry Prospects Forum (2013) also noted that coastal living remains the preferred 'sea change' destination, most notably on the Yorke Peninsula and 'copper coast'.

The RDAWEP anticipate future industrial and mining developments on the Eyre Peninsula will create a demand for more affordable, quality and specialist housing in both the private and public sector to accommodate:

- professional and medical workforces in the larger regional centres of Whyalla, Port Lincoln and Ceduna
- ageing residents and retirees
- students – particularly in Whyalla
- disadvantaged residents – particularly Aboriginal people in Ceduna, Whyalla, Port Lincoln and the Far West
- workforces at towns impacted by mining and industrial development such as Kimba, Cowell, Lucky Bay, Tumby Bay, Lock, Port Neill, Wudinna and Whyalla.

The Eyre Peninsula Coastal Development Strategy outlines a vision for the development of the Eyre Peninsula coast and recognises the need to protect the coast and maintain the area's culture and character while supporting appropriate growth and economic development opportunities from tourism, aquaculture and mining (Eyre Peninsula Local Government Association 2007).

The DC of Tumby Bay has initiated the preparation of structure plans for Tumby Bay and Port Neill, in recognition of the potential demographic changes and pressures for township growth that may occur in the short to medium term. These documents present the policy settings and spatial options to deal with a range of growth scenarios, to ensure an adequate supply of appropriately zoned land is available in advance of demand.

The *Port Neill Sustainable Future Structure Plan Consultation Report* (DC of Tumby Bay 2013c) has been prepared for further consultation with the community and key stakeholders. The development options presented in the plan provide for allotment yields of between 50 and 825 m^2 – with the total number of allotments providing for a potential population increase in Port Neill in excess of 1,500 people, which represents more than a ten-fold increase on the current permanent population.

The *Tumby Bay Sustainable Future Structure Plan: Interim Report* (DC of Tumby Bay 2013d) provides for a range of growth scenarios, ranging from 1% (where limited additional economic activity occurs), 1.8% (based on the growth experienced between 2001 and 2006), 3% (a high growth rate) and 6% (considered unlikely, but assuming a surge in growth as a result of a 'massive expansion' in the resources industry). This would result in population growth of between 661 and 3,836 people by 2046, and require between 367 and 2,146 new dwellings (based on an average household size of 1.8), 287 to 1,679 dwellings (based on an average household size of 2.3) and 236 to 1,379 dwellings (based on an average household size of 2.8).

3.3.3 Housing costs

Table 3-15 outlines the median housing costs in local and regional study areas and townships, the Eyre region and South Australia, based on the 2011 Census (ABS 2012a). This highlights the higher rental costs in Port Lincoln, Port Neill and Tumby Bay compared to the Eyre region and the low rental costs in Warramboo and Lock.

Table 3-15 Median housing costs in local and regional study areas and townships, Eyre region and South Australia, 2011

Area	Median weekly rent ($)	Median monthly housing loan repayment ($)
Wudinna DC	84	758
– Wudinna UCL	110	758
– Warramboo SSC	30	542
Kimba DC	85	575
Elliston DC	45	1,083
– Lock SSC	50	1,451
Cleve DC	85	733
Tumby Bay DC	150	1,200
– Tumby Bay UCL	160	1,300
– Port Neill SSC	175	1,517
Port Lincoln LGA	180	1,300
Whyalla LGA	150	1,300
Port Augusta LGA	150	1,200
Eyre region	130	1,300
South Australia	220	1,500

Source: ABS 2012c, 'Census Quickstats' for LGAs of Wudinna, Kimba, Elliston, Cleve; UCLs of Wudinna and Tumby Bay; State Suburbs (SSCs) of Warramboo, Lock and Port Neill; Eyre Peninsula and South West (SA3); and South Australia.

This is also illustrated in Figure 3-8, which shows changes in median rental costs (on new bonds lodged with the South Australian Residential Tenancies Tribunal) in the March quarter from 2010 to 2014 in regional cities, compared to the Eyre and Western region, Regional South Australia and South Australia. This shows a small decline in median rents in most areas (most notably in Port Augusta) from the March Quarter (Q1) 2013 to Q1 2014, except Regional South Australia, which saw modest gains. Rental costs in the local study areas and townships were more variable from 2010 to 2014, with the largest decline in Wudinna DC in the previous year.

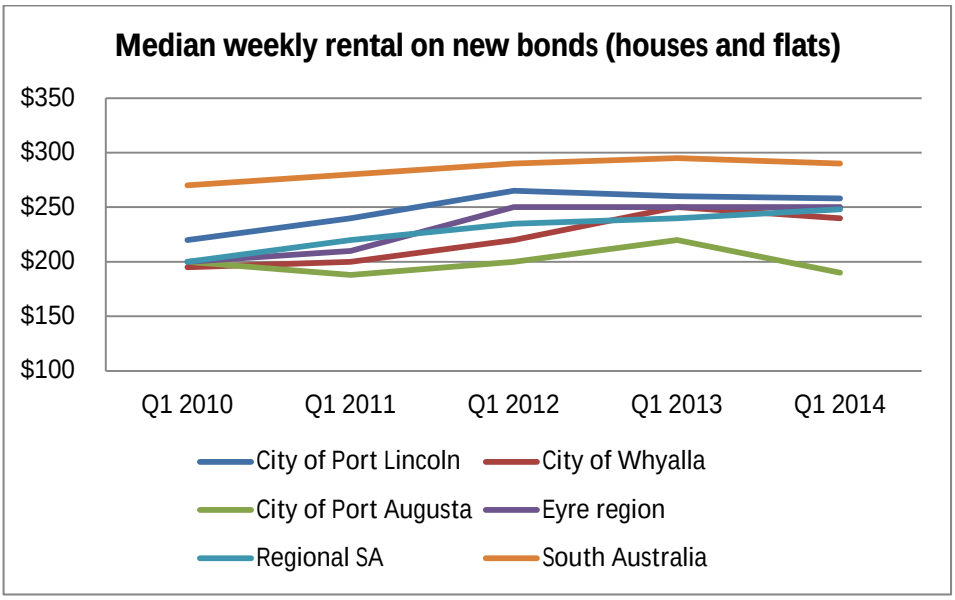


Figure 3-8 Median weekly rental costs, March quarter
Source: Housing SA 2013a, 2013b and 2014

Table 3-16 provides information on the number of house sales and the median house sales price in regional cities in the March quarter (Q1) of 2012, 2013 and 2014 and points to some variability in sales prices over this period. While there were increases in the median house sales price in Whyalla and Port Lincoln from Q1 2012 to 2014, there were decreases in Port Lincoln and Port Augusta between Q1 2013 and 2014.

Table 3-16 House sales and median sales price in regional cities, Regional South Australia and South Australia

Regional town	Sales Q1 2012	Median price Q1 2012	Sales Q1 2013	Median price Q1 2013	Sales Q1 2014	Median price Q1 2014	Median change in price Q1 2013-2014
Port Augusta	35	$246,750	19	$250,000	35	$195,000	-22.0%
Port Lincoln	53	$283,000	39	$320,000	62	$300,500	-4.7%
Whyalla	44	$280,000	50	$267,950	40	$310,000	15.7%
Regional SA	370	$259,000	355	$260,000	na	$275,000	5.8%
South Australia	4,833	$358,000	4,752	$360,000	na	375,000	3.6%

Source: Real Estate Institute of South Australia 2013b and 2014b, 'Market Update: Sales Results'.

Figure 3-9 compares the median sales price of houses in local and regional study areas in 2012, including local townships, regional cities and the Eyre region (defined by the State Valuation Office as including the local study areas and LGAs of Streaky Bay, Ceduna, Lower Eyre Peninsula and Port Lincoln) (State Valuation Office 2013). This highlights the relatively high housing sales price in the LGAs of Tumby Bay (and the townships of Tumby Bay and Port Neill) and Port Lincoln, compared to other local and regional study areas.

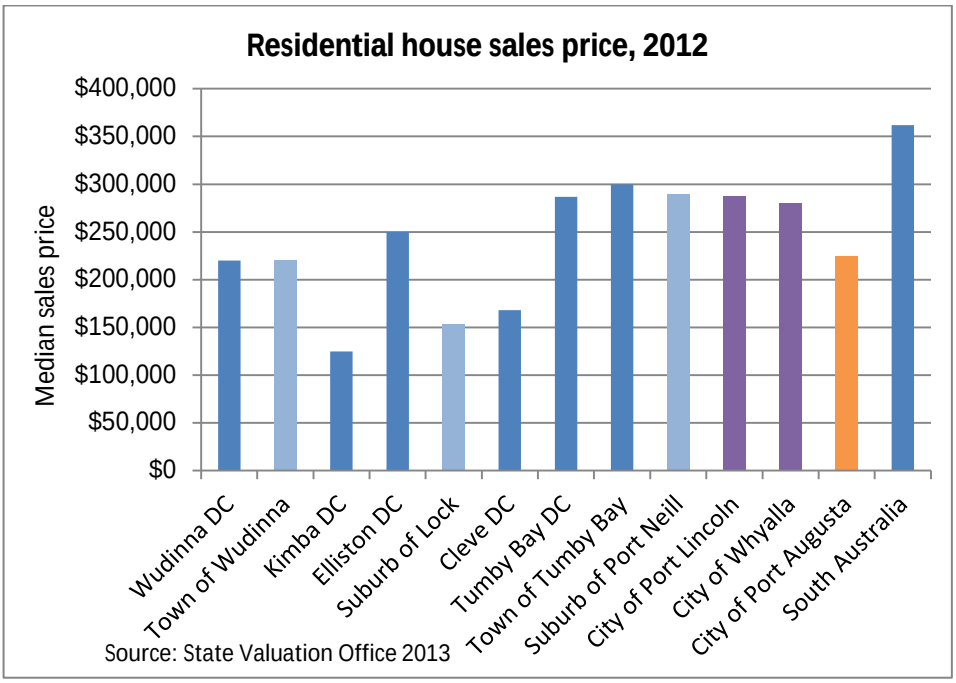


Figure 3-9 Median house sales price in 2012
Source: State Valuation Office 2013

Table 3-17 provides an indication of housing stress in the local study areas, the Eyre region and South Australia as measured by expenditure on housing as a proportion of household income at the 2011 Census (ABS 2012c). Households that spend more than 30% of their income on housing costs are considered to experience housing stress. This suggests a low proportion of households are paying 30% or greater of household income on rent (although this proportion is higher in the DC of Tumby Bay than other local study areas), or on mortgage repayments (although this proportion is higher in the DCs of Elliston and Tumby Bay than other local study areas). The Eyre Peninsula region also has lower levels of housing stress than South Australia, although this is closer to the South Australian average, particularly for rental housing.

Table 3-17 Household expenditure on housing in local study areas, Eyre region and South Australia, 2011

Household expenditure[1]	Wudinna DC	Kimba DC	Elliston DC	Cleve DC	Tumby Bay DC	Eyre region	South Australia
Rent is 30% or greater of income (as %)	2.0	1.0	2.7	2.6	7.3	8.2	9.3
Mortgage payments is 30% or greater of income (as %)	1.9	1.0	6.4	4.2	6.2	6.1	8.8

Source: ABS 2012c, 'Census Quickstats', for LGAs of Wudinna, Kimba, Elliston, Cleve;, Eyre Peninsula and South West (SA3); and South Australia.
[1] ABS has advised that the method of calculation may overstate the true proportion.

The Key Worker Housing Affordability Report prepared by BankWest (2011) tracks housing affordability for five groups of key public sector workers (ie nurses, teachers, police officers, fire-fighters and ambulance officers). Housing affordability is measured by the house price to worker earnings ratio, and is considered unaffordable when the house price to earnings ratio is 5.0 or above.

Table 3-18 provides information on the house price to worker earnings ratio for key workers in the local study areas and regional cities (BankWest 2011). This shows that each of the local study areas, as well as the regional cities of Port Lincoln, Whyalla and Port Augusta, were affordable for key public sector workers in 2010 and in preceding years, although the DC of Tumby Bay and the City of Port Lincoln were relatively less affordable.

Table 3-18 House price to earnings ratio for key workers[1]

Local Government Areas	2005	2009	2010
Wudinna	**1.3**	**1.5**	**1.6**
Kimba	**1.2**	**1.4**	**1.5**
Elliston	**2.9**	**2.9**	**2.9**
Cleve	**2.0**	**2.4**	**2.2**
Tumby Bay	**3.1**	**3.7**	**3.6**
Port Lincoln	**3.5**	**3.6**	**3.5**
Whyalla	**2.0**	**2.9**	**2.6**
Port Augusta	**2.1**	**2.9**	**2.6**

Source: BankWest 2011, 'Key Worker Housing Affordability Report'.
[1] Wudinna is reported as Le Hunte in the BankWest report.

3.3.4 Short-term visitor accommodation

A range of visitor accommodation is available across the Eyre Peninsula. Table 3-19 presents information on hotels, motels and serviced apartments (of 15 or more rooms) in the Eyre Peninsula Tourist Region, based on results from the March Quarter 2013 Survey of Tourist Accommodation (ABS 2013c). In total, there were 26 hotels, motels and serviced apartments with 15 or more rooms in the Eyre Peninsula Tourist Region which had an average occupancy rate of approximately 50% in the March quarter 2013. Whyalla and Port Lincoln had the largest number of establishments and Port Lincoln had the highest occupancy rate (ABS 2013c).

Table 3-19 Tourist accommodation in the Eyre Peninsula Tourist Region in the March Quarter 2013

	Ceduna	Kimba - Cleve - Franklin Harbour	Wudinna - Elliston[1]	Port Lincoln	West Coast	Whyalla	Total Eyre Peninsula Tourist Region
Establishments (number)	**5**	**3**	**2**	**5**	**3**	**8**	**26**
Rooms (number)	**191**	**na**	**na**	**228**	**91**	**356**	**987**
Persons employed (number)	**116**	**na**	**na**	**257**	**62**	**226**	**732**
Room occupancy rate (%)	**38.5**	**na**	**na**	**71.9**	**43.2**	**57.4**	**54.6**
Average length of stay (days)	**1.2**	**na**	**na**	**1.7**	**1.6**	**2.1**	**1.7**

Source: ABS 2013c, *Tourist Accommodation, Small Area Data, South Australia, March 2013*. Hotels, motels and serviced apartments with 15 rooms or more.
[1] Wudinna is reported as Le Hunte.

Figure 3-10 shows the seasonal variation in room occupancy rates (for hotels, motels and serviced apartments with 15 rooms or more) from April 2012 to March 2013 in the regional centres (LGAs) of Whyalla, Port Lincoln and Ceduna, Eyre Peninsula Tourist Region in comparison to South Australia. (Data is not available for Port Augusta).

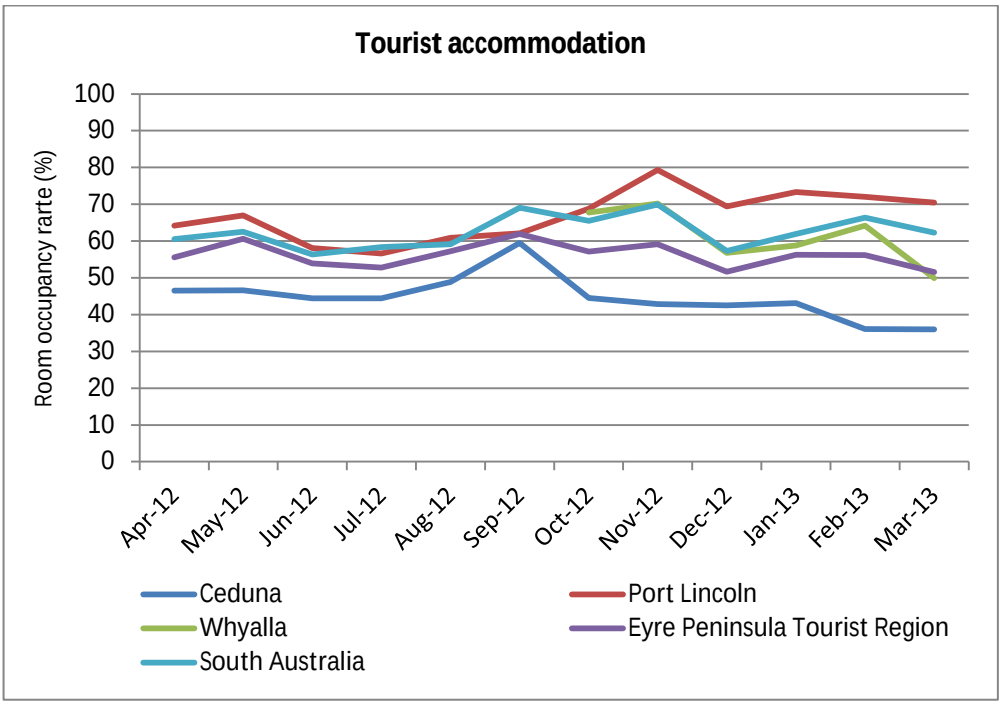


Figure 3-10 Monthly room occupancy rates in tourist accommodation in regional centres, Eyre Peninsula Tourist Region and South Australia, April 2012 to March 2013
Source: ABS 2012f, 2013c, 2013d and 2013e, *Tourist Accommodation, Small Area Data, South Australia*.

Table 3-20 compares tourist accommodation in the Eyre Peninsula Tourist Region in the March Quarter from 2009 to 2013. This shows that despite a decrease in the number of establishments of 15 rooms or more over time, there has been an increase in the number of available rooms, employment, occupancy and length of stay.

Table 3-20 Tourist accommodation in the Eyre Peninsula Tourist Region in the March Quarter

March quarter	Number of establishments	Number of rooms	Number of people employed	Room occupancy (%)	Average length of stay (days)
2013	26	987	732	54.6	1.7
2012	26	939	706	54.0	1.7
2011	26	931	690	57.7	1.7
2010	27	930	695	51.9	1.6
2009	28	933	671	53.7	1.6

Source: ABS 2009, 2010, 2011a, 2012g, 2013e, *Tourist Accommodation, Small Area Data, South Australia, March Quarter* for the Eyre Peninsula Tourist Region, 2009 to 2013. Hotels, motels and serviced apartments with 15 rooms or more.

Table 3-21 describes the visitor accommodation that is available in the townships of Wudinna, Lock, Warramboo, Port Neill and Tumby Bay which are the locations most likely to accommodate a short-term workforce for the CEIP.

Table 3-21 Visitor accommodation in selected local townships

Visitor accommodation	Detail
Wudinna	
Gawler Ranges Motel and Caravan Park 72 Eyre Highway (Source: Gawler Ranges Motel and Caravan Park 2013)	Standard and economy accommodation with fully licensed restaurant and bar, outdoor eating area, indoor pool and heated spa. Caravan park has 50 sites, 35 with power, including cabins, on-site vans and tent sites.
Wudinna Hotel Motel, 15-17 Burton Terrace (Source: Wudinna Hotel Motel 2013)	Includes five self-contained cabins and 21 motel units, plus three hotel rooms.
Lock	
Boomerang Motel, 3 Warramboo Road (Source: Boomerang Hotel 2013)	Nine rooms, which are a mix of double, twin and triples.
Cape Hardy	
Cowleys Beach camping ground Formerly known as Cape Hardy Beach (Source: Australian Campsites 2013)	Free open area on a gravel surface for camping or caravans; beach access; no shade or amenities.
Lipson Cove	
Lipson Cove camping ground (DC Tumby Bay (2013a), Australian Camp sites (2013)	Open area for camping or caravans; public toilets; scenic views; beach access
Port Neill[1]	
Port Neill Caravan Park, Peake Terrace (Source: Port Neill Caravan Park 2013)	47 powered sites and 16 unpowered sites (gravelled and grassed sites); 5 cabins and a villa; and a bunk house (sleeps 2-4 people).
Tumby Bay[1]	
Tumby Bay Marina Motel, Berryman Street (Source: Tumby Bay Marina Motel 2013)	10 deluxe units and one family unit, licensed, with swimming pool and BBQ.
Tumby Bay Hotel and Apartments North Terrace (Source: Tumby Bay Hotel and Apartments 2013)	Single, twin, double and family rooms in the hotel and four, two story, fully self-contained seafront apartments.
Seabreeze Hotel, Tumby Terrace (Source: Seabreeze Hotel 2011)	Ensuite or hotel style accommodation.
Tumby Bay Caravan Park, Tumby Terrace (Source: Tumby Bay Caravan Park 2013)	14 air conditioned ensuite cabins and 86 powered sites – grassed shady, pebbled and drive-through.
Tumby Bay RTV Park, Lipson Street (Source: District Council of Tumby Bay 2013)	Parking area for self-contained vehicles only, run by the Community Pride Group of Tumby Bay.

[1] A range of holiday rentals are also available.

3.4. Economy and labour

3.4.1 Economic overview

The dominant industries in the Eyre region are agriculture, fishing, aquaculture and manufacturing, with tourism, mining and renewable energy emerging as growth sectors.

There are a number of organisations in the region that have responsibility for economic development, notably the RDAWEP. The RDAWEP covers 11 LGAs and provides a range of services to the community, industry and business sectors, government and non-government agencies and others, including regional development, support for Indigenous economic development, employment and training, and business advice and assistance.

The following overview of the economy of the Whyalla and Eyre region is based largely on information from the RDAWEP (2011a, 2011b and 2013) and the former Department for Manufacturing, Innovation, Trade, Resources and Energy (DMITRE 2013a, 2013b and 2013c).

Current major business-related activity in the Eyre region is varied:

- Agriculture and pastoral activities include cereal cropping and livestock production, with the region producing around 42% of South Australia's total agriculture output (RDAWEP 2013). While the agriculture industry is reliant on seasonal conditions, its total value is over $450 million (RDAWEP 2011b).
- Fishing and aquaculture accounts for approximately 77% of South Australia's seafood produce, including tuna, prawn, rock lobster, oysters, mussels and abalone. The direct output of aquaculture is estimated to inject around $277 million into the regional economy (RDAWEP 2011b), with existing aquaculture and hatcheries at Port Augusta, Port Lincoln, Coffin Bay, Smoky Bay and Denial Bay (40 km south and 10 km west of Ceduna respectively), Franklin Harbour, Louth Bay (between Port Lincoln and Tumby Bay), Arno Bay and Whyalla.
- Tourism is based on a diverse range of outdoor, coastal and nature based visitor experiences and premium seafood products (see Section 3.4.5 for further details); it is estimated to contribute over $270 million per annum to the regional economy from around 700 businesses and directly employs around 2,000 people (RDAWEP 2011b and 2013).
- Mining and processing is estimated to contribute approximately $159 million to the gross state product (RDAWEP 2011b). Approved mines and developing projects in the Eyre region are shown on Figure 3-11 and include the following (DMITRE 2013a and 2013b):
  - Arrium (formerly One Steel) operates a number of open-cut mines in the Middleback Ranges, on the north west Eyre Peninsula, including the new Iron Chieftain mine. It is also progressing the Hematite Expansion Project in the Middleback Ranges to reinstate mining and processing operations at Iron Knob and Iron Baron and is continuing its program of exploration and optimisation at existing tenements, including extension drilling at the Iron Monarch, Iron Princess and Iron Duchess North mines.
  - Iluka Resources' mineral sands mines at Jacinth and Ambrosia are located in the state's Far West, at Eucla Basin, with new deposits found at Tripitaka, Sonoran, Atacama and Typhoon (these are developing projects).
  - Gypsum Resources Australia's gypsum production is located at Lake Macdonnell, about 65 km west of Ceduna.
  - IronClad Mining and Trafford Resources Wilcherry Hill Project is located 30 km north of the township of Kimba. The proposed open cut iron ore mine has been approved by Government but has not commenced operation.
  - Centrex Metals Wilgerup Project is located 30 km south east of the township of Lock on central Eyre Peninsula. The hematite mine has been approved by Government but has not commenced operation.
  - Other developing mining projects include: Centrex Metals' Bungalow iron-ore magnetite project, 10 km north of Cowell; Eyre Iron's Fusion Magnetite Project near Tumby Bay; Lincoln Minerals' Gum Flat project, approximately 20 km from Port Lincoln; Terramin Australia's Menninnie Dam lead, zinc and silver project approximately 45 km north of Kimba; Minotaur Exploration Poochera Kaolin deposit near Streaky Bay; Uranium SA's Samphire Project, approximately 20 km south-west of Whyalla; Valence Industries Uley Graphite Project, approximately 23 km south west from Port Lincoln; and Investigator Resources Paris silver prospect, 70 km west of Kimba.
- Cheetham Salt produces salt at Lake MacDonnell (west of Ceduna).
- Olsson's Pacific Salt produces salt at Whyalla.
- Energy developments include (DMITRE 2013c):
  - Two power projects by ElectraNet. These are the Cultana augmentation, which will expand the 275/132 kV Cultana substation and lines that feed the Eyre Peninsula region and the Whyalla Terminal Substation Replacement, which will deliver increased 132/33 kV transformer capacity to the substation and reconfigure the network and move some existing functions to the Cultana substation. A number of other energy projects on the Eyre Peninsula are also under consideration by ElectraNet.

- Renewable energy developments include the Lincoln Gap Windfarm near Port Augusta, with a number of other major windfarm proposals also under consideration. Several solar and hydro-thermal pilot initiatives are also being progressed including the Wave Energy Converter Pilot Plant Project off Locks Well Beach, 15 km south of Elliston, and Wizard Power's High Temperature Solar Thermal Research and Development Facility in Whyalla (DMITRE 2013c). The Green Grid is a major initiative of Renewables SA (South Australian Government). A study has established a business case for investment in transmission and generation to realise large scale renewable energy generation in the Eyre Peninsula region.

· Import and export facilities and associated developments include (DMITRE 2013c):
  - Flinders Ports facility at Port Lincoln is used to export grain and seeds and to import fertilizer and petroleum products (Flinders Ports 2013).
  - Arrium facilities at Whyalla which are used to export iron ore. Arrium is currently undertaking an expansion of these facilities to double the capacity of the port (Deloitte 2013).
  - Santos operates the State-owned facilities at Port Bonython near Whyalla which include a 2.4 km jetty for loading naphtha, crude oil, propane and butane onto tankers for export (Santos 2009). The Mitsubishi Corporation Port Bonython Fuels storage and refinery (north of Whyalla) is a two-stage project that involves the development of fuel storage tanks, a fuel loading facility and a pipeline to Port Bonython wharf to provide for the import and distribution of diesel for mining operations in the region. A micro-refinery is planned for stage 2 and has been approved by Government.
  - Flinders Ports proposal to develop a port facility will enable the export of bulk cargo at Port Bonython (approved but not built).
  - SeaTransport's Lucky Bay Bulk Shipping Port (approximately 18km from Cowell) is proposed to provide a facility to export iron ore from Iron Clad's proposed Wilcherry Hill mine and improve the integration of facilities for the Spencer Gulf ferry service. The extension of the facilities has been approved by Government.
  - Centrex's Port Spencer proposal involves the construction of a deep-water marine port at Port Spencer, approximately 21 km north-east of Tumby Bay, to enable the development and export of magnetite ore from the Eyre Peninsula (approved by Government but not built)
  - The Port of Thevenard, operated by Flinders Ports, is the major port on the west coast of Eyre Peninsula and currently exports gypsum, grain, salt exports and zircon product from Iluka Resources' Jacinth/ Ambrosia mining operation and imports fertilizer (Flinders Ports 2013) and RDAWEP 2011c). It is proposed that the Port of Thevanard be redeveloped to deepen the Yalata Channel and upgrade/replace the ship loader and modify the wharf to increase its export capability and long term viability (Master Plan and Social Impact Study and Business Case completed) (RDAWEP 2011c). A proposal to develop the Thevanard/Ceduna Commercial Fishing Unloading Facility involves the construction of a new unloading facility for commercial fishing activities as an expanded spur to the existing Thevenard slipway (feasibility study and benchmarking study completed) (RDAWEP 2011d).

· Rail and road transport services are provided at Port Augusta, which is a major junction for road and rail traffic, and connects Adelaide, Darwin and Perth via the Stuart, Eyre and Augusta Highways and rail network. Port Augusta is also linked to other regional centres, including Whyalla, Port Pirie and Port Lincoln.

Figure 3 -11 Approved mines and developing projects in the Eyre region
Source: DMITRE 2013a and 2013b

Other developments in progress in Whyalla and Port Lincoln of relevance to the Eyre region's future sustainability and growth include:

- Ocean Eyre residential estate in Whyalla which at completion will offer about 1,500 allotments (underway, with 220 built, 350 blocks sold and approval to build a 185-unit retirement village) (DMITRE 2013).
- Whyalla Industrial Estate which comprises a 150 hectare site on the northern boundary of the City of Whyalla (underway, Stage 1 includes 34 fully serviced allotments).
- Planned expansion of the Whyalla Airport terminal.
- Upgrade of TAFE facilities at Whyalla.
- Major upgrade of the Whyalla Leisure Centre.
- Whyalla Hospital Redevelopment involved the refurbishment of its acute service facilities. This includes the establishment of a new Whyalla Regional Cancer Centre; a new theatre and day surgery suite; a new surgical and medical wards; a six-bed mental health unit; a specialist rehabilitation unit; new palliative care rooms; and nine self-contained one bedroom units for patients and their families travelling to the Whyalla Hospital for treatment (complete) (SA Health 2013).
- Port Lincoln Health Service Redevelopment involving the expansion of its acute care services including a redeveloped theatre suite and same-day patient unit; a new six-bed inpatient mental health unit; and development of an integrated primary health-care services (underway, due for completion in December 2014) (SA Health 2013).
- Port Lincoln Airport Upgrade (underway - master plan, feasibility study and Final Development Assessment Report completed) (RDAWEP 2011e).
- Sleaford Cove tourism accommodation precinct near Port Lincoln, which will provide approximately 350 dwellings at completion (to be staged over a 10 to 15-year period) (DMITRE 2013).

The RDAWEP Regional Plan (2013) and Regional Profile (2011a) identified the provision and maintenance of strategic infrastructure as a challenge for the economy of the region. The RDAWEP Regional Profile suggests that 'Infrastructure across the region is of varying age and condition and there are issues and deficiencies with suitability, accessibility, maintenance, supply and demand. Various operational, upgrade and other issues need to be addressed'. This includes:

- Transport infrastructure – ports, airports, roads and the rail network
- Water supply – both quantity and quality
- Communications – mobile phone and broadband, especially access and capacity
- Electricity transmission
- Community and social infrastructure.

Other challenges identified in the RDAWEP Regional Plan (2013) include:

- The small population base of the region, which is unlikely to be sufficient to provide the workforce for proposed mining and industrial growth, with 6,700 new jobs likely to be created on the Eyre Peninsula over the next ten years by mining projects alone. The older age profile and lower educational attainment of people in the region is likely to compound these workforce challenges and exacerbate the recruitment difficulties experienced by regional employers, particularly in the agricultural sector.
- Recruiting a workforce of people who presently reside elsewhere. To attract workers and their families to relocate to the region will require social services and community infrastructure to be upgraded in regional townships to provide the quality of life and liveability expected by contemporary communities. This will also place pressures on local government operations and service provision.

The infrastructure requirements necessary to support the further development of existing and new mines have been identified in a Regional Mining and Infrastructure Plan (Interim Report) for the Whyalla and Eyre Peninsula prepared by Deloittes (2013) for the South Australian Department of Planning, Transport and Infrastructure and the Commonwealth Department of Infrastructure and Transport. The RDAWEP Regional Plan (2013) and Regional Profile (2011b) also offer encouragement to mining development and operations on the Eyre region and actions to:

- support the establishment of strategic infrastructure to enhance mining development and operations
- build the capability of local businesses to meet the growing demand for supplies and services to the mining sector
- encourage mining companies and related contractors to utilise existing local businesses/suppliers within the region.

3.4.2 Labour force status

Table 3-22 presents information on labour force status of people in the local study areas, the Eyre region and South Australia at the 2011 Census (ABS 2012a). Table 3-23 presents similar information on the labour force in the regional cities of Port Lincoln, Whyalla and Port Augusta.

Labour force participation rates are based on the number of people aged 15 years and over who are in the labour force (ie who are employed, looking for work or unemployed), expressed as a percentage of the total number of people aged 15 years and over. The age of the population can affect labour force participation rates. For example, young people may be studying and older people may be retired. People who are not working, actively seeking work or available to start work are not counted.

With the exception of the DC of Tumby Bay which has an older age profile, the local study areas have high rates of labour force participation and high employment to population ratios compared to the Eyre region and South Australia as a whole, with the highest participation rates in Wudinna DC. Of those in the labour force, the majority are employed full-time. Unemployment is relatively high in the DC of Elliston and the Eyre region generally, while the regional cities of Whyalla and Port Augusta have low labour participation rates and relatively high unemployment (particularly Whyalla).

Current labour force data on 'Small Area Labour Markets' is published by the Department of Employment. Figure 3-12 shows unemployment (rate and number of unemployed) in the local and regional study areas and South Australia in the September Quarter, 2014. This highlights the relatively low rate and number of unemployed people in the local DCs, while unemployment is higher in the RDA Whyalla and Eyre Peninsula region and the regional centres of Port Lincoln, Ceduna, Whyalla and Port Augusta.

Figure 3-13 shows the unemployment rate from the September Quarter 2012 to 2014 and highlights the rise in unemployment over the three year period (except in the DC of Elliston).

Table 3-22 Labour force status in local study areas, Eyre region and South Australia, 2011

Labour force status[1]	Wudinna DC	Kimba DC	Elliston DC	Cleve DC	Tumby Bay DC	Eyre region	South Australia
Labour force participation[2]	72.0	66.8	66.3	66.0	57.9	59.9	59.9
Employed, working full-time (as % of labour force)[3]	65.9	65.9	60.3	61.9	56.9	57.3	56.7
Employed, working part-time (as % of labour force)	26.2	27.1	27.4	30.2	32.4	29.8	31.6
Employed, away from work (as % of labour force)[4]	7.9	6.3	6.4	6.5	7.1	7.1	6.0
Unemployed, looking for work (as % of labour force)	1.0	0.7	5.9	1.3	3.7	5.8	5.7
Employment to population (as %)[5]	71.3	66.3	62.4	65.2	55.7	56.4	56.5
Not in the labour force (number of people 15 years or more)	248	232	257	434	837	15,612	466,429

Source: ABS 2012a, *Basic Community Profile*, selected labour force statistics, for LGAs of Wudinna, Kimba, Elliston, Cleve; Eyre Peninsula and South West (SA3); and South Australia.
[1] People aged 15 years or more.
[2] The number of persons in the labour force expressed as a percentage of persons aged 15 years and over.
[3] Employed, working full-time is defined as having worked 35 hours or more in all jobs during the week prior to Census night.
[4] Includes employed persons who did not state their hours worked.
[5] The number of employed persons expressed as a percentage of persons aged 15 years and over.

Table 3-23 Labour force status in regional cities, 2011

Labour force status[1]	City of Port Lincoln	City of Whyalla	City of Port Augusta	South Australia
Labour force participation[2]	60.5	56.5	54.7	59.9
Employed, worked full-time (as % of labour force)[3]	54.1	57.6	59.6	56.7
Employed, worked part-time (as % of labour force)	33.0	27.2	28.1	31.6
Employed, away from work (as % of labour force)[4]	7.5	7.1	6.5	6.0
Unemployed, looking for work (as % of labour force)	5.5	8.1	5.8	5.7
Employment to population (as %)[5]	57.2	51.9	51.5	56.5
Not in the labour force (number of people 15+ years)	3,927	,575	4,005	466,429

Source: ABS 2012a, *Basic Community Profile*, selected labour force statistics, for LGAs of Port Lincoln, Whyalla and Port Augusta.
[1] People aged 15 years or more.
[2] The number of persons in the labour force expressed as a percentage of persons aged 15 years and over.
[3] Employed, worked full-time' is defined as having worked 35 hours or more in all jobs during the week prior to Census night.
[4] Includes employed persons who did not state their hours worked.
[5] The number of employed persons expressed as a percentage of persons aged 15 years and over.

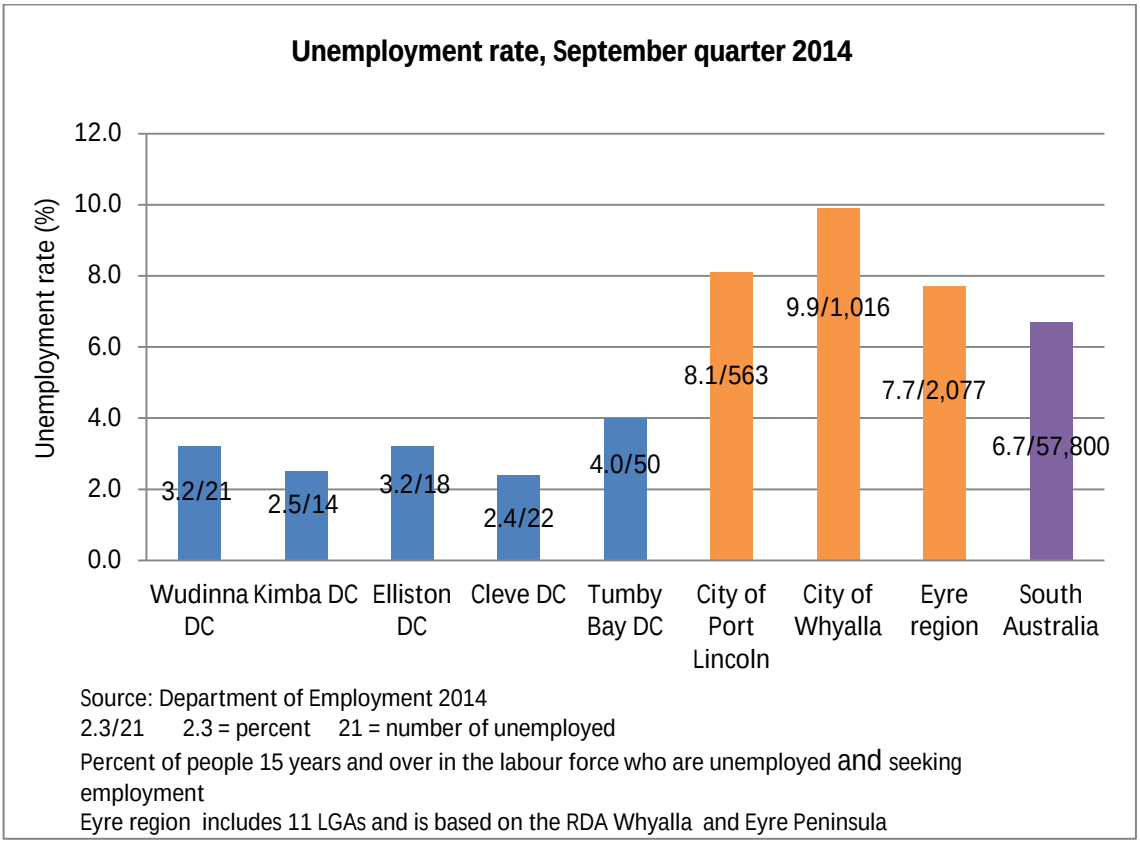


Figure 3-12 Unemployment in local study areas, regional cities, Regional South Australia and South Australia, September Quarter
Source: Department of Employment 2014

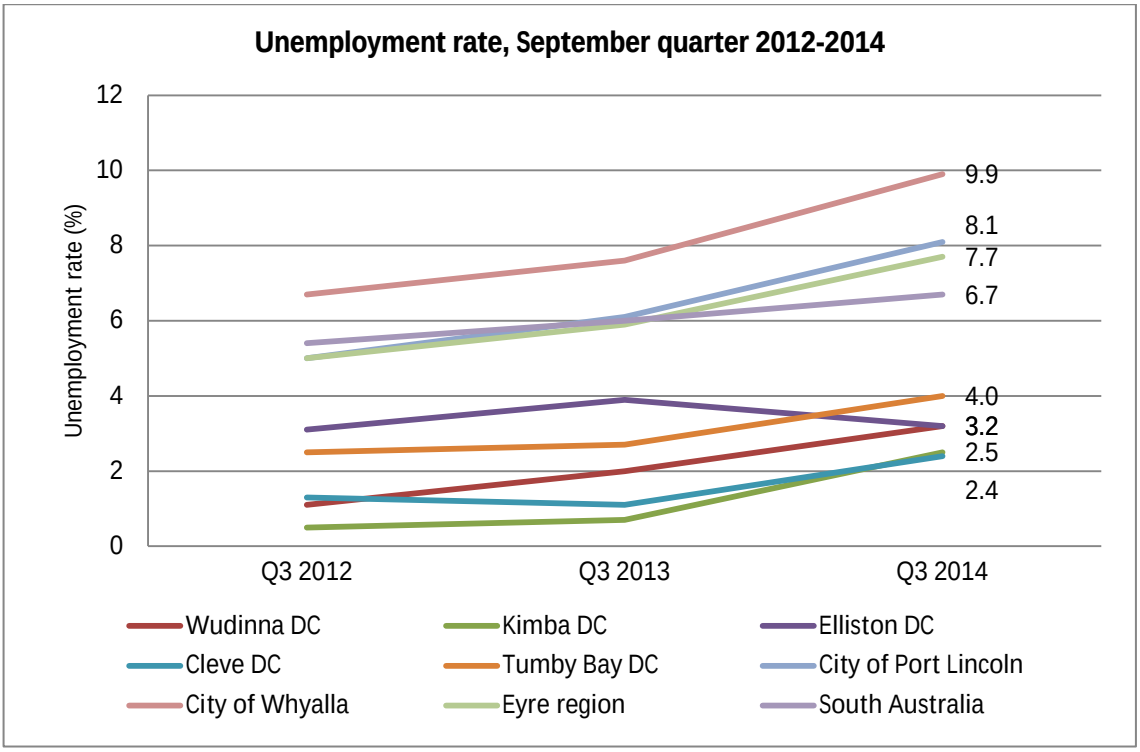


Figure 3-13 Unemployment in local study areas, regional cities and South Australia, September Quarter
Source: Department of Employment 2014a and 2014b.

3.4.3 Industry and occupation

Table 3-24 presents information on employment by industry in the local study areas, the Eyre region and South Australia at the 2011 Census. Information on employment by industry in the regional cities of Port Lincoln, Whyalla and Port Augusta is shown in Table 3-25.

Figure 3-14 shows the top employing industry in the local study areas, with agriculture, forestry and fishing accounting for over 30% of all employment. The seasonal nature of agricultural industries and their reliance on climatic conditions has been identified as one of the challenges facing communities on the Eyre region.

Table 3-24 Employment by industry in local study areas, Eyre region and South Australia, 2011

Industry (as a % of total employed)	**Wudinna DC**	**Kimba DC**	**Elliston DC**	**Cleve DC**	**Tumby Bay DC**	**Eyre region**	**South Australia**
Agriculture, forestry and fishing	34.6	43.9	46.4	39.2	31.8	13.4	3.9
Mining	1.0	1.2	0.9	0.9	2.4	3.9	1.3
Manufacturing	1.8	2.6	1.3	1.1	3.6	11.2	10.5
Electricity, gas, water and waste services	1.8	0.5	1.7	1.7	1.0	1.0	1.3
Construction	5.4	2.8	3.6	4.9	8.8	6.9	7.5
Wholesale trade	5.7	4.3	2.3	2.8	2.8	3.0	3.5
Retail trade	7.6	6.0	7.0	9.5	8.7	10.7	11.2
Accommodation and food services	5.0	6.5	6.2	4.4	6.9	6.3	6.3
Transport, postal and warehousing	3.9	3.4	2.5	6.9	4.1	4.9	4.2
Information media and telecommunications	0.0	0.0	0.6	1.0	0.0	0.6	1.4
Financial and insurance services	0.7	2.6	0.6	1.8	1.5	1.5	3.0
Rental, hiring and real estate services	0.0	0.0	0.0	0.3	0.3	0.9	1.3
Professional, scientific and technical Services	2.0	2.9	0.9	1.3	1.4	2.5	5.5
Administrative and support services	1.2	0.0	0.8	1.0	1.4	3.0	3.4
Public administration and safety	4.1	4.5	4.5	2.9	3.2	4.6	7.1
Education and training	8.5	5.2	7.9	5.2	6.7	7.7	7.9
Health care and social assistance	10.7	9.0	10.6	8.7	10.6	11.8	13.6
Arts and recreation services	0.0	0.0	0.0	0.3	0.3	0.5	1.3
Other services	4.2	3.1	0.6	4.1	2.5	3.7	3.9
Total employed (number)	685	581	530	894	1,183	25,309	739,358

Source: ABS 2013a, *National Regional Profile*, for LGAs of Wudinna, Kimba, Elliston, Cleve; Eyre Peninsula and South West (SA3); and South Australia.

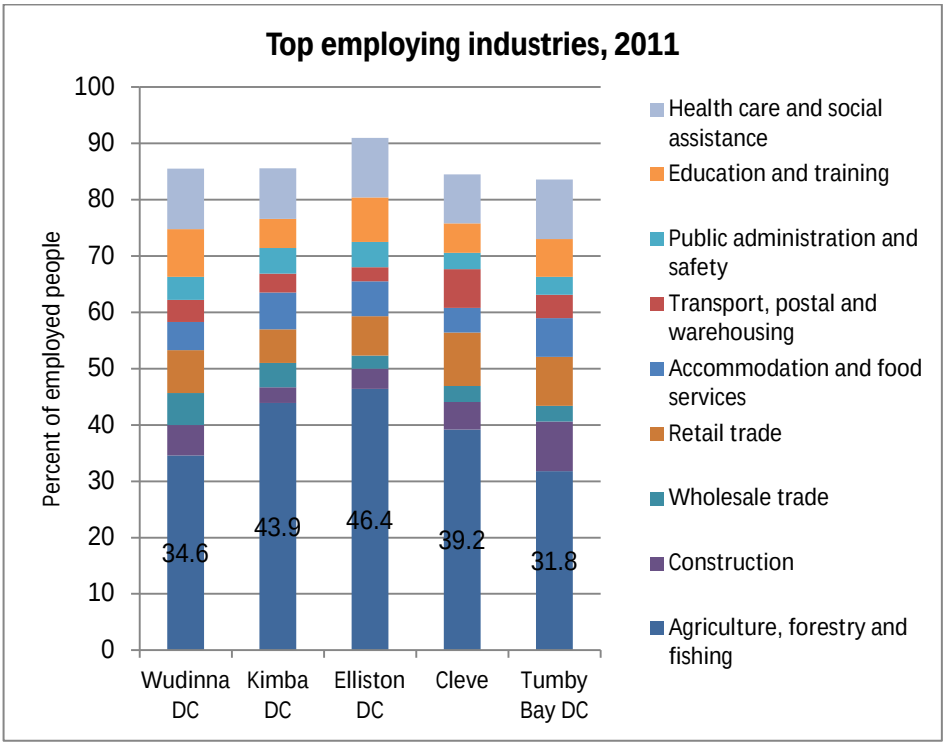


Figure 3-14 Top employing industries in local study areas, 2011
Source: ABS 2013a *National Regional Profile*

Table 3-25 Employment by industry in regional cities, 2011

Industry (as a % of total employed)	**City of Port Lincoln**	**City of Whyalla**	**City of Port Augusta**	**South Australia**
Agriculture, forestry and fishing	8.9	0.4	0.7	3.9
Mining	1.4	6.7	3.7	1.3
Manufacturing	7.4	22.3	4.1	10.5
Electricity, gas, water and waste services	1.4	0.8	4.6	1.3
Construction	9.3	5.5	7.5	7.5
Wholesale trade	4.1	1.8	1.3	3.5
Retail trade	13.1	11.1	11.7	11.2
Accommodation and food services	6.6	6.2	9.0	6.3
Transport, postal and warehousing	5.1	4.5	6.1	4.2
Information media and telecommunications	0.7	0.8	0.9	1.4
Financial and insurance services	2.2	1.3	1.6	3.0
Rental, hiring and real estate services	1.3	1.1	1.1	1.3
Professional, scientific and technical services	3.2	2.7	2.0	5.5
Administrative and support services	3.0	4.3	3.0	3.4
Public administration and safety	5.2	4.1	13.1	7.1
Education and training	8.0	8.1	8.2	7.9
Health care and social assistance	12.3	12.6	15.5	13.6
Arts and recreation services	0.7	0.5	0.5	1.3
Other services	4.2	3.4	3.5	3.9
Total employed (number)	**6,416**	**9,159**	**5,742**	**739,358**

Source: ABS 2013a, *National Regional Profile*, for LGAs of Port Lincoln, Whyalla and Port Augusta.

As shown in Table 3-25, health care and social assistance and retail services were among the top three employing industries in the cities of Port Lincoln, Whyalla and Port Augusta, along with manufacturing in Whyalla, construction in Port Lincoln and public administration and safety in Port Augusta. Mining was the fifth largest employer in Whyalla. Together, mining, manufacturing, construction and transport, postal and warehousing accounted for around 39% of all employment in Whyalla, 23% in Port Lincoln and 21% in Port Augusta.

Figure 3-15 provides an indication of employment diversity in the local study areas, regional cities of Port Lincoln, Whyalla and Port Augusta, Eyre region and South Australia at the 2011 Census, based on place of work (ABS 2012h).

This figure is based on the Herfindahl-Hirschman Index (HHI), which is a commonly accepted measure of market concentration that takes account of the relative size or market share of firms within an industry. The HHI can range from close to zero (when a market is occupied by a large number of firms of relatively equal size) to a maximum of 10,000 (where a firm has a monopoly or 100% market share). An HHI of between 1,500 and 2,500 is considered to be moderately concentrated and an HHI in excess of 2,500 is highly concentrated (US Department of Justice 2010). The HHI has also been adapted to measure employment diversity across industries. In this context, a low score indicates greater employment diversity (ie employment is spread across a range of industries) and a high score indicates lower employment diversity (ie there is a higher concentration of employment in a few industries).

This analysis suggests that Wudinna DC has the greatest employment diversity of the local study areas and the DC of Elliston the least, although all the local study areas have scores above 1,000 indicating employment is concentrated in relatively few industries. The larger regional cities and the Eyre region have scores below 1,000, indicating a greater diversity of employment.

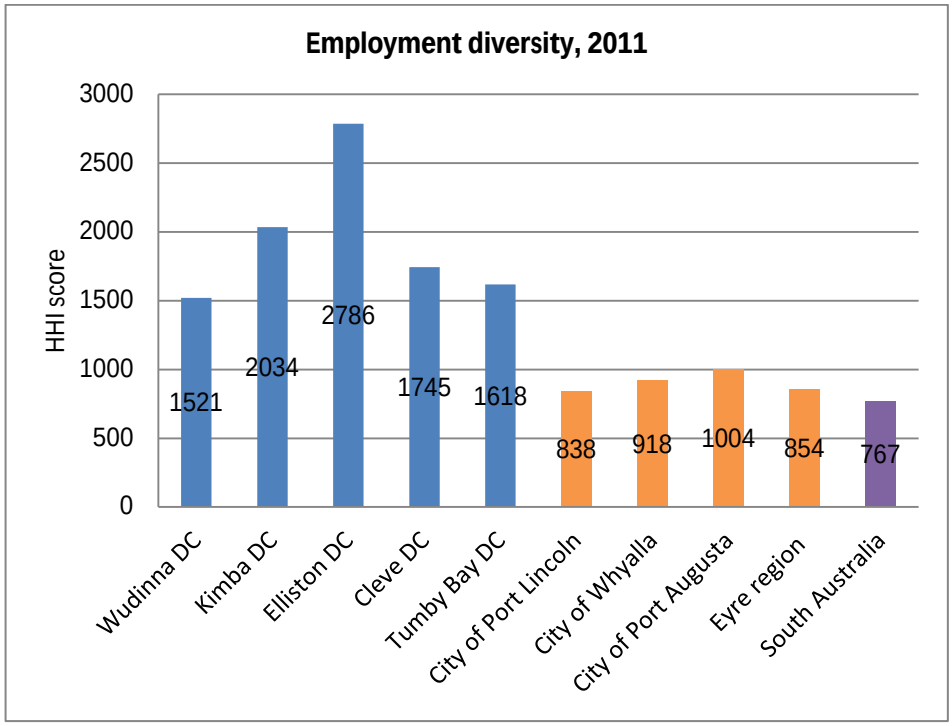


Figure 3 -15 Employment diversity in local study areas, regional cities, Eyre region and South Australia, 2011
Source: ABS 2012h, *Working Population Profile*

Table 3-26 presents information on employment by occupation in the local study areas, the Eyre region and South Australia at the 2011 Census. Information on employment by occupation in the regional cities of Port Lincoln, Whyalla and Port Augusta is shown in Table 3-27.

As illustrated in Figure 3-16, the largest occupational group in the local study areas was managers (who were largely employed in the agriculture, forestry and fishing industry), which accounted for over 30% of total employment, followed by professionals, technicians and trades workers and labourers.

In the regional cities, technicians and trades workers were among the largest occupational groups, as well as machinery operators and drivers in Whyalla, labourers in Port Lincoln and community and personal service workers in Port Augusta. Whyalla had the largest proportion of people employed as technicians or tradespeople, machinery operators and drivers or labourers (46%), with around 37% of people employed in these occupational groups in Port Lincoln and Port Augusta, 39% in the Eyre region and less in the local study areas and South Australia.

Table 3-26 Employment by occupation in local study areas, Eyre region and South Australia, 2011

Occupation[1] (as a % of total employed)	**Wudinna DC**	**Kimba DC**	**Elliston DC**	**Cleve DC**	**Tumby Bay DC**	**Eyre region**	**South Australia**
Managers	33.8	43.9	41.9	36.3	34.5	17.1	12.6
In agriculture, forestry and fishing	*24.8*	*37.9*	32.2	*30.9*	*26.4*	*9.0*	*2.3*
Professionals	13.9	9.5	11.0	9.6	10.0	13.4	19.6
Technicians and Trades Workers	12.8	8.3	10.0	12.8	11.9	15.7	14.2
Community and Personal Service Workers	7.6	6.9	6.4	6.1	8.5	9.9	10.5
Clerical and Administrative Workers	6.0	7.9	6.8	8.6	9.2	10.3	14.4
Sales Workers	4.8	5.4	4.6	6.1	6.6	8.5	9.6
Machinery Operators and Drivers	7.4	6.6	4.0	6.7	7.0	9.9	6.4
Labourers	13.1	10.2	13.8	12.0	11.4	13.3	11.1
Total employed (number)	685	581	530	894	1,183	25,309	739,358

Source: ABS 2013a*, National Regional Profile* for LGAs of Wudinna, Kimba, Elliston, Cleve; Eyre Peninsula and South West (SA3); and South Australia.

[1] Excludes inadequately described, not stated or other, so totals may not equal 100%.

Table 3-27 Employment by occupation industry in regional cities, 2011

Occupation[1] (as a % of total employed)	City of Port Lincoln	City of Whyalla	City of Port Augusta	South Australia
Managers	11.6	7.9	7.7	12.6
Professionals	15.2 (3)	14.5 (3)	14.2 (3)	19.6
Technicians and Trades Workers	15.3 (2)	19.2 (1)	16.6 (1)	14.2
Community and Personal Service Workers	10.8	10.0	15.6 (2)	10.5
Clerical and Administrative Workers	12.4	10.0	13.6 (4)	14.4
Sales Workers	10.6	9.2	9.4	9.6
Machinery Operators and Drivers	6.4	14.8 (2)	9.1	6.4
Labourers	16.0 (1)	11.9 (4)	11.6 (4)	11.1
Total employed (number)	6,416	9,159	5,742	739,358

Source: ABS 2013a, *National Regional Profile*, for LGAs of Port Lincoln, Whyalla and Port Augusta.
[1] Excludes inadequately described, not stated or other, so totals may not equal 100%.

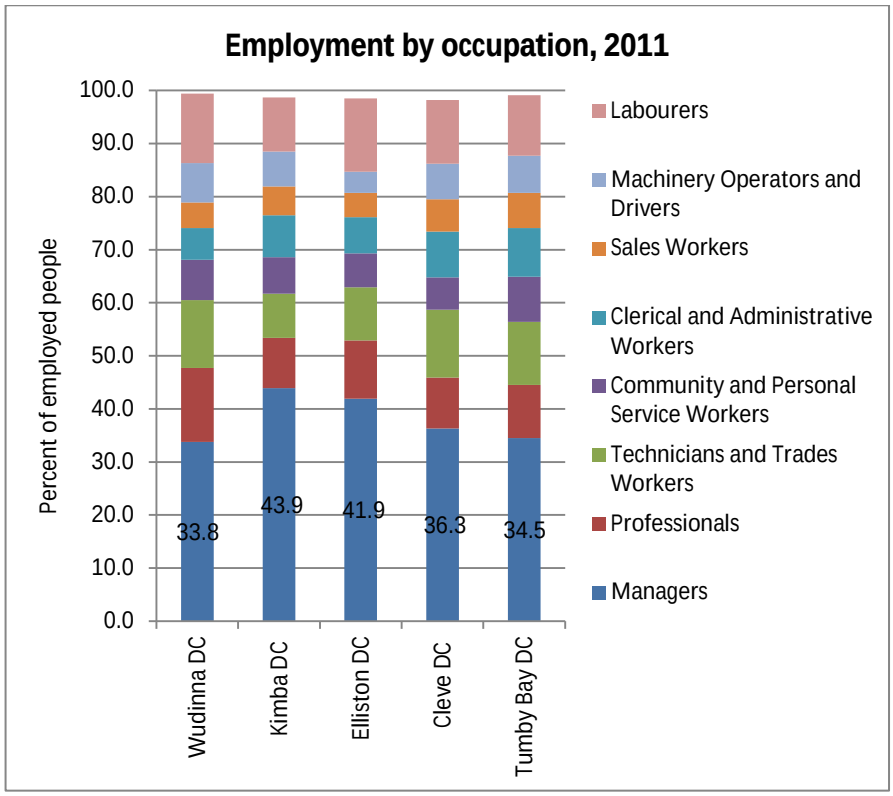


Figure 3 -16 Employment by occupation in local study areas, 2011
Source: ABS 2013a, *National Regional Profile*

3.4.4 Businesses

Table 3-28 shows the number of business by employment size and the number of business entries and exits in in 2011 in the local study areas, the Eyre region and South Australia (ABS 2013a). Table 3-29 presents similar information on businesses in the regional cities of Port Lincoln, Whyalla and Port Augusta.

This shows that in all areas, the majority of businesses are non-employing (ie sole traders) although there are more businesses that have employees in the local study area, Whyalla and Port Augusta than South Australia. All areas had more business exits than entries in 2011.

Table 3-28 Registered businesses in local study areas, Eyre region and South Australia, 2011

Employment size	Wudinna DC	Kimba DC	Elliston DC	Cleve DC	Tumby Bay DC	Eyre region	South Australia
Non-employing (as %)	51.4	56.3	51.2	56.3	54.1	56.8	64.9
1-4 employees (as %)	25.1	24.7	25.1	24.7	23.8	22.5	19.9
5 or more employees (as %)	23.5	18.9	23.7	19.1	22.1	20.6	15.2
Total number of businesses	251	190	211	304	340	5,421	148,277
Number of business entries	20	12	16	23	26	528	17,718
Number of business exits	21	16	19	27	26	541	18,067

Source: ABS 2013a, *National Regional Profile* for LGAs of Wudinna, Kimba, Elliston, Cleve; Eyre Peninsula and South West (SA3); and South Australia.

Table 3-29 Registered businesses in regional cities, 2011

Employment size	City of Port Lincoln	City of Whyalla	City of Port Augusta	South Australia
Non-employing (as %)	61.3	56.2	53.5	64.9
1-4 employees (as %)	19.4	24.1	23.5	19.9
5 or more employees (as %)	19.2	19.7	23.0	15.2
Total number of businesses	1,630	852	673	148,277
Number of business entries	169	109	82	17,718
Number of business exits	174	131	87	18,067

Source: ABS 2013a, *National Regional Profile*, for LGAs of Port Lincoln, Whyalla and Port Augusta.

Table 3-30 shows the number of enterprises in the local study areas by industry type, with the largest number of enterprises in agriculture, forestry and fishing sector, followed by construction and retail trade (ABS 2013f).

Table 3-31 shows the number and percentage of businesses in the cities of Port Lincoln, Whyalla and Port Augusta. The largest number of businesses in Port Lincoln is in agriculture, forestry and fishing and in Whyalla and Port Augusta is construction (ABS 2013e).

Table 3-30 Enterprises by industry in local study areas and the Eyre region, 2011

Number of enterprises by industry[1]	Wudinna DC	Kimba DC	Elliston DC	Cleve DC	Tumby Bay DC	Total (as a %)	Eyre region (as a %)
Agriculture, forestry and fishing	120	153	98	162	202	735 (62.4%)	1,474 (35.4%)
Mining	0	0	0	0	0	0	22 (0.5%)
Manufacturing	0	5	6	0	17	28 (2.4%)	208 (5.0%)
Electricity, gas, water and waste services	3	0	0	0	0	3 (0.3%)	15 (0.4%)
Construction	15	8	13	24	50	110 (9.3%)	632 (15.2%)
Transport, postal and warehousing	14	7	0	15	7	43 (3.7%)	216 (5.2%)
Wholesale trade	4	0	4	5	7	20 (1.7%)	96 (2.3%)
Retail trade	17	9	12	11	23	72 (6.1%)	389 (9.3%)
Accommodation and food services	5	6	9	9	11	40 (3.4%)	142 (3.4%)
Information media and telecommunications	0	0	0	0	0	0	11 (0.3%)
Financial and insurance Services	0	0	0	10	0	10 (0.8%)	38 (0.9%)
Rental, hiring and real estate services	0	0	0	0	0	0	39 (0.9%)
Professional, scientific and technical services	0	4	3	3	6	16 (1.4%)	140 (3.4%)
Administrative and support services	0	0	0	4	8	12 (1.0%)	1,245 (29.9%)
Public administration and safety	4	0	0	0	0	4 (0.3%)	11 (0.3%)
Education and training	0	0	0	0	0	0	40 (1.0%)
Health care and social assistance	9	0	6	3	11	29 (2.5%)	169 (4.1%)
Arts and recreation services	0	0	0	0	0	0	30 (0.7%)
Other[2]	10	10	0	14	21	55 (4.7%)	72 (1.7%)
Total	**201**	**202**	**151**	**260**	**363**	**1,177 (100%)**	**4,161 (100%)**

Source: ABS 2013f, 2011 Census of Population and Housing, 'Tablebuilder'.
[1] Based on owners or managers of incorporated or unincorporated enterprises.
[2] Other includes other services, inadequately described / not stated / not applicable.

Table 3-31 Businesses by industry in regional cities, 2011

Businesses by industry	City of Port Lincoln		City of Whyalla		City of Port Augusta	
	Number	Percent	Number	Percent	Number	Percent
Agriculture, forestry and fishing	414	25.4	24	2.8	54	8.0
Mining	6	0.4	0	0.0	15	2.2
Manufacturing	73	4.5	25	2.9	12	1.8
Construction	109	6.7	144	16.9	275	40.9
Wholesale trade	40	2.5	10	1.2	6	0.9
Retail trade	140	8.6	94	11.0	71	10.5
Accommodation and food services	48	2.9	38	4.5	51	7.6
Transport, postal and warehousing	91	5.6	88	10.3	52	7.7
Financial and insurance services	167	10.2	63	7.4	30	4.5
Rental, hiring and real estate services	0	0.0	62	7.3	63	9.4
Professional, scientific and technical services	92	5.6	48	5.6	27	4.0
Administrative and support services	39	2.4	37	4.3	28	4.2
Health care and social assistance	58	3.6	72	8.5	47	7.0

Source: ABS 2013g, *Counts of Australian Businesses, including Entries and Exits*.

3.4.5 Farming

The Eyre Peninsula relies on agriculture, fishing and tourism as the predominant industries, with the region's agriculture producing more than 38% of South Australia's wheat crop and 26% of the barley crop (RDAWEP 2011a).

Agriculture production is largely dependent on broadacre farming. According to ABARE (2006), broadacre farming accounted for 95% of farms in the region in 2004 and comprised over 2,240 farms, of which more than 86% relied mainly on grain growing or combined grain and livestock production. While around 48% of the region's farms are relatively small (with the value of agricultural production less than $150,000), the majority of the region's agricultural production occurs on medium and large sized farms, with around 80% of the total value of the region's agricultural production occurring on farms with an output greater than $300,000, and just over 55% occurring on farms that have an output of more than $600,000 (ABARE 2006).

The financial performance of broadacre farms is reliant on seasonal and market conditions which can vary from year to year. This is illustrated in Figure 3-17, which shows the farm cash income and farm business profits of broadacre farms on the Eyre Peninsula from 1992-2012. According to ABARES (2014), farm cash incomes in South Australia in 2013–2014 are projected to be the highest recorded in more than 30 years as a result of record winter grain production. This is in contrast to sharp declines in farm incomes recorded from 2004 to 2009 as a result of drought conditions and low commodity/grain prices.

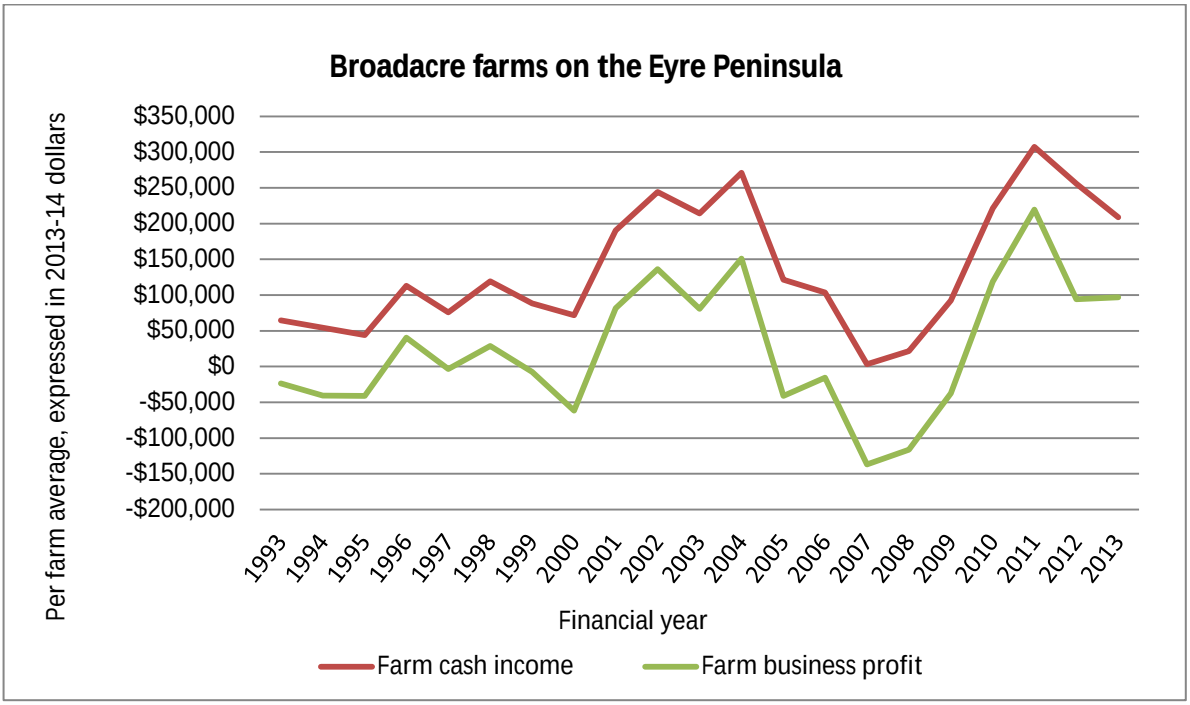


Figure 3-17 Farm cash income and business profits on the Eyre Peninsula
Source: ABARE 2014, Farm Survey Data

Plate 3-3 Farm land near Wudinna

3.4.6 Tourism

Tourist activities on the Eyre Peninsula are varied and include coastal and aquatic activities such as swimming, diving, boating, water skiing, whale watching, fishing and other marine activities. Outdoor and nature based activities include camping, hiking / bush walking and wildlife watching. Other attractions include food and wine and Indigenous culture and heritage, such as the Indigenous Tourism Trail and Kuju Aboriginal Arts in Port Lincoln.

Table 3-32 provides information on visitors to the Eyre Peninsula Tourist region (which is the same as the ABS Eyre and South West region) in 2011-2012, and is based on data sourced from Tourism Research Australia's National and International Visitor Surveys.

Table 3-32 Visitors to the Eyre Peninsula in 2011-2012

Type of visitor	Visitor numbers ('000)	Expenditure ($ million)	Average stay (nights)	Average trip expenditure ($)	Average nightly expenditure ($)
	'000	$ million	Nights	$	$
Domestic day	361	59	na	163	na
Domestic overnight	323	214	5	662	129
International	13	na	19	na	na

Source: Tourism Research Australia 2013, 'Regional Tourism Profile for the Eyre Peninsula 2011/12'.

This shows that of domestic overnight visitors to the Eyre Peninsula region, the top three areas visited were Port Lincoln (39%), Whyalla (24%) and the southern Eyre Peninsula (16%). Based on visitor numbers:

- the key purpose of visiting was holidays (35%), followed by visiting friends or relatives (32%), business (29%) and other reasons (4%)
- the top three accommodation types were staying with friends or relatives (34%), caravan or camping (35%) and hotel, motel, serviced apartment (30%)
- transport commonly involved driving (72%), followed by air travel (22%) and other transport (6%)
- experiences participated in by visitors included food and wine (61%), nature based activities (24%), and culture and heritage (15%).

Of international overnight visitors to the Eyre Peninsula region, the top three areas visited were Port Lincoln (50%), the West Coast (29%) and Ceduna (21%). Based on the visitor numbers:

- the key purpose of the visit was holidays
- the most common accommodation type were was caravan or camping, followed by rental house or apartment and staying with friends or relatives
- transport commonly involving driving (70%), followed by air travel or other transport
- experiences participated in by visitors included food and wine (32%), nature based activities (25%), culture and heritage (25%) and Indigenous (18%).

Among the specific attractions in the Eyre Peninsula region are:

- Gawler Ranges National Park
- Lincoln National Park
- Coffin Bay National Park
- Sir Joseph Banks Marine Conservation Park
- Port Lincoln's Tunarama (held annually over the Australia Day long weekend).

3.4.7 Youth engagement

Tables 3-33 and 3-34 show the levels of engagement of young people (15-19 years) in work and/or study in local study areas, regional cities, the Eyre region and South Australia at the 2011 Census.

This highlights the high levels of youth engagement in the local study areas (over 80%), in comparison to regional cities, the Eyre region or South Australia, with very few young people who were not engaged in either work or study. While most young people in the local study areas were studying fulltime, there was also a relatively high proportion who were working full-time and not studying, particularly in Wudinna DC.

This also highlights the relatively low levels of youth engagement in the regional cities, with over 290 young people in Port Lincoln who were not engaged in either work or study.

Table 3-33 Youth engagement in work and/or study in local study areas, Eyre region and South Australia, 2011

Young people (15-19 years)	Wudinna DC	Kimba DC	Elliston DC	Cleve DC	Tumby Bay DC	Eyre region	South Australia
Number of young people aged	58	54	46	68	127	3,680	103,249
Working full-time and studying part-time (as %)	0.0	5.6	0.0	0.0	7.1	2.4	2.0
Working and studying part-time (as %)	0.0	0.0	0.0	8.8	0.0	1.3	1.5
Working part-time and studying full-time (as %)	15.5	18.5	8.7	26.5	26.8	17.2	21.3
Working full-time (not studying) (as %)	29.3	16.7	17.4	13.2	13.4	10.6	7.0
Studying full-time (not working) (as %)	46.6	40.7	60.9	39.7	33.9	38.5	45.7
Working and studying full-time (as %)	0.0	0.0	0.0	0.0	0.0	0.5	0.4
Number of young people who are not engaged	5	10	6	8	24	1,089	2,3025
Total engaged in work or study (as %)	91.4	81.5	87.0	88.2	81.1	70.4	77.7

Source: ABS 2013a, *National Regional Profile*, for LGAs of Wudinna, Kimba, Elliston, Cleve; Eyre Peninsula and South West (SA3); and South Australia.

Table 3-34 Youth engagement in work or study in regional cities, 2011

Young people (15-19 years)	City of Port Lincoln	City of Whyalla	City of Port Augusta	South Australia
Number of young people	975	1,572	931	103,249
Working full-time and studying part-time (as %)	1.9	2.6	1.9	2.0
Working and studying part-time (as %)	1.5	1.5	1.3	1.5
Working part-time and studying full-time (as %)	18.8	15.3	19.4	21.3
Working full-time (not studying) (as %)	9.1	8.8	8.9	7.0
Studying full-time (not working) (as %)	38.3	39.1	33.3	45.7
Working and studying full-time (as %)	0.4	0.6	0.0	0.4
Number of young people who are not engaged	293	503	327	2,3025
Total engaged in work or study (as %)	70.0	68.0	64.9	77.7

Source: ABS 2013a, *National Regional Profile*, for LGAs of Port Lincoln, Whyalla and Port Augusta.

3.5. Social character and wellbeing

3.5.1 Valued community attributes

Consultation undertaken in Warramboo and Wudinna for the CEIP (Iron Road 2011) and the RDAWEP Regional Profile (2011a) identified aspects of community life that were valued by residents. Among the positive attributes were:

- a quality lifestyle, good amenity, and relatively low living costs
- a healthy and prosperous community
- social fabric in the small, tight-knit and friendly communities, the strong sense of community and community spirit, with its shared history, high levels of volunteering, and a willingness to help each other
- a sense of safety and security and few problems with drugs, alcohol or crime
- good infrastructure and services, including health services and support, transport, school and sport and recreational facilities
- access to affordable housing and short-term accommodation
- natural environment, with large areas of native vegetation, and access to a vast, unspoilt coastline.

Similar characteristics and qualities were identified in Tumby Bay as part of the Centex Port Spencer proposal (Golder Associates 2009, Socio-Economic Baseline Study). These included the small town lifestyle, familiarity with community members, the quietness and visual amenity of the area, the low levels of crime and high levels of safety and the clean, relaxed and stress free environment.

These positive attributes are explored further in the following sections.

3.5.2 Quality of life

The Bank West's Quality of Life Index (2008) ranks LGAs in Australia across 10 key criteria including employment levels, crime rates, internet access, health, education levels, earnings, home ownership rate, house size, proportion of empty homes and community involvement, using data from the ABS, the Australian Tax Office and the Public Health Information Development Unit (PHIDU).

As shown in Table 3-35, the DCs of Kimba and Cleve were among the top ranked LGAs in Australia (of 590 LGAs) in terms of the quality of life criteria; and in South Australia, Kimba and Cleve ranked 4th and 7th respectively of 68 LGAs, with Kimba being the highest ranked regional LGA. The high quality of life was also identified in the RDAWEP Regional Profile (2011a) as a key strength and opportunity for the Eyre region.

Table 3-35 Quality of Life in local study areas, 2008

LGA	Ranking (out of 590 LGAs)[1]
Kimba DC	40
Cleve DC	58
Wudinna DC[2]	205
Tumby Bay DC	230
Elliston DC	327

Source: Bank West 2008 'Quality of Life Index'.
[1] Ranking of 590 LGAs in Australia, where 1 has the highest quality of life and 590 the lowest.
[2] Reported as Le Hunte.

3.5.3 Community support

Table 3-36 shows people aged 15 years or over who reported undertaking voluntary work in the local study areas, Eyre region and South Australia at the 2011 Census (ABS 2012c). This highlights the high levels of volunteering in the local study areas, with around 40% or more of residents reporting they did unpaid or voluntary work for an organisation or group – more than double that for South Australia as a whole.

Table 3-36 Unpaid work in local study areas, Eyre region and South Australia, 2011

Area	Voluntary work (as %)[1]
Kimba DC	47.4
Tumby Bay DC	46.3
Wudinna DC	45.7
Elliston DC	43.6
Cleve DC	39.2
Eyre region	26.7
South Australia	19.8

Source: ABS 2012c, 'Census Quickstats', for LGAs of Wudinna, Kimba, Elliston, Cleve; Eyre Peninsula and South West (SA3); and South Australia.
[1] People aged 15 years and over.

Table 3-37 indicates levels of financial hardship and support available to people aged 18 years and over in the local study areas, Eyre region, regional South Australia and South Australia in 2010, based on modelled estimates prepared by the Public Health Information Development Unit (PHIUD 2013). Modelled estimates are derived from the ABS 2010 General Social Survey (ABS 2010a) and are used to reliably predict a value at a small area level. These estimates can be interpreted as the likely value for a 'typical' area with those characteristics.

This points to the relatively low proportion of people who had a cash flow problem in the last 12 months (particularly within the DCs of Kimba and Cleve), the high proportion who could raise cash within a week (particularly within the DC of in Kimba) and the high levels of outside support available to people in the local study areas, in comparison to Regional South Australia and South Australia as a whole.

Table 3-37 Indicators of financial hardship and support in local study areas, Eyre region, Regional South Australia and South Australia, 2010[1]

Area	Household had at least one cash flow problem in the last 12 months	Household could raise $2,000 within a week	Could get support outside the household in a crisis[2]
Kimba DC	13.8	94.1	94.6
Elliston DC	18.0	87.2	93.0
Cleve DC	15.0	91.8	93.3
Tumby Bay DC	17.2	89.4	92.4
Eyre region	18.3	86.4	92.2
Regional South Australia	18.9	85.3	91.9
South Australia	18.0	84.8	91.9

Source: PHIDU 2013, 'Social Health Atlas: South Australia'.
[1] Modelled estimates of people aged 18 years and over as a rate per 100 people. Data is not available for Wudinna DC.
[2] People who are able to get support in times of crisis from persons outside the household.

3.5.4 Advantage and Disadvantage

The ABS Socio-Economic Indexes for Areas (SEIFA) comprises four indexes that summarise different aspects of the socio-economic conditions and relative advantage or disadvantage of people living in an area, as follows:

- Index of Relative Socio-economic Advantage and Disadvantage is derived from Census variables related to both advantage and disadvantage
- Index of Relative Socio-economic Disadvantage focuses primarily on disadvantage, and is derived from Census variables such as low income, low educational attainment, unemployment and dwellings without motor vehicles
- Index of Economic Resources focuses on financial aspects of advantage and disadvantage, and is derived from Census variables relating to residents' incomes, housing expenditure and assets
- Index of Education and Occupation includes Census variables relating to the educational attainment, employment and vocational skills.

A lower score indicates that an area is relatively disadvantaged compared to an area with a higher score. To enable easy recognition of high and low scores, scores have been standardised to have an Australia mean of 1,000. Areas are also ranked from the lowest to highest score - the area with the lowest score is given a rank of 1 and the area with the highest is given the highest rank. In the case of South Australia, LGAs are ranked from 1 to 71, with 71 being the highest score. Areas have also been divided into groups of ten (deciles) and are ordered from lowest to highest. The lowest 10% of areas in South Australia are given a decile number of 1 and the highest 10% are given a decile of 10 (ie decile 1 is the most disadvantaged relative to the other deciles). Lastly, maximum and minimum scores are given for Statistical Area Level 1 (the smallest unit used by the ABS to report on Census data) to show the range of scores that can be found within an LGA.

Table 3-38 indicates the relative advantage/disadvantage of the local study areas, based on their score on the SEIFA at the 2011 Census (ABS 2013h) and their rank and decile within South Australia. This is also illustrated in Figure 3-18 and shows the relative advantage of the Kimba and Wudinna DCs, both of which score above the South Australian average on three of the four SEIFA indexes. In contrast, the DC of Elliston scores below the Australian average on three of the four indexes, and DC of Tumby Bay scores below the Australian average on all four indexes.

A more detailed analysis of SEIFA scores suggests that:

- the DC of Kimba scores above the Australian mean, is placed in the top 90% of South Australian LGAs, and is the most advantaged of the local study areas on three of the four SEIFA indices (the exception being the Index of Education and Occupation). It also has smaller areas within the LGA that score highly.
- Wudinna DC also scores above the Australian mean on three of the four SEIFA indices and has smaller areas within the LGA that score highly. Cleve DC scores above the Australian mean on two of the four indices, and both Wudinna and Cleve DCs are in the top 80% to 90% of South Australian LGA's on all four indices.
- the DC of Elliston scores below the Australian mean on three of the four indices. It has the lowest score of the local study areas on the Index of Economic Resources and the highest score on the Index of Education and Occupation.
- the DC of Tumby Bay scores below the Australian mean on all four indices and is in the lowest 50% to 60% of South Australian LGAs. It is the most disadvantaged of the local study areas on three of the four SEIFA, and has smaller areas within the LGA that are significantly disadvantaged (ie where scores fall below 900) on all indices.

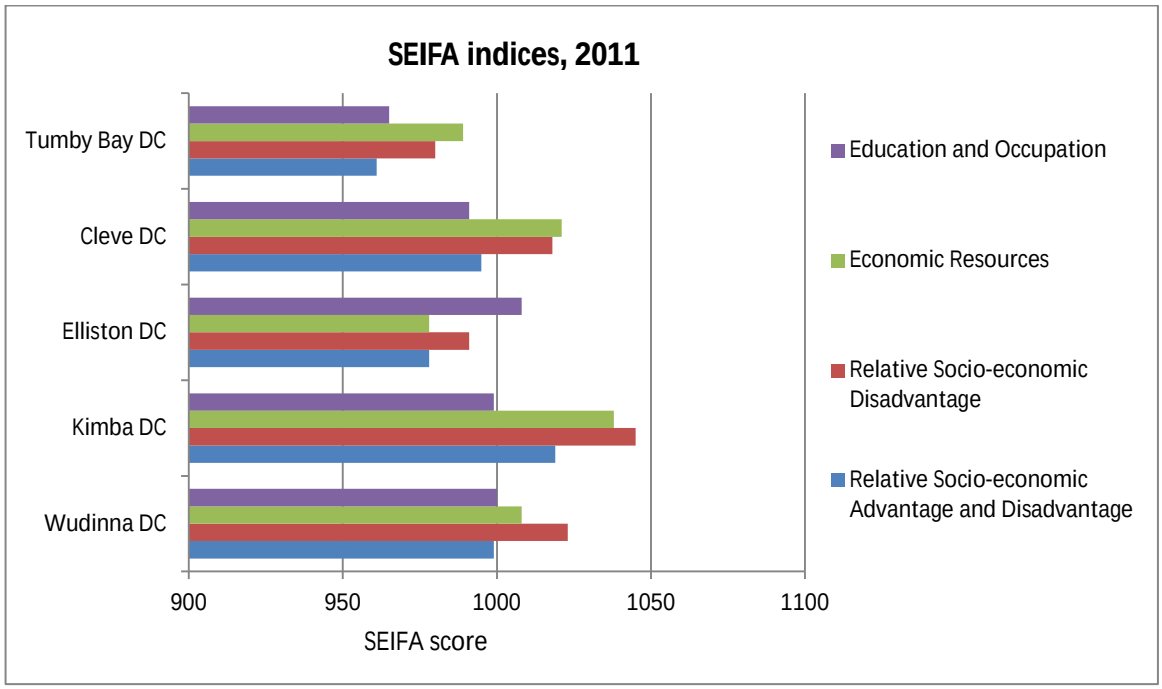


Figure 3-18 Score on SEIFA indices in local study areas, 2011
Source: ABS 2013h *Socio-economic Indexes for Areas*

Table 3-38 Socio-economic indexes for local study areas, 2011

SEIFA Index	Wudinna DC	Kimba DC	Elliston DC	Cleve DC	Tumby Bay DC
Relative Socio-economic Advantage and Disadvantage					
Score	999	1019	978	995	961
Rank within SA	56	60	46	54	33
Decile within SA	8	9	7	8	5
Relative Socio-economic Disadvantage					
Score	1023	1045	991	1018	980
Rank within SA	58	65	43	56	34
Decile within SA	9	10	6	8	5
Economic Resources					
Score	1008	1038	978	1021	989
Rank within SA	53	65	34	58	40
Decile within SA	8	10	5	9	6
Education and Occupation					
Score	1000	999	1008	991	965
Rank within SA	56	55	59	52	41
Decile within SA	8	8	9	8	6

Source: ABS 2013h, *Socio-economic Indexes for Areas (SEIFA)*, for LGAs of Wudinna, Kimba, Elliston, Cleve; Eyre Peninsula and South West (SA3); and South Australia.

Table 3-39 shows selected income support payments provided to people in the local study area, Eyre region, Regional South Australia and South Australia in June 2011. This again highlights the relative disadvantage of the DCs of Tumby Bay and Elliston. Almost a third of all people within the DC of Tumby Bay held a Centrelink concession card in June 2011, and it had the highest proportion of aged pensioners, pension concession card holds and disability support pension, while the DC of Elliston had the highest proportion of low income welfare dependent families (with children) and health care card holders.

Table 3-39 Selected income support payments in the local study area, Eyre region, Regional South Australia and South Australia, 2011

Income support payments June 2011 (as a %)	**Wudinna DC**	**Kimba DC**	**Elliston DC**	**Cleve DC**	**Tumby Bay DC**	**Eyre**	**Regional SA**	**South Australia**
Aged pensioners (people 65 years and over)	74.0	72.6	84.1	65.3	83.8	75.0	78.6	77.2
Pensioner concession card holders (people 15 years and over)	20.1	21.0	19.9	21.5	33.0	23.6	26.6	23.9
Disability support pensioners (people 16 to 64 years)	3.8	3.5	6.6	5.8	8.5	6.7	8.2	7.3
Low income, welfare-dependent families with children (all families)	6.8	na	9.2	5.6	7.8	10.3	10.0	9.5
Health care card holders (people 0-64 years)	6.2	3.7	10.5	6.5	7.4	9.2	9.0	8.7
All Centrelink concession card holders (all people)	20.5	20.2	25.5	22.3	32.6	26.6	29.0	27.0

Source: PHIDU 2013, 'Social Health Atlas: South Australia'.

3.5.5 Health

Health status

Table 3-40 presents information of health risk factors for people aged 18 years or over in the local study areas (except Wudinna DC where data is not available), Eyre region, Regional South Australia and South Australia, based on modelled estimates prepared by the Public Health Information Development Unit (PHIUD 2013).

These points to a number of health risk factors in local DCs in comparison to South Australia. Local study areas have:

- relatively high rates of smoking within the DCs of Elliston and Tumby Bay (but lower than in the Eyre region or Regional South Australia)
- relatively high rates of physical inactivity, particularly within the DCs of Elliston and Tumby Bay (but lower physical inactivity compared to the Eyre region or Regional South Australia)
- high levels of alcohol consumption at risky levels (at similar levels to the Eyre region but higher than in Regional South Australia)
- a higher proportion of people who are overweight or obese, and fewer people in a 'normal' weight range
- a lower consumption of fruit in the local study areas (except the DC of Kimba) but at similar levels to the Eyre region and Regional South Australia
- a higher proportion of people with at least one of four health risk factors in all study areas (except the DC of Kimba), but less than in the Eyre region and Regional South Australia.

Table 3-40 Health risk factors in local study areas, Eyre region, Regional South Australia and South Australia, 2010

Health risk factor[1]	Kimba DC	Elliston DC	Cleve DC	Tumby Bay DC	Eyre region	Regional SA	South Australia
Current smokers	21.3	23.0	20.8	24.0	24.8	25.0	22.7
Physical inactivity	36.0	37.5	36.5	37.3	38.7	37.9	35.8
Alcohol consumption at levels considered to be a high risk to health	10.9	11.0	11.2	11.1	11.3	6.2	4.9
Overweight (not obese)	30.9	30.2	31.3	30.5	30.1	29.9	29.6
Obese	18.1	18.6	17.0	19.6	18.5	18.7	17.4
Usual daily intake of two or more serves of fruit	50.2	48.8	49.6	48.2	48.2	48.4	50.2
People with at least one of four health risk factors	55.2	60.0	59.1	60.4	62.1	62.1	57.6

Source: PHIDU 2013, 'Social Health Atlas: South Australia'.
[1] Modelled estimates of people aged 18 years and over, except for alcohol consumption, which is for people 15 years and over. Data is not available for Wudinna DC.

Table 3-41 presents information on self-assessed health status and disability in people aged 18 years or over in the local study areas, Eyre region, Regional South Australia and South Australia, based on modelled estimates prepared by the Public Health Information Development Unit (PHIUD 2013). This suggests relatively few people perceive their health as fair or poor in the local study areas.

Table 3-41 Self-assessed health status and disability in local study areas, Eyre region, Regional South Australia and South Australia

Health indicator	Wudinna DC	Kimba DC	Elliston DC	Cleve DC	Tumby Bay DC	Eyre region	Regional SA	South Australia
Self-assessed health status of fair/poor[1] (as %)	na	15.1	15.7	15.7	16.2	17.6	18.1	17.9
Profound/severe/moderate/mild core activity restriction[1] (as %)	na	10.6	11.5	11.0	11.7	11.6	11.8	11.2
People with a profound or severe disability (as %)[2]	3.8	1.6	4.2	4.8	5.3	4.5	5.4	5.4

Source: PHIDU 2013, 'Social Health Atlas: South Australia'.
[1] Modelled estimates of people aged 18 years and over in 2010, except for alcohol consumption which is for people 15 years and over. Data is not available for Wudinna DC.
[2] All people in 2011, including people in long term accommodation.

Table 3-42 presents information on the median age of death and mortality rates for local study areas and South Australia, based on information contained in Country Health SAs *10 year Local Health Service Plans* (2010, 2011a and 2011b) and from the Public Health Information Development Unit (2011 and 2014). This highlights the lower median age of death and higher average death rate in the Wudinna DC, although premature mortality rates were highest in the DC of Elliston between 2008 and 2012. A review mortality rates across different time periods from 2003 to 2012 indicates a degree of variability in local study areas that may be due to their relatively small population size and number of deaths. Rates based on a small number of deaths can be particularly sensitive to change, and consequently should be treated with some caution in their interpretation.

Table 3-42 Median age of death and mortality rates for local study areas, regional South Australia and South Australia,

Area	Median age of death (2003-2007)[1]			Average death rate per 1,000 people (2010)[2]	Premature mortality per 100,000 people (2008-2012)[3]		
	Males	Females	All people	All people	Males	Females	All people
Wudinna DC[4]	74	81	77	8.1	353.7	na	249.5
Kimba DC	78	84	81	7.9	228.5	190.5	212.3
Elliston DC	78	81.5	81	4.7	517.1	na	313.0
Cleve DC	78	82.5	81	4.9	416.0	113.0	271.8
Tumby Bay DC	75	82.5	79	6.8	381.3	206.5	299.8
Regional SA	76	83	79	na	325.0	190.2	260.0
South Australia	77	83	80	6.1	na	na	247.5

Source: Public Health Information Development Unit (2011 and 2014), and Country Health SA (2010, 2011a and 2011b).
[1] The median age at death is influenced to some extent by the age of the population.
[2] Based on Statistical Local Areas, which are the same as LGAs. This is an indirectly age-standardised rate per 1,000 people.
[3] Premature mortality refers to deaths that occur before the age of 75 years (ie 0-74 years). This is an indirectly age-standardised rate per 100,000 people.
[4] Data on the median age of data and average death rate are provided for the DC of Le Hunte, which is the same as Wudinna DC.

Health services

The following information provides an outline of the major health services available on the Eyre Peninsula of relevance to the construction and operation of the CEIP, including the mine, port and infrastructure corridor. In particular, it focuses on the townships of Wudinna (as the location of the proposed long term employee village and the nearest district centre to the proposed mine at Warramboo) and Tumby Bay (as the nearest district centre to the proposed port site).

Residents of the Eyre Peninsula and western parts of the state have access to a number of health care services. The Port Lincoln and Whyalla hospitals are major health hubs for the region and are two of four designated general hospitals in country South Australia intended to serve the majority of country health care needs. These hospitals are currently being redeveloped to provide increased capacity for medical, surgical, emergency and general health care (see Section 3.4.1 Economic Overview for details). These facilities are supported by services in other locations including Ceduna, Cleve, Cowell, Cummins, Elliston, Kimba, Lock, Streaky Bay, Tumby Bay and Wudinna as follows (SA Health 2013):

- The Wudinna Hospital is part of the Eyre and Western Health Services. It includes a 23 bed facility that provides medical and health care services to Wudinna, the smaller townships and settlements of Minnipa, Kyancutta, Warramboo, Pygery, Yaninee and Lock, and surrounding districts on the Central Eyre Peninsula. It includes a 24 hour accident and emergency service with a local General Practitioner (GP) on call. Further detail on services provided at the Wudinna Hospital can be found in Section 3.7.
- The Tumby Bay Hospital and Lower Eyre Health Services includes a 24 bed facility. It provides a 24 hour accident and emergency service, general medicine, diagnostic radiology, outpatients and aged and disability care to Tumby Bay and surrounding districts including Port Neill, Lipson and Koppio.
- The Lock Community Health and Welfare Centre is part of the Eyre and Western Health Services. It provides primary health care and health information, assessments and referrals. There are no emergency facilities at this site.
- The Kimba Campus is part of the Whyalla Eastern Eyre and Far North Health Services. It includes a 20 bed health unit serving Kimba and the surrounding rural community (12 beds are for patients receiving active medical treatment and eight are aged care beds). It also provides a 24 hour emergency service.
- The Cleve Community Health and Eastern Eyre Health and Aged Care is part of the Whyalla Eastern Eyre and Far North Health Services. It includes a 20 bed hospital that provides acute and aged care services to Cleve, Arno Bay and the surrounding rural community, and includes a 24 hour accident and emergency service.

- The Port Lincoln Hospital and Health Service is part of the Eyre and Western Health Services. It includes a modern 50 bed complex complete with high dependency unit, renal dialysis and operating facilities, and a 24 hour accident and emergency service.
- The Whyalla Hospital and Health Service is the major regional health provider for Whyalla Eastern Eyre and Far North Health Services. It comprises 73 inpatient beds and a 20 bed day surgery unit and provides a 24 hour accident and emergency service, operating facilities, renal dialysis, mental health, domiciliary care, palliative care and allied health.

The SA Ambulance Service operates across the Eyre region, including career (paid) services in Whyalla and Port Lincoln and volunteer services in Wudinna, Lock, Kimba, Cleve, Port Neill and Tumby Bay (SA Ambulance Service 2013). The Red Cross and some community-based health services may also assist patients with transport services if they have no access to other means of transport for medical appointments.

Table 3-43 shows the number and type of services provided at Wudinna and Tumby Bay hospitals from July 2009 to June 2012 (National Health Performance Authority 2013). This shows a steady increase in outpatient services and admissions at the Wudinna Hospital over the three year period, with the majority of outpatient services involving medical/surgical/obstetric clinics and the majority of hospital admissions for medical emergencies. In contrast, overnight admissions at Tumby Bay Hospital have declined (with the majority of admissions also for medical emergencies), while outpatient services and same day admissions have varied over the three year period.

Table 3-43 Services provided at Wudinna and Tumby Bay Hospitals, 2009-2010 to 2011-2012

Hospital services	Wudinna Hospital[1]			Tumby Bay Hospital		
	2009-2010	2010-2011	2011-2012	2009-2010	2010-2011	2011-2012
Outpatient services (occasions of services)	448	555	644	1,368	1,383	1,331
Same day admissions	29	40	50	47	34	45
Medical emergency	*29*	*40*	*50*	*47*	*34*	*45*
Other medical				*<10*	*<10*	*<5*
Overnight admissions	89	109	131	410	382	361
Medical emergency	*89*	*109*	*126*	*336*	*319*	*305*
Other medical	*<10*	*<10*	*5*	*74*	*63*	*56*
Average length of stay (acute care)	8.4	9.0	8.3	5.4	5.9	6.7

Source: National Health Performance Authority 2013, 'My Hospitals'.
[1] Reported as the Central Eyre Peninsula Hospital.

The Eyre Peninsula Division of General Practice estimate there were 61 practising GPs working across the division in 2011-2012, 28% of whom were female, operating from 26 practices (Primary Health Care Research and Information Service 2013). This includes GP and medical services at Wudinna (at the Wudinna Hospital and Wudinna Medical Practice), at Lock (on a visiting basis at the Lock Community Health and Welfare Centre / Lock Medical Centre) and at Tumby Bay (three GPs operate from the Tumby Bay Hospital and Tumby Bay General Practice) (see Section 3.7, Social Services and Facilities, for further details).

The Royal Flying Doctor Service (RFDS) also provides health services to regional and rural communities on the Eyre Peninsula including:

- emergency air transport, including evacuations to the nearest hospital and inter-hospital transfers. As outlined in Section 3.6, airstrips at Wudinna, Tumby Bay, Cleve, Kimba, Cowell, Port Lincoln, Whyalla and Port Augusta can accommodate RFDS aircraft.
- monthly women's health visits to the townships of Wudinna, Lock and Kimba
- telehealth via medical practitioners, who provide a telephone and radio medical consultation service 24 hours a day, 7 days a week to people living, working or travelling in remote and rural Australia.

Health priorities

Six regional health services across the Eyre region have each prepared a 10-Year Local Health Service Plan to provide a strategic long-term vision for country health services and to address identified needs and gaps in service delivery in the region. Key issues and priorities identified in the Mid West 10 Year Local Health Service Plan (Country Health SA 2011a), which covers Wudinna and the Centre Eyre Peninsula, and the RDAWEP Regional Profile (2011a) include:

- the geographic isolation of the region and large distances for some residents to travel to a major health service or hospital, which combined with the limited local and intrastate transport options can result in difficulties in accessing health services
- the growing aged community and increasing demand for aged care services
- the large number of residents from outside the catchment area, including seasonal workers and visitors, who access local health care services
- chronic disease, including arthritis, asthma and osteoporosis
- meeting the health needs of children
- an increased focus on primary health care services and preventative health initiatives to address high risk factors associated with alcohol consumption, smoking, insufficient physical activity, obesity and high cholesterol
- the importance of recruiting and retaining GPs, nurses and allied health personnel
- implementing statewide plans to strengthen clinical services
- planning for the future health needs of the community, including potential population growth associated with industry development and lifestyle choices.

3.5.6 Crime and anti-social behaviour

Consultation undertaken by Iron Road across the Eyre Peninsula has identified the sense of safety, security and trust, and minimal problems with drugs, alcohol or crime, as a valued attributes of current township life.

Data on recorded offences in 2012 for LGAs, Regional South Australia and South Australia was sourced from the Office of Crime Statistics and Research (OCSAR 2013). Crime can be reported by a victim or by the police. Victim-reported offences include offences against the person, sexual offences, robbery and extortion and offences against property. The identification and detection of 'police detected crime' (such as offences against good order, drug offences and driving offences) rests predominantly with police and is influenced by policing practice and specialist operations. As such, the comparison of police detected offences across areas should be treated with some caution. Offence rates for regions with populations less than 3,000 people should also be interpreted with caution as rates may be based on a small offence numbers and can be particularly sensitive to change.

Figure 3-19 compares the rate of offending (per 1,000 people) in the local study areas with Regional South Australia and South Australia in 2012 for victim-reported and police-detected offences (OCSAR 2013).

This highlights the low crime rates in each of the local study areas, with the highest rates in the DCs of Tumby Bay and Elliston. (Please note that all other offences have been classified as police-detected offences in this analysis).

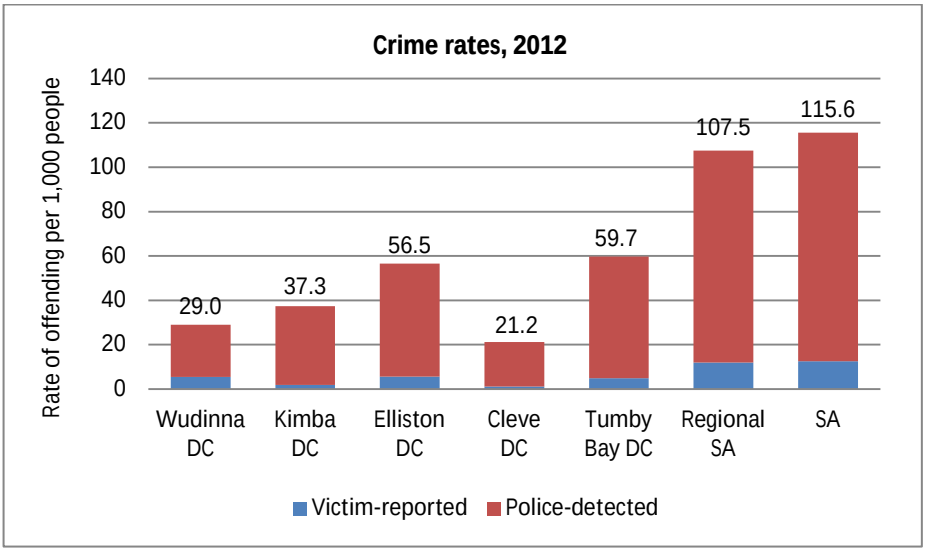


Figure 3-19 Rates of offending in local study areas, Regional South Australia and South Australia by victim-reported and police-detected offences
Source: OCSAR 2013

Table 3-44 compares perceptions of safety in the local study areas (except for the Wudinna DC as data is not available), the Eyre region, Regional South Australia and South Australia, based on modelled estimates prepared by the Public Health Information Development Unit (2013). This suggests greater perceived safety, with more than 50% of people aged 18 years or over in the local study areas who feel safe walking alone in the local area after dark, compared to around 45% in South Australia as a whole.

Table 3-44 Perceptions of safety in local study areas, Eyre, regional South Australia and South Australia1, 2010

Area	Feel safe (as a rate per 100 people)[1]
Kimba DC	52.3
Cleve DC	53.4
Elliston DC	52.0
Tumby Bay DC	52.1
Eyre	51.6
Regional SA	51.0
South Australia	45.4

Source: PHIDU 2013, 'Social Health Atlas: South Australia'.
[1] People aged 18 years or over who feel safe or very safe walking alone in the local area after dark as a rate per 100 people. Data is not available for Wudinna DC.

Figures 3-20 and 3-21 focus on crime within Wudinna DC where the long term employee village would be located.

Figure 3-20 shows the total rate of recorded offences (as a rate per 1,000 people) in the Wudinna DC, regional South Australia and South Australia from 2007–2012 (OCSAR 2013) and highlights the comparatively low rate of offending within Wudinna DC over time.

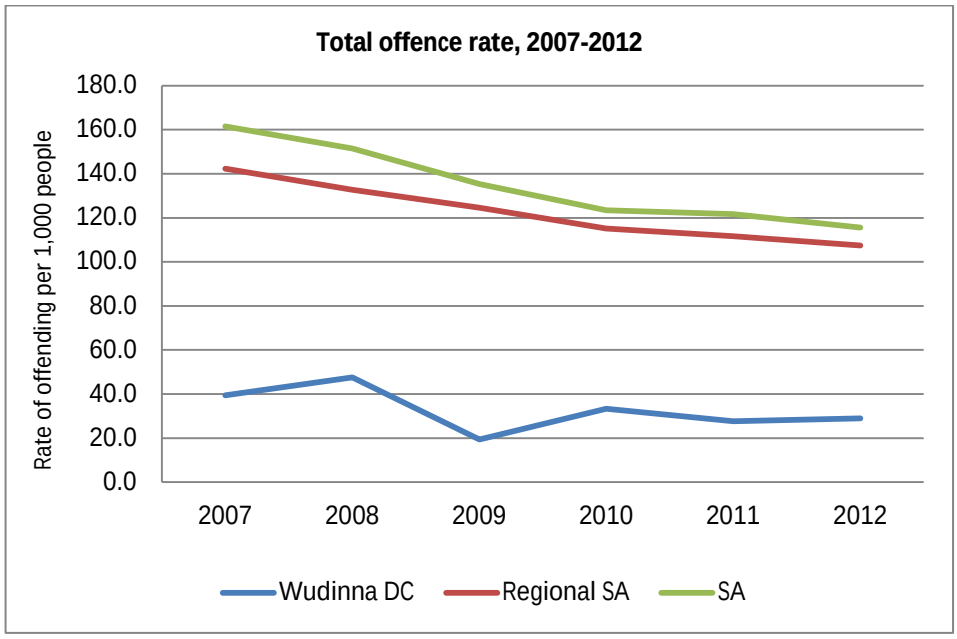


Figure 3-20 Trends in recorded offences in Wudinna DC, Regional South Australia and Australia
Source: OCSAR 2013

Figure 3-21 shows the type of offences recorded within the Wudinna DC in 2012 as a percentage of total recorded offences (OCSAR 2013). This shows that the most common offence was offences against property, which accounted for over 40% of all recorded offences, followed by offences against the person, including sexual offences (18.9%), offences against good order (16.2%) and driving offences (13.5%). No offences were reported in a number of categories including robbery and extortion and drug offences. In comparison, South Australia had a lower proportion of offences against the person including sexual offences (10.8%), offences against property (0.6%) and driving offences (3.2%), and more offences against good order (61%), drug offences (23%), robbery and extortion (1.2%) and all other offences (15%).

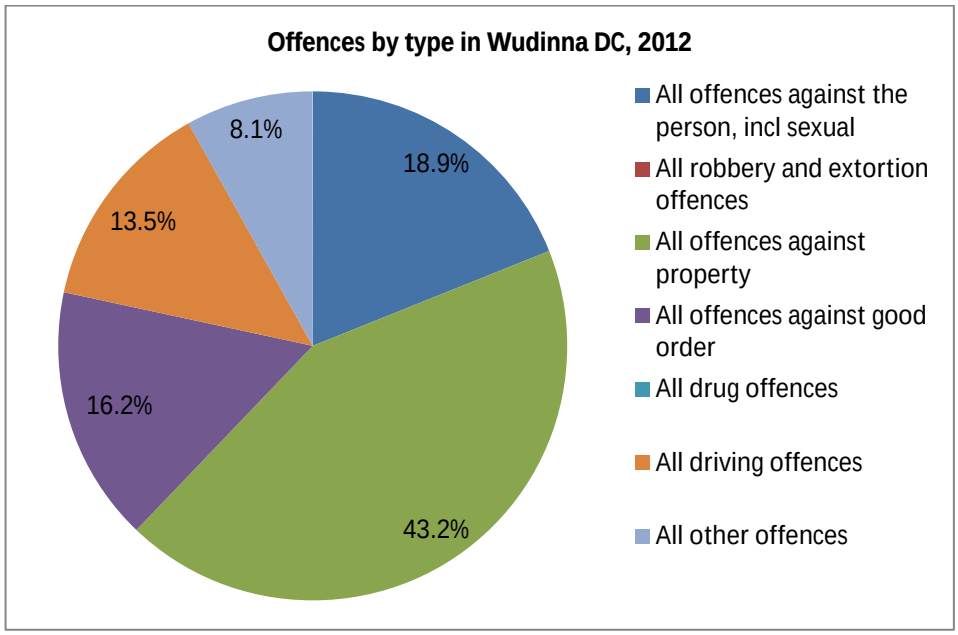


Figure 3-21 Type of reported offences in Wudinna DC, 2012
Source: OCSAR 2013

3.6. Transport, access and mobility

Most townships on the Eyre Peninsula are relatively isolated from major towns and regional centres and are rated as remote or very remote in terms of their physical distance from goods and services (Australian Department of Health and Ageing, 2006, Accessibility/Remoteness Index of Australia).

Table 3-45 presents information on a range of indicators of access in the local study areas, Eyre region and South Australia from several sources, including ABS 2011 Census of Population and Housing (ABS 2013a and 2013b) and modelled estimates from the Public Health Information Development Unit (2013).

This suggests that, in comparison to South Australia:

- a lower proportion of dwellings in the local study areas were connected to the internet, particularly in the Wudinna DC
- households in the local study areas had a higher than average number of vehicles per dwelling and fewer dwellings with no vehicles, reflecting the limited alternative transport options. As a result, fewer people had difficulties getting to places needed with transport
- despite the high level of vehicle ownership, more people in the local study areas had difficulty accessing services (most likely due to their remoteness).

Table 3-45 Access indicators in local study areas, Eyre, regional South Australia and South Australia

	Wudinna DC	Kimba DC	Elliston DC	Cleve DC	Tumby Bay DC	Eyre	South Australia
Remoteness classification[1] (2006)	Very remote	Remote	Very remote	Remote	Remote	Remote	na
Access to the internet[2] (as %) (2011)	62.1	68.8	68.2	65.2	64.7	63.9	71.1
Average motor vehicles per dwelling[3] (2011)	2.0	2.4	2.1	2.3	2.4	1.7	1.7
Dwellings without a motor vehicle (as %)[3] (2011)	4.8	3.2	3.8	3.9	2.1	9.2	8.7
People who often had difficulty getting to places needed with transport[4] (as a %) (2010)	na	2.5	2.7	2.6	2.9	2.7	3.0
Persons who had difficulty accessing services[4] (as a %) (2010)	na	42.3	42.1	42.0	42.0	41.9	28.5

[1] Australian Department of Health (nd) 'Accessibility/Remoteness Areas (2006)', for suburbs of Wudinna, Kimba, Cleve, Elliston, Tumby Bay and Eyre Peninsula. Not relevant for Regional South Australia or South Australia.
[2] ABS 2013a, *National Regional Profile*.
[3] Source: ABS 2012c, 'Census Quickstats'.
[4] PHIDU 2013, 'Social Health Atlas: South Australia'. Modelled estimates of people aged 18 years and over as a rate per 100 people. Data is not available for Wudinna DC.

Figure 1-2 shows the road linkages between towns and regional cities on Eyre Peninsula, which serve local and regional communities, freight and commercial vehicles (used to transport grain, mineral resources, freight, food product and other commodities), tourists and other road users. The region is bounded by the Eyre Highway in the north, which is part of the National Highway 1 network, and the Lincoln, Flinders, Tod and Birdseye Highways, which are the maintenance responsibility of the Department of Planning, Transport and Infrastructure:

- the Eyre Highway is the major interstate road that connects Port Augusta to Perth in Western Australia and also passes through Kimba and Wudinna
- the Lincoln Highway is the major intercity linkage between Port Augusta and Port Lincoln and also passes through Cowell, Port Neill and Tumby Bay, on the western side of Spencer Gulf
- the Flinders Highway lies on the western side of the Eyre Peninsula and connects Port Lincoln to Ceduna via Elliston and Streaky Bay. This is the region's only highway that has passing lanes (near Port Lincoln)
- the Tod Highway runs in a north-south direction from Kyancutta to the junction of the Flinders Highway, approximately 23 km north of Port Lincoln, and passes through Cummins, Lock and Warramboo
- the Birdseye Highway runs from Cowell on the eastern side of the Eyre Peninsula to Elliston on the west and passes through Cleve, Rudall and Lock.

The region also has a network of 12,742 km of local roads, 94.9% of which are unsealed (RDAWEP 2013). Most of these roads are the maintenance responsibility of local government, but some are classified as 'rural arterial' roads and are the responsibility of the Department of Planning, Transport and Infrastructure.

Road safety statistics collated by the Road Safety Advisory Council (2013) indicate that the Eyre and Western region accounts for 4% of the State's population, 4% of road fatalities and 4% of serious injuries. Despite the lower traffic volumes on roads in the region, traffic generally travels at higher speeds, making serious injuries and fatalities more likely if a crash occurs, with over 37% of injuries and fatalities occurring on roads with a speed limit of 110 km (in the 10 years from 2000 to 2009). The Road Safety Advisory Council report that, over this period, the number of fatal injuries or serious injuries in the Eyre and Western region has fluctuated between 76 and 54. They suggest that while visitors and tourists can find driving and travelling on unfamiliar roads a challenge, the majority (79%) of drivers and riders killed or injured in the Eyre and Western region between 2000 and 2009 were local residents. The most prevalent fatal and serious injury crash in the region involves single vehicles running off the road, rolling over or hitting trees or poles. Intersection crashes also occur but are less common (Road Safety Advisory Council 2013).

The Tod Highway has recently been nominated through the Risky Roads Campaign (RAA 2013) as one of the top 10 roads in South Australia that the public feel are risky, dangerous, frustrating or that cause concern. The RAA reports that between 2008 and 2012, there were 44 crashes on the Tod Highway involving 20 casualty crashes and 10 serious injuries or fatalities. The main reported issues were that the road was narrow, had crumbling road edges and lacked overtaking opportunities. Comments suggested that the road was dangerous for both cars and trucks because the lanes are narrow and that this is an issue particularly during the grain harvesting period.

The need for improvements to roads to increase road safety and meet growing transport demands has been identified as a priority in the RDAWEP Regional Plan (2013) and Regional Profile (2011a).

Approximate road distances and travel times by car between the proposed CEIP Mine near Warramboo and the proposed port at Cape Hardy and various locations are provided in Tables 3-46 and 3-47. Travel distances and times have been calculated using GIS, assuming travel is along sealed road at the maximum allowable speed limit, and lower speed limits through towns.

Table 3-46 Approximate road distances and travel times by car to the mine site entrance near Warramboo[1]

Township	Distance by road (kilometres)	Approximate driving time (hours)
Arno Bay	156.2	1.6
Cleve	131.5	1.3
Cowell	179.0	1.9
Cummins	135.1	1.3
Darke Peak	134.1	1.3
Elliston	144.1	1.4
Kimba	113.6	1.1
Lock	53.2	0.5
Minnipa	74.2	0.8
Poochera	112.3	1.2
Port Kenny	122.1	1.2
Port Lincoln	200.2	2.0
Port Neill	191.8	1.9
Rudall	110.9	1.1
Streaky Bay	170.8	1.7
Tumby Bay	176.2	1.7
Venus Bay	132.0	1.3
Warramboo	11.4	0.1
Whyalla	256.4	2.5
Wudinna	41.7	0.4
Yaninee	60.7	0.7

[1] Based on GIS calculations of road distance and travel time via Nantuma Road to the mine site entrance.

Table 3-47 Approximate road distances and travel times by car to the port site entrance at Cape Hardy

Township	Distance by road (kilometres)	Approximate driving time (hours)
Arno Bay	48.1	0.5
Cleve	74.1	0.8
Cowell	92.3	0.9
Cummins	70.1	0.7
Darke Peak	121.8	1.3
Lipson	15.6	0.2
Louth Bay	59.3	0.6
Port Lincoln	80.8	0.8
Port Neill	5.6	0.1
Rudall	95.4	1.0
Tumby Bay	32.1	0.4
Ungarra	40.1	0.4
Warramboo	180.3	1.8
Whyalla	199.0	1.9

[1] Based on GIS calculations of road distance and travel time to the northern port site entrance.

A number of reports have noted that the Eyre Peninsula experiences a high degree of isolation due to its limited local, regional and intrastate transport options (Country Health SA 2011a, RDAWEP 2011a).

Premier Stateliner runs regular bus services between Adelaide and regional centres (Premier Stateliner 2012) including:

- a service between Adelaide and Ceduna which connects to Port Augusta, Wudinna and Streaky Bay (three days a week)
- a service between Adelaide and Port Lincoln, which connects to Port Augusta, Whyalla, Cowell, Cleve, Port Neill and Tumby Bay (six days a week).

There are no bus services between Wudinna and Port Lincoln, although both the Wudinna DC and the DC of Tumby Bay have a community bus which is available for hire.

The Eyre Peninsula is also served by regional airports at Port Lincoln, Whyalla and Ceduna. These airports are operated by councils and provide facilities and services for regular passenger transport, charters, defence aircraft, medical retrieval services (through the RFDS) and general aviation operations. According to the RDAWEP (2011a), Port Lincoln is South Australia's busiest regional airport with in excess of 190,000 passengers annually. Whyalla caters for approximately 60,000 passengers per annum and Ceduna passenger numbers have grown to approximately 25,000 per annum.

In addition, there are local airstrips at Wudinna, Tumby Bay, Cleve, Kimba, Cowell and Streaky Bay. The airports at Wudinna, Streaky Bay and Cleve have sealed runway strips with pilot activated lights, while the other townships have unsealed airstrips which can accommodate light aircraft and the RFDS.

The Wudinna DC operates the Wudinna aerodrome which is located on the north-western edge of the township. The airport has a terminal equipped with seating, toilets and a pay phone and two runways. One runway is largely sealed and equipped with runway lighting, while the second is unsealed. The Wudinna DC is planning to upgrade the existing airport to accommodate the CEIP.

SeaSA operates a daily vehicle and passenger ferry across the Spencer Gulf between Wallaroo on the Yorke Peninsula and Lucky Bay on the Eyre Peninsula which takes 2 hours.

The Eyre Peninsula's railway network is shown on Figure 1-2. It is a narrow gauge railway system that is not connected to the national standard gauge network. The Wudinna to Port Lincoln line and parts of the Kimba to Cummins line are the only sections to have been refurbished. As a result, grain train operations have reportedly been curtailed on most lines, resulting in grain being hauled from rail depots to ports by road, and have increased pressure on the road network (RDAWEP 2013). The RDAWEP argue 'there is an urgent need to support mining and business development with the construction of a standard gauge railway line linking the southern parts of the region to the national rail network, preferably with direct access to a port export facility with the capacity to cater for Cape class vessels (ie vessels up to 200,000 tonnes)'.

The RDAWEP Regional Plan (2013), RDAWEP Regional Profile (2011a) and Regional Mining and Infrastructure Planning Project - Eyre and Western Region (Deloittes 2013) have each identified the need to upgrade existing roads, rail, ports and airports infrastructure to address maintenance issues and capacity constraints and improve operational efficiencies and market access.

3.7. Social services and facilities

This section provides an indication of the range of social services and facilities available in townships that may provide a base for the construction and operational workforces for the CEIP (information was current as at December 2013). This includes the townships of Wudinna, Warramboo, Lock, Port Neill and Tumby Bay, with a focus on the township of Wudinna as the location of the proposed long term employee village and the nearest district centre to the proposed mine at Warramboo. A summary of the services and facilities available in these townships is provided in Table 3-48.

Table 3-48 Services and facilities in local townships

Town facilities	Wudinna	Warramboo	Lock	Port Neill	Tumby Bay
School	✓		✓	✓	✓
Kindergarten	✓		✓		✓
Library	✓		✓	✓	✓
Childcare	✓				✓
Hospital	✓				✓
General practice/medical centre	✓		✓		✓
Family / welfare / counselling	✓		✓		✓
Dentist	✓				✓
Police	✓		✓		✓
Country Fire Service	✓	✓	✓	✓	✓
State Emergency Service	✓				✓
Ambulance	✓		✓	✓	✓
Banking/EPTPOS	✓		✓	✓	✓
Post office	✓	✓	✓	✓	✓
General store / supermarket	✓		✓	✓	✓
Internet access	✓	✓	✓	✓	✓
Vehicle repairs	✓		✓		✓
Fuel	✓		✓	✓	✓
Motel / hotel	✓		✓	✓	✓
Caravan / camping	✓		✓	✓	✓
Café / restaurant	✓		✓	✓	✓
Liquor license	✓		✓	✓	✓
Swimming pool	✓		✓		
Recreation and sport facilities	✓	✓	✓	✓	✓

The township of Wudinna is the main service centre for the Wudinna DC area and provides a range of social and recreational services, as shown on Figure 3-22 and detailed in Tables 3-49 and 3-50 (Table 3-49 also identifies comments by agencies on services). It offers a variety of retail and business services including a post office, bank/ electronic banking (EFTPOS/ATM) facilities, supermarket, bakery, butcher, pharmacy, newsagent, laundromat, hairdressers, hardware and building trades, financial and insurance services, mechanical suppliers, real estate agent, rural suppliers, accommodation and eateries.

Warramboo is the nearest township to the proposed CEIP Mine and its construction accommodation. It has limited services such as a local post office, an oval and sports/community club and a Country Fire Service (CFS).

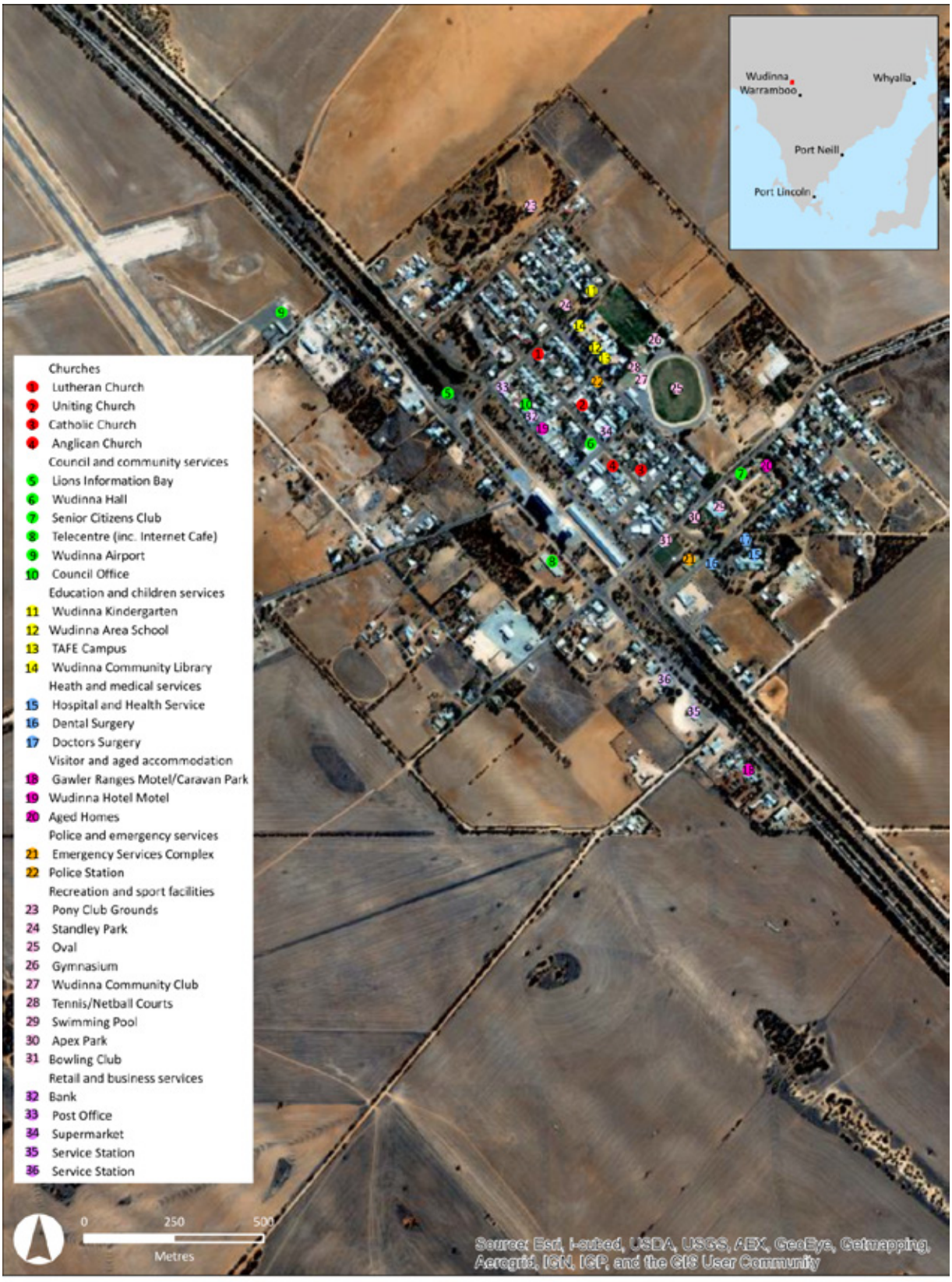


Figure 3-22 Existing social services and facilities in Wudinna township
Source: Wudinna District Council (2013)

Table 3-49 Social services and facilities in the township of Wudinna

Community service	Detail	Comments[1]	Source[1] Viewed August 2013
Wudinna District Council Burton Street	Seven councillors, 11 staff and 10 works staff, including: · Manager of Environment and Community Services · Economic Development Officer (role includes community development and youth development)		Discussions with Wudinna District Council, December 2013 Wudinna District Council (2013a), 'Our Council'
Wudinna Area School Medley Terrace	Reception to Year 12 Offers technical studies and engineering as part of the school site trade training centre program At the beginning of 2014, it had 187 enrolments In 2012, it had: · 5 vocational education and training enrolments · 2 school-based apprenticeships and traineeships · 17.6 (FTE) teachers and 7.1 (FTE) non-teaching staff Facilities include a gym, basketball and tennis/netball courts, and a school oval Out of school activities include an agricultural studies program, a music program and 'Pedal Priz'	Capital works project completed in 2009, including the construction of two classrooms, with Commonwealth government funding Class sizes are comparatively small Staffing has been stable, with a good mix of age, gender and teaching experience In 2012, students scored above the Australian average and similar schools across a number of years and subjects on NAPLAN, particularly in Years 3 and 5; in 2013, the six students in Year 12 all achieved SACE Five school buses transport children from the district Some children leave the area for secondary schooling elsewhere School facilities, including the gym, courts and oval are hired out for community use out-of-school hours	Discussions with the Principal Wudinna Area School, January 2014 Wudinna Area School 2013, 'Welcome to Wudinna Area School' ACARA 2013, 'My school' Office of the Co-ordinator-General 2009, 'Building the Education Revolution – Completed Project Summary: Wudinna Area School'
Wudinna School Community Library Medley Terrace	Joint school community library		Wudinna District Council (2013b), 'Business & Community Group List'
Wudinna RSL Memorial Kindergarten Oswald Street	Kindergarten on Tuesday, Thursday and Friday (in the 2nd and 4th week of each term) from 8.45am to 3.30 pm, with capacity for 24 children Occasional care program on Wednesday from 9.15 am to 11.45 am and 12.30 pm to 3.15 pm for children aged between 2 and 5 years, with capacity for eight children Playgroup run by parents on most Friday's Staffing includes a Director/Teacher and Early Childhood Worker three days a week	Five school buses transport children from the district into both the kindergarten and school Occasional care does not provide for regular bookings Kindergarten and occasional care program are at full capacity A proposal for a Rural Care (child care) program, to be run from the kindergarten using a family day care provider is currently under consideration	Discussions with the Kindergarten Director, January 2014 Wudinna RSL Memorial Kindergarten 2012, 'Guideline booklet for parents'

Community service	Detail	Comments[1]	Source[1] Viewed August 2013
Department of Education and Child Development Family Day Care Eyre Highway	Offers family dare care, before and after school care and vacation care services for children aged from six weeks to five years and from five to 12 years, Monday to Friday	Vacancies are available in Family Day Care Child care is not considered to be sufficient to meet current community needs; Council is exploring options for child care, potentially as part of an early childhood learning centre	Discussions with Wudinna District Council, Wudinna Area School and Kindergarten, in 2013 and 2014 Wudinna District Council (2013b), 'Business & Community Group List' Care for Kids 2013, 'Family Day Care'
Wudinna TAFE Campus Learning Centre Medley Terrace	Offers a range of certificate and award courses, subject to demand and funding In 2013, award courses included Children's services	Also deliver courses at Ceduna Good facilities, including a computer room, video-conferencing facility, smart TV, large classroom Good network of lecturers to deliver courses Key issues include changing government policies and funding and course fees/costs With recent changes to the 'Skills for All' initiative, training courses will receive different levels of government subsidy depending on industry demand and projected job openings; students may also receive an additional location subsidy of 30% as Wudinna is classified as remote	Discussions with Wudinna TAFE, December 2013 TAFE SA (2013), 'Wudinna Campus Courses' Department of Further Education, Employment, Science and Technology 2014, Skills for All funded training'
Trudinger Residence Residential Aged Care Richards Avenue	10 bed aged care facility located at the hospital, services include short-term respite care for older people		SA Health 2012b, 'Wudinna Hospital'
Wudinna Medical Practice Richards Avenue	Co-located with the Community Health Service Open Monday-Friday, 9.00 am-5.00 pm One GP and a registrar provide medical consultations Allied health professionals visit monthly and the Royal Flying Doctor Service provides a monthly women's health service	New facilities built in 2009 and practice opened in 2010 Draws patients from the wider region; GP services also provided in Lock one day a week Housing provided to support local GP services	Discussions with the local GP, December 2013 Lewis 2012, 'Wudinna Health Centre' Cancer Support Service (2013) 'Wudinna Medical Practice'

Community service	Detail	Comments[1]	Source[1] Viewed August 2013
Wudinna Hospital and Community Health Service (Mid West Health) Richards Avenue *(See Section 3.5.5 Health for additional information)*	Part of the Eyre and Western Health Services 23-bed hospital includes 10 aged care beds and 13 acute beds It has 26 staff, including a registrar and GP, 9.4 nursing FTEs and six community health staff (including an occupational therapist and two health promotion staff). It provides: · a 24-hour accident and emergency service with a local GP on call · general and specialist medical and surgical care, including minor / day surgery and acute care · allied health services · pre- and postnatal care · limited imaging · palliative care · outpatients services · primary health care services and health promotion. Visiting allied health services include podiatry, speech therapy, dietetics and physiotherapy. Other visiting professionals include an audiologist, dentist, female doctor, gerontologist, mental health worker, CAFHS nurse and optometrist	Serves people from outside the catchment area, including seasonal workers and visitors, as well as the 10-bed Trudinger Residence Deals with around 100-150 accident and emergencies outpatient services a year Registrar and GP based at the Wudinna Medical Practice Community health services delivered across three sites Meals-on-Wheels delivered by RDNS Accommodation provided to attract and retain nursing staff For specialised medical treatment and birthing, residents travel to Port Lincoln or Adelaide	Discussions with the Director Wudinna Hospital and local GP, December 2013 Lewis 2012, 'Wudinna Health Centre' SA Health 2012a, 'Services at Wudinna Hospital' SA Community Connecting up Australia 2013a, 'Mid West Health Inc - Wudinna' Country Health SA 2011a, 'Mid West 10 Year Local Health Service Plan 2011 – 2020'
Royal Flying Doctor Service	Provides a monthly women's health service		Royal Flying Doctor Service 2012, 'Health services'
Dental surgery Richards Avenue	Co-located with the Community Health Service Dental practice operates is open 2 days a week, 9.00 am- 5.00 pm	Dental practice operates from two locations in Wudinna and Cleve; Cleve practice is open 3 days a week	Practice sale search (2013) 'About the practice'
Police station Medley Terrace	Staffed by one officer Station open Monday to Friday mornings and at other times as required Provides services for Services SA including vehicle licensing and registrations	Work in conjunction with Lock and Elliston Police Stations One officer police station also operates at Minnipa 24 hour telephone and emergency response service available	Discussions with the Officer in Charge, Wudinna Police Station, February 2014

Community service	Detail	Comments[1]	Source[1] Viewed August 2013
Wudinna Emergency Complex Richards Avenue	Base for the State Emergency Services (SES), Country Fire Service (CFS) and SA Ambulance Service Volunteer station	CFS responded to 30 incidents in 2012-2013	Wudinna District Council (2013c), 'District information' SA Country Fire Service Station 2013, 'Wudinna'
Centacare Catholic Family Services Richards Avenue	Counselling, education and training, family and relationship services, emergency relief, financial counselling, low income support program, no interest loan scheme Financial counselling services four days a week	Funded by the federal Department of Social Services to June 2014 Provides services to Lock, Kimba and Streaky Bay	Discussions with the Centacare Director, December 2013 Centacare Catholic Family Services Country SA 2011, 'Wudinna'
Rural Financial Counselling Service Eyre Highway	Rural Business Support employs two counsellors who provide free business support and information to primary producers Operates from the Wudinna and Districts Telecentre and serves the Eyre Peninsula		Rural Business Support 2013, 'Eyre Peninsula: Rural Financial Counsellors'
Wudinna and Districts Telecentre Eyre Highway	A community-owned, multipurpose centre Open Monday to Friday 9am - 5pm Co-located with the Gawler Ranges Visitor Information Centre Provides access to computer, telecommunications and conference facilities and offices for: · Rural Financial Counsellors · Rural Transaction Centre (Centrelink agency, Medicare claims) · Service SA agency (including boat licensing and learner's permit) · Iron Road stakeholder engagement		
Community bus	Council bus is available for hire		Wudinna District Council (2013d), 'Community bus'
Other	Wudinna Catholic Church Wudinna Anglican Church Wudinna and Districts Uniting Parish Wudinna Lutheran Parish Wudinna and Districts Business and Tourism Association		Wudinna District Council (2013b), 'Business & Community Group List'

[1] Based on consultation with service providers and other stakeholders

Plate 3-4 Wudinna Area School

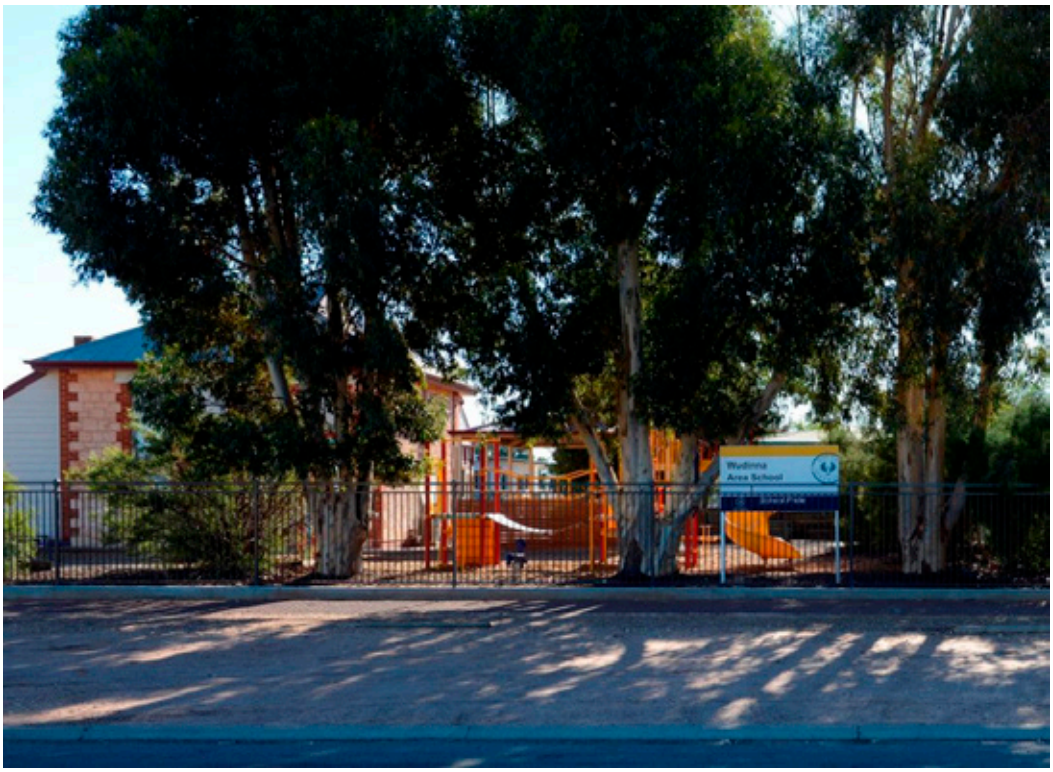


Plate 3-5 Wudinna police station

Table 3-50 Recreational and sport facilities in the township of Wudinna[1]

Recreational facilities	Detail
Apex Park	Located next to the swimming pool Grassed area, large playground, sheltered table and chairs, public toilets, BBQ and gym exercise equipment
Standley Park	Redeveloped and maintained by the Wudinna Lions Club and community Located on Medley Terrace, it contains a war memorial
Swimming pool	Community operated 3 pools including a baby pool and a 25 m pool Facilities include showers, toilets, canteen, grassed and sheltered areas Open 6 months from October to April from 4pm to 6pm weekdays, 2.00 pm to 6.00 pm on Saturday and Sunday, and 3.00 pm to 6.00 pm weekdays during school holidays
School gymnasium	School gym, located next to community oval, includes multi-use court and equipment Generally open 8.30 am to 5.00 pm Available for community use during lunchtime and out-of school hours
School basketball courts	School basketball courts, located next to the gymnasium Hired to sports clubs for community use out-of school hours Two outside courts; one available all year Courts in use on Thursday night from October to February
School tennis courts	Six outside tennis/netball courts owned by the school Available all year, with nets from September to March Hired to sports clubs for community use out-of school hours, with courts in use on Wednesday and Saturday night in season
School netball courts	Six outside tennis/netball courts owned by the school Available all year, with netball rings from March to October Hired to sports clubs for community use out-of school hours; with courts in use on Thursday night and Saturday
School oval	Available for community use and used by Little Athletics
Bowling green	Bowling green from September to April Bowling club open on Thursday, Friday night and during competition on Saturday
Community oval	Community operated Available all year, with football and cricket played on Saturday Licensed club room located next to the oval, open Friday and Saturday nights
Wudinna Community Club	Community owned and managed
Community hall	Used for multiple community and cultural purposes[1]
Lions Information Bay	Information and parking bay, it is equipped with a shelter, toilets and picnic facilities
Community clubs	Wudinna Community Club, Senior Citizens, Lions Club, Country Women's Association, Historical Society Other recreation and sporting groups include tennis, cricket, basketball, football, netball, bowls, darts, athletics, table tennis, pony club, pistol club and painting group

Source: Wudinna District Council (2013), 'Business & Community Group List'.
[1] RDAWEP 2011a, 'Regional Profile – Whyalla and Eyre Peninsula'.

The township of Lock offers a range of social services as summarised in Table 3-51.

The township of Port Neill offers a limited number of social services as summarised in Table 3-52.

The township of Tumby Bay is an important service centre for the district and surrounding communities. It offers a range of retail services including supermarkets, hairdressers, gift shops, bakery, accommodation and eating places, various recreation and sporting facilities as well as rural suppliers, insurance agencies, fuel outlets, RAA representative and mechanical suppliers (DC of Tumby Bay 2013b, 'Services'). The social services and facilities available in Tumby Bay are summarised in Table 3-53.

Plate 3-6 Wudinna library

Plate 3-7 Wudinna oval

Table 3-51 Social services and facilities in the township of Lock

Community service	Detail	Comments[1]	Source
Lock Area School West Terrace	Reception to Year 10 In 2012, it had 76 (74.8 FTE) enrolments, 9 (8 FTE) teachers and 8 (4 FTE) non-teaching staff	Declining school enrolments over the previous 3 years Government employee housing is available Four school buses / bus runs transport students from surrounding areas	Lock Area School 2012, 'Welcome to Lock Area School' ACARA 2013, 'My school'
Lock School Community Library West Terrace	Open Monday to Friday during school terms and Tuesday, Thursday and Friday during school holidays		SA Community Connecting Up 2013, 'Lock School Community Library'
Lock Early Learning Centre West Terrace	Collocated with the school 10 children enrolled in the pre-school in 2011 Provides sessional kindergarten for eligible children and playgroup one day a week Two staff members (0.75 FTE) in 2010		Lock Early Learning Centre 2010, 'Context Statement'
Family Day Care West Terrace	Operate from the Lock Early Learning Centre and other providers		Lock Early Learning Centre 2010, 'Context Statement'
Lock Community Health and Welfare Centre North Terrace	Open Monday to Friday 9.00 am – 5.00 pm Staffed by a full time registered nurse and a part time enrolled nurse Medical consultation once a week (on Wednesday) Other services include child and youth health services, physiotherapy, social work/counselling, primary health care and other allied health services on a visiting basis	GP from Wudinna Medical Practice consults one day a week in Lock	Discussions with the local GP, December 2013 SA Health 2013c SA Community Connecting Up 2011 Lock Early Learning Centre 2010, 'Context Statement'
Police station North Terrace	Staffed by one officer Station open half daily, Monday to Friday between 9.00 am to 5.00 pm	Work in conjunction with Wudinna and Elliston police stations 24 hour telephone and emergency response service	Discussions with the Officer in Charge, Wudinna Police Station, February 2014
Lock and Districts CFS South Terrace	Volunteer station	Responded to 6 incidents in 2012-2013	SA Country Fire Service Station 2013, 'Lock'
SA Ambulance Service North Terrace	Volunteer station		
Lock Sports Centre North Terrace	Community operated club 25 m community run, swimming pool open from November through to April Lock oval complex	Other recreational and sporting facilities include the bowling club	Lock Early Learning Centre 2010, 'Context Statement'
Other	Post office, ATM and banking services Catholic, Lutheran, Uniting and Presbyterian churches Lions Club, Lock and District Historical Society Lock Heritage Museum		

Table 3-52 Social services and facilities in the township of Port Neill

Community service	Detail	Comments[1]	Source
Port Neill Primary School Wallis Street	Reception to Year 7 In 2012, it had 17 enrolments, 3 (2.2 FTE) teachers and 4 (2 FTE) non-teaching staff Play centre on school site	New classroom built in 2010 with Commonwealth government funding Fluctuating school enrolments. Around half the student population are from surrounding areas; the absence of a school bus service has contributed to the decline in enrolments Housing rental subsidises are available to teachers	Port Neill Primary School 2011, 'Context statement' Port Neill Primary School 2012, 'Annual Report 2012' ACARA 2013, 'My school'
Port Neill Community Library Wallis Street	Open every Friday 2.00 pm to 4.00 pm Located in the Hall		DC of Tumby Bay 2014 'District information'
CFS Wallis Street	Volunteer station	Responded to 5 incidents in 2012-2013 Difficult to recruit volunteers	SA Country Fire Service Station 2013, 'Port Neill'
SA Ambulance Bice Street	Volunteer station	Responder group	
Other	Post office and EFTPOS facilities Uniting Church Port Neill Progress Association Country Women's Association Town oval, tennis courts, golf course and bowling green	No childcare available in Port Neill Boat ramp and breakwater	DC of Tumby Bay 2014 'District information'

Table 3-53 Social services and facilities in the township of Tumby Bay

Community service	Detail	Comments[1]	Source
District Council of Tumby Bay	Nine councillors, 13 senior staff and 14 works/other staff		DC of Tumby Bay 2014a 'Council information'
Tumby Bay Area School West Terrace	Reception to Year 12 In 2012, it had: · 296 (293.4 FTE) enrolments · 7 vocational education and training enrolments · 2 school-based apprenticeships and traineeships · 25 (23 FTE) teachers and 14 (7.5 FTE) non-teaching staff Offers out of school hours care from 3.00 pm - 6.00 pm and vacation care in the school holidays from 8.00 am - 6.00 pm, Monday to Friday, for children from 4 to 12 years of age Tumby Bay Skills Centre open Monday to Friday 10.00 am to 3.00 pm	Three government-owned school buses transport students to school from the surrounding district Tumby Bay Skills Centre opened in April 2005 and is funded by the Australian National Training Authority Government housing assistance and rental subsidies are available There are 6 schools in Port Lincoln including a public high school and two private schools (reception to Year 12)	Tumby Bay Area School 2012, 'Context Statement' Tumby Bay Area School 2013 ACARA 2013, 'My school' Tumby Bay Kindergarten 2012 'Context Statement'
School Community Library West Terrace	Open Monday to Saturday		Tumby Bay Area School 2013
Tumby Bay Kindergarten	An integrated pre-school and rural (long day care) service	Outdoor Rural Care area was completed in 2012	Tumby Bay Kindergarten

Community service	Detail	Comments[1]	Source
West Terrace	Kindergarten open Tuesday and Thursday 8.45 am to 3.00 pm and Wednesday 12.30 pm to 3.00 pm In 2012, staff included a director (0.8 FTE), teacher (0.6 FTE) and early childcare worker (0.6 FTE) and 28 and 30 enrolments Rural care available 5 days a week from 8.00 am to 6.00 pm (full day, mornings or afternoons) Playgroup Wednesday 9.30 am to 11.30 am		2012a and 2012b
Tumby Bay Hospital and Lower Eyre Health Services Esplanade	Tumby Bay Hospital is a 24 bed facility that provides 24/7 accident and emergency services, diagnostic radiology and outpatients services; includes 12 high care aged care beds Community services include extended care for the frail, aged and disabled, allied health services, child and youth health services, primary health care services and health promotion	Newly refurbished and well-equipped GPs from the Tumby Bay Clinic provide services to the hospital For specialised medical treatment and birthing, residents travel to Port Lincoln or Adelaide	SA Health 2013b
Tumby Bay Medical Clinic (Bayview Medical Services) Esplanade	Open Monday to Friday 9.00 am - 5.00 pm Served by four GPs (3.5 FTE), a practice manager, an administrator, two receptionists, and three practice nurses Co-located in in the Tumby Bay Hospital	GPs are on call to the Tumby Bay Hospital and also provide services to residential and hospital based aged care Currently seeking to recruit new doctors to the practice	Rural Doctors Workforce Agency Adelaide to Outback GP Training Program
Tumby Bay Dental Clinic Esplanade	Co-located in in the Tumby Bay Hospital Served by one dentist		
SA Ambulance Wibberley Street	Volunteer service	Difficult to recruit volunteers Relies on volunteers from Port Neill	
Police station Tumby Terrace	Staffed by one officer Station open half daily, Monday to Friday between 9.00 am and 5.00 pm	24 hour telephone and emergency response service Police resources and support also available through Port Lincoln Police Complex	South Australian Police 2013, 'Country Police Stations'
Emergency Services Complex West Terrace	Base for the CFS and SES Volunteer station	CFS responded to 28 incidents in 2012-2013 SES has a marine rescue vessel	SA Country Fire Service Station 2013, 'Tumby Bay'
Sport and recreation	Various recreation and sporting groups include tennis, croquet, basketball, football, netball, volleyball, table tennis, art, floral art, drama, gardening, food and wine	Township has a recreational jetty and community-built boat ramp	
Other	Volunteer Coastguard 19 seater bus owned by the council is available for hire Telecentre, post office and banking facilities Catholic, Lutheran, Uniting, Anglican, Church of Christ and Assemblies of God churches Visitors Information Centre, Tumby Bay Progress Association, Lions Club, Senior Citizens, RSL, Red Cross, Probus, Country Women's Association, National Trust, Landcare		DC of Tumby Bay 2014b 'District information'

Plate 3-8 The hotel in Port Neill

Emergency services, including police, SES, the SA Ambulance Services and CFS, are located in the townships of Kimba and Cleve. The CFS is also located in many small townships across the Eyre Peninsula, and near the proposed infrastructure corridor and port, including at Dark Peake, Rudall, Wharminda, Ungarra and Lipson.

The RDAWEP Regional Profile (2011a) has highlighted the extensive network of health, education and emergency services as one of the strengths of the Eyre region. It has also identified a number of challenges for social infrastructure development including:

- the ongoing centralisation and withdrawal of services to larger regional centres or Adelaide
- the ageing of the population and associated accommodation and service requirements
- the difficulties in attracting and retaining professionals in some communities
- the difficulties accessing medical professionals, particularly in smaller communities
- access to and shortage of child care places and facilities
- the need to retain youth within the local community.

Health issues and priorities were identified in Section 3.5.5, and included the need to plan for future needs associated with potential population growth from industry development and lifestyle choices. More detailed and specific information on community needs can be found in the community plans and strategic plans of the respective DCs and government agencies (Wudinna District Council 2012, 'Community Plan 2012-2017', District Council of Tumby Bay 2012, '2012-2022 Strategic Plan', District Council of Kimba (2011d), 'Strategic Management Plan 2012-2016', District Council of Cleve 2012, 'Strategic Plan' and District Council of Elliston 2012, 'Strategic Plan 2012 – 2017: Moving Toward 2017', Country Health's 10 Year Local Health Service Plans (2010a, 2011a, 2011b) and Implementation Plan (2011c), DEEWR's Regional Education, Skills and Jobs Plan (2013a)).

3.8. Summary of findings

The local study area that could potentially be affected by the proposed CEIP Mine and CEIP Infrastructure and include the DCs of Wudinna, Kimba, Elliston, Cleve and Tumby Bay on the Eyre Peninsula. The economy of these rural communities, like others on the Eyre Peninsula, is largely dependent on agriculture/pastoral activities and fishing/aquaculture, although tourism, mining and renewable energy are becoming increasingly important industry sectors.

The DCs in the local study area share a number of characteristics in comparison to South Australia and at the 2011 Census had:

- low population densities, with a large proportion of residents residing in local townships
- population losses over the 2006-2011 intercensal period (except in Tumby Bay, which experienced small population gains), with these population trends forecast to continue. Population growth in some coastal areas, hastened by the 'sea change' phenomenon and the drift of young people away from regional communities has resulted in declining population in some inland centres.
- an older age profile (except in Wudinna where the median age is below that of South Australia)
- more men than women (except in Tumby Bay, which had a similar proportion of men and women)
- low levels of cultural diversity, demonstrated by a large majority of residents who were born in Australia and speaking only English, and few Aboriginal people
- relatively 'stable' populations with low residential 'turnover' and high levels of home ownership
- relatively high proportion of single person households and low proportion of family households (although family households were the major household types)
- low median household incomes, particularly in Elliston and Tumby Bay
- low levels of educational participation and attainment
- mainly separate housing
- relatively low housing costs (although costs were higher in Tumby Bay)
- high labour force participation rates (except in Tumby Bay due to its older age profile and large retirement population) and high levels of youth engagement (in work or study)
- low unemployment (with the highest unemployment rates in Elliston)
- between 30% to 50% of employment in the agriculture, forestry and fishing industry
- high rates of volunteering and community support
- low crime rates and high perceived safety
- a higher than average number of vehicles per dwelling and few dwellings with no vehicles, although people reported some difficulties in accessing services.

The DCs are relatively remote with the district centres of Wudinna, Kimba, Cleve, Elliston and Tumby Bay each providing a range of services to the surrounding districts. In addition, the Eyre Peninsula is served by the regional centres of Port Lincoln in the south, Whyalla and Port Augusta in the upper east, and Ceduna in the west. These centres, and other coastal towns and settlements on the Eyre Peninsula, may provide a source of workers, goods or services for the CEIP. The district centres are well connected to regional centres and to Adelaide via the road network and regular air and bus services.

3.8.1. Wudinna DC

The Wudinna DC is located on the central Eyre Peninsula and covers an area of approximately 5,394 km^2. The district's main industry is agriculture-related, predominantly cereal cropping and livestock production, with tourism and mining are evolving as potentially important industries.

In terms of its socio-economic profile, the Wudinna DC can be characterized by the following features (at the 2011 Census) in comparison to South Australia:

- a resident population of around 1,250 people, with a population loss of 4.5% between the 2006 and 2011 Census
- more men than women
- a high proportion of people born in Australia and speaking only English
- a low median age, with more children (14 years or less) and fewer older people (65 years or more)
- a relatively stable population, with more people living in the same statistical area one and five years ago
- a relatively low proportion of family households
- all separate dwellings
- modest housing costs
- high labour force participation rates with around 35% of the workforce employed in the agriculture, forestry and fishing industry sectors
- high rates of volunteering
- low crime rates
- a lower proportion of households with internet access.

The district's main service centre, the township of Wudinna, is located on the Eyre Highway, and offers a wide range of retail and social services to the surrounding district, including a hospital and health service, police and emergency services, education and children's services, recreation and sport facilities, and visitor accommodation. It is located approximately 25 km north-west of the proposed mine site and the proposed long term employee village would be immediately adjacent to the town.

At the 2011 Census, the township of Wudinna had a resident population of approximately 560 people and accounted for almost 45% of the district's population. It experienced a population gain of almost 9% between the 2006 and 2011 Census unlike other parts of the district which suffered a population loss. It differs in a number of characteristics from the district as a whole and has:

- an older age profile
- more women than men
- a higher proportion of single-person households and fewer family households
- lower labour force participation
- fewer unoccupied dwellings and higher median rents.

Other townships in the DC area include Warramboo, Kyancutta, Yaninee and Minnipa. The small township of Warramboo is the closest to the proposed mine site. At the 2011 Census, Warramboo and the surrounding area had a population of around 47 people and 30 dwellings (ABS 2012b, Mesh Block Counts). In comparison to the township of Wudinna, Warramboo (SSC) has a low median age, more men than women, and low rental costs. It has limited services, which comprise a post office, an oval and sports/community club, and a CFS.

3.8.2 DC of Tumby Bay

The DC of Tumby Bay is located on the south eastern Eyre Peninsula and covers an area of approximately 2,670 km^2. The economy of the district is largely based on cereal cropping with the sheep and beef industry and fishing also well represented, and tourism and mining growing in importance.

In terms of its socio-economic profile, at the 2011 Census, the DC of Tumby Bay had:

- a resident population of 2,585; unlike the other DCs in the local study area, it experienced a small population gain between the 2006 and 2011 Census
- a similar proportion of men and women
- a large proportion of people who were born in Australia and speak only English, with few Aboriginal people
- an older age profile (with a higher median age, fewer people of working age and more seniors than other DCS or South Australia)
- low population 'turnover'
- a small average household size, with a relatively low proportion of family households
- low personal, family and household incomes, with a relatively high proportion of households on less than $600 per week
- relatively few people who were attending an education institution, had completed Year 12 or attained a non-school qualification
- a relatively high proportion of unoccupied dwellings, separate dwellings and dwellings that were owned or being purchased
- higher housing costs than other local DCs, and a relatively high proportion of households who were paying more than 30% of their income, although housing was considered affordable for key public sector workers
- relatively low labour force participation (which may be due in large part to its older age profile)
- around a third of its workforce were employed in agriculture, forestry and fishing industry
- a good quality of life, evidence by its high levels of volunteering and low crime rates, although its residents were relatively disadvantaged on a number of indicators, including the SEIFA Index of Disadvantage, of Advantage and Disadvantage, Economic Resources and Education and Occupation.

The coastal town of Tumby Bay, on the western side of Spencer Gulf, is the district's main service centre and offers a range of retail, recreational and social services, as well as visitor accommodation. Other smaller townships in the district include Port Neill, Ungarra and Lipson. By road, the township of Tumby Bay is located approximately 30 km south of the proposed port at Cape Hardy, while the smaller coastal township of Port Neill is approximately 5 km north of the proposed port site entrance.

At the 2011 Census, the township of Tumby Bay had a resident population of approximately 1,470 people, accounting for almost 57% of the district's population, and like the district, it experienced population gains (of around 9%) between the 2006 and 2011 Census. The town has a large retiree population and is likely to continue to attract people as part of the 'sea change' phenomenon. Like Wudinna, the township of Tumby Bay differs from the district in a number of characteristics and has an older age profile, more women than men and a higher proportion of single-person households. It also has a lower labour force participation rate and higher housing costs than the district as a whole.

The smaller coastal holiday township of Port Neill had a resident population of 135 people at the 2011 Census, a decline from 2006 Census, and can be characterized by its high median age of 60 years, higher proportion of women, low household income, high housing costs and high proportion of unoccupied dwellings. It has a school, post office, supermarket, CFS, volunteer ambulance service, caravan park and other holiday accommodation.

3.8.3 DC of Kimba

The DC of Kimba is an agricultural community located on the north-east Eyre Peninsula covering an area of approximately 3,984 km^2. A small portion of the CEIP infrastructure corridor would pass through the district on its southern boundary.

The DC of Kimba had a resident population of almost 1,100 people at the 2011 Census and in 2008 ranked the highest regional LGA in South Australia in terms of BankWest's Quality of Life Index.

It shares a number of characteristics in common with other DCs in the local study area including:

- a decline in population between the 2006 and 2011 Census
- an older age profile
- more men than women
- low levels of educational participation and attainment
- high levels of volunteering and community support
- low crime rates and high perceived safety
- a high proportion of its workforce employed in the agriculture, forestry and fishing industry sectors
- low unemployment.

It differs from other DCs in a number of characteristics:

- it has a higher proportion of family households
- it has higher median income levels, with fewer households on low incomes and more on higher incomes
- it is the most advantaged of the local study areas on three of four SEIFA indices (the exception being the Index of Education and Occupation) and is placed in the top 90% of South Australian LGAs on SEIFA.

The township of Kimba is located approximately 100 km from the north eastern corner of the proposed mining lease boundary and is the main township in the district. With a resident population of 670 people, it accommodates over 60% of the district's population.

3.8.4 DC of Elliston

The DC of Elliston is located on the west coast of the Eyre Peninsula and covers an area of 6,738 km^2. It includes the major coastal township of Elliston and the smaller township of Lock, which is located approximately 40 km south of the proposed mine site. The infrastructure corridor for the CEIP borders the district on its north eastern boundary but does not enter the DC area. The major industries in the district are mixed farming (sheep and mixed cereals) and fishing, with crayfish and abalone also thriving industries. The agriculture, forestry and fishing sectors employ over 46% of the district's workforce.

The district had a resident population of about 1,050 people at the 2011 Census, made up of more men than women, and experienced population losses of over 7% between the 2006 and 2011 Census.

The characteristics that distinguish the DC of Elliston from other DCs in the local study area at the 2011 Census were:

- a lower proportion of residents who live in the district centre
- a higher proportion of people of working age
- lower median incomes
- higher unemployment
- a lower score on the Index of Economic Resources and a high score on the Index of Education and Occupation
- a relatively high proportion of unoccupied dwellings (around 50%), other dwelling types (ie not separate or semi-detached dwellings, units flats) and other tenure types (ie not owned, being purchased or rented)
- low rental costs.

3.8.5 DC of Cleve

The DC of Cleve covers an area of approximately 4,505 km^2 and includes the major township of Cleve. The smaller township of Darke Peak is located approximately 120 km south-east (by road) of the proposed mine site. The district is also traversed by the proposed CEIP infrastructure corridor which would be located near to the small townships of Rudall and Verran. The district's economy is largely based on mixed farming activities including cereal/grains, oilseeds and pulses as well as livestock. Aquaculture is also an emerging industry.

The DC of Cleve had a resident population of over 1,730 residents at the 2011 Census, and experienced the largest population losses of any of the local study areas between the 2006 and 2011 Census. It has the lowest proportion of Aboriginal people of the local study areas, but shares many of the other common characteristics of the DCs.

4 Social Impact Assessment

The SIA has been prepared for Iron Road to provide guidance on the expected social effects of the proposed CEIP and how those effects could be managed.

Identified effects (impacts and benefits) are categorised as being negligible, low, medium or high. Impact criteria were developed for the project to standardise the assessment and the categorisation of impacts and benefits. The factors relevant to assessing social impacts are outlined in Table 4-1 and include the duration of the impact, the nature of the affected receiver and the geographic scale of the impact.

The SIA has focused on the major issues associated with the project, being those impacts identified as either medium or high. The impacts identified as low or negligible have been addressed only to the extent necessary to demonstrate that they have been considered.

The results of the SIA are presented in the following sections.

Table 4-1 Criteria for categorising project impacts

Category	Impacts	Benefits
Negligible	A negative change below detectable limits	A positive change below detectable limits
Low	A short term (< 3 years) negative change affecting receivers located within the local study only	A short term (<3 years) positive change experienced within the local study area only
Medium	A long term (> 3 years) negative change affecting receivers located within the local study area OR A short term (< 3 years) negative change affecting the regional study area (Eyre Peninsula) or state-wide receivers	A long term (>3 years) positive change experienced within the local study area OR A short term (<3 years) positive change experienced by the region (Eyre Peninsula) or the state
High	A long term (> 3 years) negative change affecting regional (Eyre Peninsula) receivers or state-wide receivers	A long term (>3 years) positive change experienced by the region (Eyre Peninsula) or the state

4.1 Design Modifications to Protect Social Values

Design measures to maintain and protect the social character, wellbeing and amenity of potentially affected communities and reduce social impacts include:

- providing workers' accommodation to reduce potential impacts on the existing housing stock or short-term accommodation on the Eyre Peninsula
- encouraging the operational workforce to reside locally rather than on a fly-in fly-out (FIFO) basis
- minimising the mine, port and infrastructure disturbance footprint wherever possible
- the design and siting of infrastructure including :
  - locating temporary construction camps on the mine and port sites to minimise disruption to local communities
  - locating the long term employee village adjacent to the township of Wudinna to reflect community views, encourage integration within the community and boost local spending
  - locating the proposed port site outside of existing urban areas and away from marine parks or conservation areas

- locating the railway line, water pipeline and power transmission line within a single infrastructure corridor to minimize access impacts
- locating the infrastructure corridor away from townships to reduce amenity impacts associated with 24 hour operations
- locating the power transmission line from Yadnarie substation to the infrastructure corridor parallel to the existing ElectraNet transmission line to minimise the area of clearance required for structures and disruptions to farming operations
- locating the infrastructure corridor on property or paddock boundaries to the extent practical to minimise the division of land and separation of farming activities
- locating the borefield and pump stations within road reserves to minimise land disturbance and access issues.

4.2 Social Impacts

A review of mining projects and related developments in rural Australia, feedback from consultation with the community, service providers and other stakeholders and an understanding of the existing social environment has identified the following potential social effects of relevance to the proposed mine, port, long term employee village, infrastructure corridor and borefield:

- workforce implications of the construction and operational stages, including labour and skills requirements, labour drawdown, LDC workforce arrangements, opportunities for local and regional employment and business development (see Section 4.2.1)
- effects on population dynamics and the provision of social services and facilities associated with construction and operational workforces (see Section 4.2.2)
- workforce accommodation and effects on housing supply and affordability from increased residential demands (see Section 4.2.3)
- changes to social character and well-being, including increases in the resident population and LDC workforce, social interactions and relationships between the workforce and residents and effects on community identity and lifestyle (see Section 4.2.4)
- access and disturbance for landholders near the mine, port and infrastructure corridor, including the loss and division of land, access issues, restrictions on marine and recreational activities, inconvenience, disturbance and delays, and loss of amenity (see Section 4.2.5).

Each of these is addressed below, with proposed management measures provided where relevant.

4.2.1 Employment and business

The CEIP would result in a long-term contribution to local, regional and state economies as a result of:

- direct and indirect employment growth over the short and long term
- the provision of goods and materials (non-labour resources) for the project
- opportunities for business
- increased government revenues to the South Australian Government from payroll tax and royalties and stamp duties over the life of the mine.

The Economic Impact Assessment of the CEIP estimated the likely economic contribution of the proposed mine, infrastructure corridor and port to the economies of the DCs of Wudinna, Kimba, Elliston, Cleve and Tumby Bay, the Eyre and Western region, South Australia and Australia. It estimated that over the 25 years of the project's operation, the CEIP would generate an average annual increase to South Australia's Gross State Product of around $2.7 billion.

Over the CEIP's operation, it is estimated to increase Government revenue by an annual average of $165.8 million to the South Australian Government and $496.8 million to the Commonwealth Government. It would also create around 1,985 full-time jobs (both direct and indirect) in South Australia and 1,040 jobs in the Eyre and Western region during operations.

The labour and skills requirements for the CEIP are discussed below, followed by the implications of workforce requirements and opportunities for local and regional employment and business development.

Labour and skills requirements

The CEIP is expected to employ a peak construction workforce of around 2,490 people and an operational workforce of 760 people for the mine, port, rail and associated infrastructure, including workers based in the Adelaide head office. In addition, a short-term workforce of around 310 contractors would be engaged periodically for routine maintenance shutdowns. The expected mine life would be 25 years although CEIP infrastructure, including the port and rail, would remain beyond the mine's life and continue to be utilised by others.

Table 4-2 summarises the projected peak labour requirements to construct and operate components of the CEIP. As shown in Table 4-2, it is anticipated that over 50% of the operational workforce would comprise Iron Road employees and the remainder would be contractors.

Table 4-2 Projected peak labour requirements for the CEIP

CEIP component and stage	Mine	Infrastructure corridor	Port	Head office	Total
Construction	1,050[1]	500[2]	400	540	2,490
Operations	560	40	100	60	760
Employees	260	40[3]	70	60	430
Contractors	300	-	30	-	330
Shutdown[4]	300	-	10	-	310

[1] Includes the workforce required to construct the long term employee village.
[2] Half of the workforce involved in constructing the northern half of the infrastructure corridor, including the rrailway line, power transmission line, borefield and water pipeline, would be based at the mine site and the other half would be based at the port site.
[3] Railway line operational workers would be based at the long term employee village in Wudinna.
[4] Not part of the permanent workforce as this work would be undertaken periodically as part of an annualised task.

The indicative workforce requirements for the construction and operational stages of the CEIP over time (excluding shutdown workers) are illustrated in Figure 4-1.

The skills required for the CEIP would range from semi-skilled roles to professionals and management. The construction workforce is likely to be made up largely of young men employed as technicians and tradespeople, machinery operators and drivers, and labour and related occupations.

The majority of the construction workforce would be in contract positions and construction activities would occur nominally 7 days per week and up to 12 hours per day. It is anticipated that the majority of the construction workforce would work 12-hour shifts.

Because of the number, skill sets and relatively short duration of construction activities, most of the workforce required during construction is expected to be fly-in fly-out (FIFO) or drive-in drive-out (DIDO) workers, who would be accommodated in construction camps located on the proposed mine site near Warramboo and the port site at Cape Hardy.

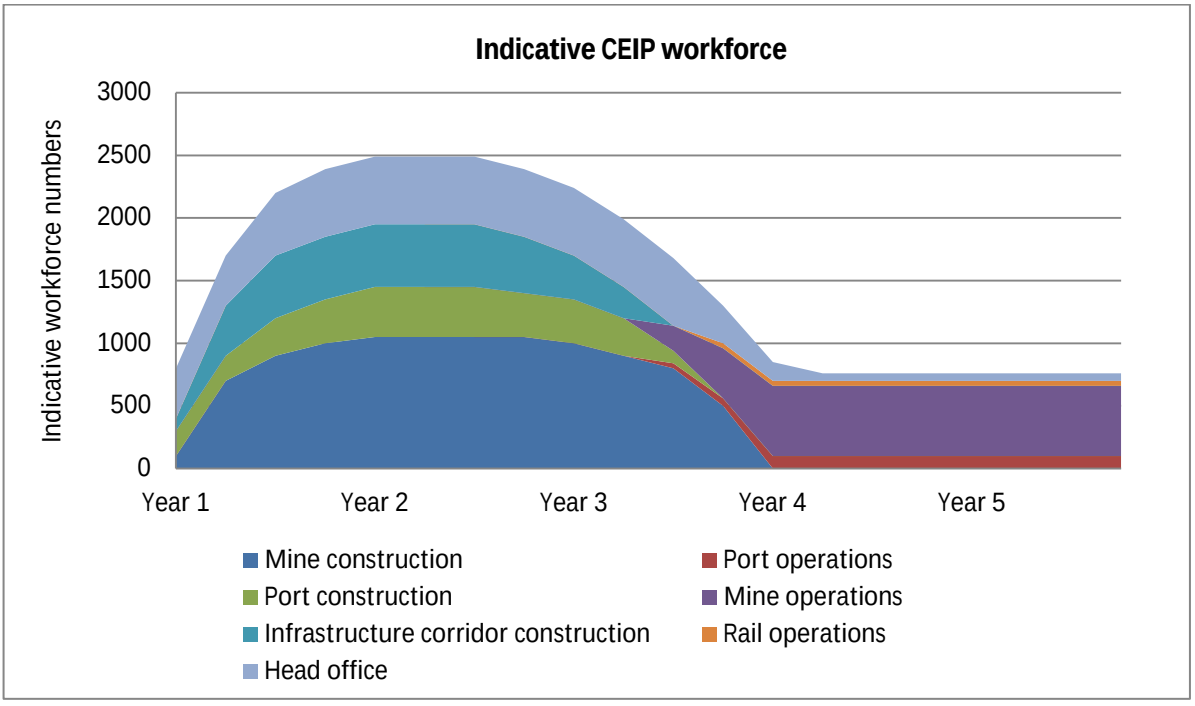


Figure 4-1 Indicative CEIP workforce

The operational workforce would comprise managers and professionals, technicians and tradespeople, and operators. An indication of the number and type of employee positions required during the CEIP operations is provided in Table 4-3. It is anticipated that among operational contractors, around 20% (65 workers) would be involved in management and administration, 65% (215 workers) would be operational workers and 15% (50 workers) would be maintenance workers.

Table 4-3 Projected employment during operations

Functional area	Mine	Railway line	Port	Head office
Employees				
Management and administration	72	2	3	60[1]
Health, Safety, Environment and Community	9	0	4	
Warehouse and stores	7	0	5	
Operations	85	32	40	
Maintenance	87	6	18	
Contractors	300		30	
Total	**560**	**40**	**100**	**60**

[1] May include some employees working in Health, Safety, Environment and Community.

Over a half of Iron Road employees would work on rosters of 5 days on and 2 days off including employees engaged in management and administration, HSEC and warehousing and around two-thirds of the maintenance staff. The majority of contractors and employees engaged in operations at the mine would work on rosters of 2 weeks on and 1 week off, while the majority of maintenance workers and staff engaged in the operation of the port and rail service would work on rosters of 7 days on and off and 7 nights on and off.

During operations, it is anticipated that the majority of the workforce associated with the port would live locally in nearby towns or surrounding rural areas. While it is Iron Road's preference to employ locally-based residential workers at the mine, it is recognised that in order to meet workforce requirements, at least initially, the majority of the operational workforce may be FIFO or DIDO. The DIDO workforce could include workers who reside in regional centres or townships across the Eyre Peninsula. LDC operational contractors would be accommodated at the camp on the mine site near Warramboo, and employees would be accommodated at the long term employee village immediately adjacent to Wudinna. This is discussed in further detail in Section 4.2.2 Population and Services and Section 4.2.3 Housing and Accommodation. In addition, approximately 60 employees would be based in Iron Road's Adelaide office and would perform finance, supply, marketing, general manager and administration functions.

The workforce associated with the CEIP would be expected to provide significant benefits including:

- creating new direct and indirect employment opportunities at the state, regional and local levels, in the short and long term, and for particular population groups, including Aboriginal people, young people and women
- increasing opportunities for apprenticeships and education and training at the local and regional levels
- generating business development opportunities through the direct provision of goods and services to Iron Road and its contractors and indirect / flow-on effects generated in other sectors of the economy as a result of higher income levels and increased consumer spending
- a long-term positive boost to the local and regional economy through economic diversification, reducing the reliance on primary production and providing greater resilience to economic down turns in the agricultural sector
- reversing population losses that have been experienced in many rural communities on the Eyre Peninsula by attracting people to live and work in the central and lower Eyre Peninsula
- increasing the membership base for local community, recreational and volunteer organisations.

The workforce associated with the CEIP would also present a number of challenges including:

- recruiting and retaining the required workforce
- competition for skilled workers, which could draw workers away from existing local and regional ventures, result in higher wage costs and affect the ability of businesses to attract and retain staff
- attracting resources (human, plant and equipment, and other inputs) from existing ventures
- capacity constraints in the local and regional business sector that affect their ability to participate in, and benefit from, new opportunities.

These effects are discussed further in the following sections.

Local and regional job creation

The CEIP would offer significant benefits by creating new long-term employment opportunities at the state, regional and local levels. This would include both direct and indirect employment. For example, the Economic Impact Assessment estimated that the CEIP would generate an annual average of 1,040 full-time jobs (direct and indirect/flow-on jobs) in the Eyre and Western region over the 25 years of the project's operation, including approximately 850 jobs in the Wudinna DC.

The CEIP also has the potential to increase competition for workers, attracting them from other sectors of the economy, including agriculture and fishing. Consultation with residents and service providers has identified concerns about potential labour drawdown from the CEIP, with farming and community services sectors already experiencing difficulties in attracting and retaining workers; the higher wages offered by the mining company could exacerbate this existing problem. Potentially, the CEIP could also impact on local and regional businesses as resources (human, plant and equipment, and other inputs) are attracted away from existing ventures, such as agriculture and fishing. Others see major opportunities and benefits from the CEIP as a result of new employment, training and business opportunities, which would help retain young people and others within the local community, bring back people who have left the area to find work elsewhere and attract new people to live and work in local communities.

Experiences in other rural areas suggests the mining industry can compete with other industries for employees and drive up wages that other industries may find difficult to match (Haslam McKenzie 2002, 2009; Lockie et al 2007; Brasier et al 2011; Federal House of Representatives Standing Committee on Regional Australia 2013). This can generate competition for workers, particularly during peak demand times such as harvest as well as competition between industries for products and supplies.

The RDAWEP (2011 and 2013), (former) Federal Department of Education, Employment and Workplace Relations (DEEWR 2013a) and Deloittes (2013) have noted that the emergence of the mining and resources sector has the potential to create considerable workforce challenges as well as opportunities across the region.

As noted in Section 3.4.1, current mining operations in the Eyre region include Arrium's mines in the Middleback Ranges and Iluka's Jacinth and Ambrosia heavy mineral sands deposits in the Far West; Iron Clad Mining's Wilcherry Hill Project (near Kimba) and Centrex's Wilgerup mine (near Lock) have also been approved, but are yet to be constructed. In addition, Deloitte (2013) has identified a further 8 developing mining projects and 5 prospects in the Eyre region.

The RDAWEP anticipates that demand for workers will escalate as a result of mining developments, with 4,500 new jobs likely to be created in the mining sector by 2016, and a further 2,200 workers required in the next ten years (Regional Plan 2013). This will increase demand for skilled tradespersons by around 9% per annum over the next 5 years, labourers and related worker by 7% per annum and production and transport workers by 8% (RDAWEP Regional Profile 2011).

More conservative estimates by the (former) DEEWR suggest employment growth of 4,500 (or 6%) in the Northern and Western region of South Australia in all industry sectors from November 2012 to 2017, including 600 jobs in the agriculture, forestry and fishing sectors, 400 jobs in the mining sector and 900 jobs in the construction sector. Across South Australia, it projects relatively weak employment growth of 40,200 (4.9%) over the 5 year period, with a loss of some 600 jobs in the agriculture, forestry and fishing sectors and gains of 1,300 in the mining sector and 8,000 in the construction sector (DEEWR 2013b). At the national level, DEEWR forecasts growth of 7.0% for machinery operators and drivers, 5.0% for technicians and trades workers and 4.2% for labourers over the 5 year period (DEEWR 2013c).

The RDAWEP (Regional Plan 2013) has argued that the Eyre region does not have a large enough population to provide the necessary workforce for proposed mining and industrial growth. The older age profile of the region and relatively low levels of educational participation and attainment exacerbate these workforce challenges, with the ageing of the population likely to 'shrink the pool of skilled and experienced workers in future years'.

It is Iron Road's intention to recruit the workforce required for the CEIP through local and regional recruitment and FIFO workers, who would be encouraged to relocate and live locally. Consultation with local and regional stakeholders has also indicated a desire for the CEIP to offer local employment opportunities, rather than jobs being allocated to a FIFO workforce. Iron Road is committed to hiring locally wherever appropriately skilled people are available, and would work with government, education and training providers and other relevant organisations to enable people to gain the necessary skills to work in the CEIP. This would include consultation with Wudinna TAFE about job readiness programs and pre-vocational training to enhance local skills and support local entry into the mining industry.

As highlighted in Section 3.4.2, labour force participation is high in the council areas surrounding the proposed mining lease with the highest participation rate in the Wudinna DC where 72% of people aged 15 years or over were in the labour force at the 2011 Census (ABS BCP 2012a). Of those in the labour force in the Wudinna DC, 65% were employed fulltime and 26% were employed part-time. Local DCs also have low rates and numbers of unemployed people, ranging from 2.4% (22 people) in Cleve; 2.5% (or 14 people) in Kimba; 3.2% (21 people) in Wudinna; 3.2% (18 people) in Elliston; and 4.0% (50 people) in Tumby Bay in the September Quarter 2014 (Department of Employment 2014a). As such, there is unlikely to be a sufficient large pool of locally based people to meet the CEIP workforce requirements particularly for the operation of the mine. However, in regional cities and across the Eyre Peninsula and South West region, labour force participation rates are lower and unemployment is higher, with greater capacity to supply labour for the CEIP (for example, in Port Lincoln).

While the employment of people who are already working would have no net benefit in terms of creating new job opportunities (and may result in negative impacts), there is the potential to train and up-skill people who are not currently employed or in the labour force or who are working on a part-time basis (for example, women, young people and Aboriginal people). The potential also exists to use labour from industry sectors that are in decline (such as manufacturing). This could be facilitated by providing family friendly work environments, rosters and childcare to enable women to enter the mining workforce (should they wish to do so) and supporting training facilities and programs at Port Lincoln and Wudinna. Iron Road would also take part in programs targeting skills development and job placement in Aboriginal communities, as per the Indigenous Land Use Agreement which is currently being negotiated and is discussed in the CEIP EIS and MP.

The CEIP may encourage young people to stay in the region and take up training and employment opportunities or attract them back to the region after completing secondary or tertiary studies elsewhere because of local job opportunities. It could also bring back people who have left the region to find work - for example, the Olympic Dam Expansion Draft EIS indicated there were approximately 200 permanent employees who live in the Upper Spencer Gulf region and work at Olympic Dam on a long distance commute (LDC) basis (Arup/ENSR 2009), some of whom may reside in the Eyre region. In addition, the CEIP could potentially provide a source of employment to supplement often variable farming incomes with off-farm earnings (either through working on the mine or with businesses providing ancillary services) and assist in maintaining some family farming enterprises, if mine rosters could be arranged to accommodate farm work, or peak agricultural periods, such as harvesting (see Haslam McKenzie et al 2013).

As noted in the social profile, many rural communities on the Eyre Peninsula, including the DCs of Wudinna, Kimba, Cleve and Elliston, have experienced population losses and are predicted to continue to do so. Among the factors that have contributed to this decline are changing seasonal conditions and agricultural practices, the migration of young people to cities and larger regional centres for work or study, the ageing of the population, and the ongoing centralisation of services (RDAWEP Regional Profile 2011). The economic wellbeing of businesses and industries and the availability of local employment opportunities are also likely to be major factors in attracting and retaining the population of rural communities.

Among the key issues identified in the 2001 Wudinna District Council Community Plan were ongoing population loss (from continuing declines in farm family numbers, the migration of families, 'youth drain' and ageing of the population), the reliance on primary production/agriculture and lack of local employment opportunities, with little capacity for the district to 'hedge' against crises in the agricultural industry (Wudinna DC 2012). Among the goals of the 2012 Community Plan are to establish the Wudinna DC area as the focus for excellence in agriculture, local tourism and mining and to actively promote an environment that fosters and supports local business and commercial opportunities and activities (Wudinna DC 2012). This will be undertaken by working collaboratively with the RDAWEP and others to create new jobs, provide assistance and incentives for business development and promote and support youth employment and training schemes (Wudinna DC 2012).

Iron Road has indicated its intention to encourage its workforce to live locally and, over time, it is anticipated that some of the CEIP employees engaged as LDC workers in Wudinna may choose to re-locate to live within commuting distance of their workplace. As noted by RDAWEP (2011), attracting a workforce and their families to relocate to the region may also require social services and community infrastructure to be upgraded 'to provide the quality of life and liveability expected by contemporary communities'. These issues are discussed further in Sections 4.2.2 and 4.2.3.

Iron Road is committed to providing benefits to local and regional communities through the CEIP, and would seek to maximise local and regional employment and minimise potential skills shortages and labour impacts by:

- actively working with local and regional employment services and businesses to enhance opportunities
- opening all employment positions to local and regionally based applicants, where their skills and qualifications are otherwise equal
- opening all training positions (including graduate, trainee and apprenticeship positions) to locally and regionally based applicants
- developing flexible work practices as best as practicable to accommodate farm work, including during peak agricultural periods such as harvesting, and other seasonal business activities
- working collaboratively with government, education and training providers and other relevant organisations to expand the pool of available labour across the Eyre Peninsula and train and up-skill local and regional people to work on the project
- taking part in programs targeting skills development and job placement for local Aboriginal people (as per Indigenous Land Use Agreement)
- consulting with the Wudinna TAFE about job-readiness programs and pre-vocational training to enhance local skills and support local entry into the mining workforce
- considering support for training programs at Port Lincoln and Wudinna to address skills requirements of relevance to the project
- collaborating with the Eyre Peninsula Mining Alliance, the SA Chamber of Mines and Energy and other mining companies to provide information on careers in the Eyre Peninsula mining industry
- maintaining the existing online data base/register of prospective employees
- providing family friendly work environments to facilitate women's entry into the mining workforce
- liaising with the South Australian Government's Resources Infrastructure Taskforce and the Eyre Peninsula Mining, Oil and Gas Community Development Taskforce to provide information on the CEIP, facilitate strategic planning and promote sustainable regional growth.

Residual impact

The residual impact on employment is assessed as medium as a result of labour drawdown affecting local and regional study areas in the long term, with high residual benefits in the long term by creating ongoing employment at the local, regional and state level.

Business development

The CEIP would provide substantial direct and indirect business opportunities for local, regional and State-wide businesses. Direct business opportunities would relate to the provision of goods and services to Iron Road and its contractors, and indirect flow-on effects generated in other sectors of the economy as a result of higher incomes levels and consumer spending, including the provision of goods and services to LDC workers or incoming residents in local townships. This could benefit a range of business types from small to large, stimulate growth in the local and regional economy, and contribute to the overall well-being of communities. The Economic Impact Assessment estimated that around 24% of direct construction expenditure on the CEIP (approximately $286 million per annum) and 18% of direct operational expenditure (approximately $201 million per annum) would be spent in the Eyre and Western region, with the greatest expenditure occurring in the Wudinna DC.

Business opportunities would change over the construction and operation stages of the project and are likely to include fuel supplies, communications, transport and logistics (such as workforce transport, mechanical services for fleet maintenance), engineering and construction services (such as light earthworks, road maintenance), the supply of services, goods or consumables to camp and village accommodation, catering, training, and the provision of materials.

Indirect business opportunities are likely to include retail/wholesale trade, vehicle purchase and maintenance, entertainment, town services and the supply of domestic goods and services. The Economic Impact Assessment identified the greatest flow-on employment effects for industries in the local DCs and the Eyre and Western region during operations which would be in wholesale trade, accommodation and food services, and retail trade. A 2007 study of the impacts of coal mining in the township of Moranbah in the Bowen Basin in Queensland found that the average non-resident mining worker spent over $160 in Moranbah each week on key items including alcohol, fuel, food and entertainment related expenditures, or over $3,800 across 24 working weeks per year (Rolfe et al 2007). Based on an LDC workforce of 300 people, this would generate an equivalent total expenditure in Wudinna of over $1.1 m per year.

The location of the long term employee village immediately adjacent to Wudinna would provide opportunities for local businesses through increased patronage and local spend, although much of the income paid to LDC workers would be spent outside the 'host' community, where LDC workers normally reside (referred to as 'fly-over' effects by researchers such as Rolfe et al 2003, Rolfe et al 2007, Storey 2010, Haslam McKenzie 2012 and the South Australian Centre for Economic Studies 2013). As noted previously, Iron Road would encourage its operational workforce to live locally in order to maximise local business benefits.

While the direct business opportunities from the CEIP are significant, the goods and services required may extend beyond the capacity of some local and regional companies. As noted in Section 3.3.4, the majority of enterprises in the local study areas and the Eyre region were in the agriculture, forestry and fishing industry sector at the 2011 Census, followed by construction and retail trade. These businesses were also relatively small, with around 50% of local businesses having no employees and a quarter having between 1 and 4 employees (ABS NRP 2013a and 2013f Tablebuilder). Similarly, businesses in Port Lincoln and across the Eyre region were dominated by the agriculture, forestry and fishing sector, while the largest number of businesses in Whyalla and Port Augusta were in construction. Across the region and in regional cities, around 75% of businesses had four or less employees (ABS 2013a and 2013g Counts of Australian Businesses by Industry Division).

As noted by the Federal House of Representatives Standing Committee on Regional Australia (2013), with some capacity development, businesses may be able to take advantage of resource projects. Examples of business development initiatives include the Small Business Incubation Strategy developed by BHP Billiton Iron Ore in Port Hedland to assist small businesses to plan for future growth and identify potential commercial opportunities.

Whilst the CEIP would result in some loss of agricultural land (see Section 4.2.5), the project represents an opportunity to diversify the economic base in the Eyre Peninsula, at the same time maintaining the agricultural viability of the local economy.

The CEIP Infrastructure, including the railway line and port, may also act as a catalyst for additional development in the region by creating an export facility and improved rail infrastructure that has capacity for third party usage. This infrastructure would also remain beyond the mine's operating life of 25 years. In this regard, the proposed port development will have a bulk export capacity of up to 70 Mtpa. As Iron Road's initial CEIP export requirement is 21.5 Mtpa of iron concentrate, the proposed port would have additional capacity for third-party export (subject to further necessary approvals). Potentially, this could include the export of produce, such as grain, by third parties, and would provide an efficient pathway to the market, potentially via large Capesize vessels, at a close distance to many suppliers. With minor upgrades, the railway line also offers the opportunity for third party usage to transport goods to the port site. Such upgrades could support the convenient export of product from the central Eyre Peninsula with minimal capital expenditure.

ElectraNet is also planning to reinforce the Eyre Peninsula transmission line from Cultana to Port Lincoln and would construct a 132 kV transmission line to connect the port site to the main grid as a direct result of the CEIP. The upgraded electricity transmission infrastructure (which is subject to a separate approvals process being undertaken by Electranet) would also support the long term sustainability of the Eyre Peninsula, and has the potential to support a range of ventures including development of renewable energy facilities, heavy industry and additional mining activity.

The Federal House of Representatives Standing Committee on Regional Australia (2013) has also noted that many resource communities are looking to promote themselves as tourist destinations and are capitalising on the resource industry (for example, by featuring tours of operations, such as the KCGM Super Pit in Kalgoorlie), as well as related investments in regional aviation, which also benefit tourism. Note that the Inquiry has pointed to negative impacts for tourism associated with labour shortages, transport and accommodation issues, which are addressed elsewhere in this SIA.

Iron Road is committed to providing opportunities for local and regional contractors and businesses to participate in the project wherever practicable and would:

- develop an Australian Industry Participation Plan to maximise opportunities for Australian businesses to participate in the CEIP
- work with the Industry Capability Network (ICN) South Australia, Regional Development Australia Whyalla and Eyre Peninsula (RDAWEP) and other regional development organisations to promote the participation of local, regional and South Australian businesses in the project
- work with business groups to identify local business opportunities; provide information on the CEIP business opportunities, tendering and procurement processes and standards to facilitate the pre-qualification of local and regional businesses
- work with government, education and training programs and Regional Development Australia to enhance business capacity among local and regional suppliers

- maintain the existing register of businesses with an interest in supplying goods and services to the project
- identify contract packages that could potentially be let locally or regionally
- work with other members of the Eyre Peninsula Mining Alliance to create long term business benefits to Eyre Peninsula communities.

Residual impact
The assessment of business opportunities shows the CEIP would have a high residual benefit in the short and long terms for local, regional and state businesses.

4.2.2 Population and social services
A change in population size or demography of local areas could affect service delivery, with flow-on effects for individuals, families and communities. In addition, the presence of a LDC workforce (whether FIFO or DIDO) during construction and operations could affect demand for social services, facilities and infrastructure. The impacts and benefits that could arise from an influx of people into local townships as a result of the CEIP construction and operational workforces are discussed in the following sections.

Effects from the construction workforce
The presence of a temporary construction workforce near Warramboo and at Cape Hardy may increase the demand for government and community services in the nearby townships of Wudinna, Tumby Bay and Port Neill.

A total peak construction workforce of 2,490 people is anticipated for the CEIP, comprising 1,950 people based on the Eyre Peninsula and 540 people based at the head office in Adelaide. The construction workforce on the Eyre Peninsula would be accommodated in two construction camps: the camp at the port site would accommodate a peak construction workforce of 650 (for the port and railway line contained within the southern half of the infrastructure corridor) and the camp at the mine site near Warramboo would accommodate 1,300 construction workers (for the mine, long term employee village, northern half of the infrastructure corridor and borefield). Construction activities associated with the port, railway line and water pipeline would occur over a two and a half year period, while construction activities associated with the mine, processing facilities and long term employee village would occur over a three year period from early 2016 (subject to approvals and finance).

The construction workforce would typically comprise young single men, who would be made up largely of FIFO and DIDO workers. As a consequence, no long-term change in the population or demography of local areas is anticipated.

The on-site construction camps would provide for the day-to-day needs of the construction workforce, including dining and bar ('wet mess') facilities, on-site first aid / medical resources, laundry and recreational facilities (including a gym and multi-purpose sports court) to reduce the demand on services and facilities in nearby townships. While some workers may choose to visit nearby townships to purchase goods or for recreation and leisure activities, given the location of the accommodation, work rosters, FIFO arrangements and limited transport options, it is likely that most workers would spend their free time at the camps while working on the CEIP.

The services available in the nearby townships of Warramboo, Wudinna, Port Neill and Tumby Bay are detailed in Section 3.7. The small township of Warramboo has limited services including a post office, oval and sports/community club. The townships of Wudinna and Tumby Bay are the main service centres for the surrounding districts and offer a range of retail, business, recreation and social services, including shops, hotels

and eateries, while Port Neill has fewer services and facilities. These services and facilities may be used by constructions workers on an occasional basis.

As detailed in Attachment 1, some additional demands may be placed on medical and emergency services in Wudinna and Tumby Bay in the event of a serious injury, illness or workplace accident. Both Wudinna and Tumby Bay have well-equipped hospitals that provide a 24 hour accident and emergency service for the district, and are supported by local GPs, volunteer ambulance services and State Emergency Service crews. In addition, the Port Lincoln Hospital is a designated general hospital that serves the Eyre region and is located approximately one hour's drive from the proposed port facility and two hours from the mine. A career SA Ambulance service and SES also operate in Port Lincoln.

The presence of the construction workforces near Warramboo and Port Neill may also place demands on local police. Both the Wudinna and Tumby Bay police stations are staffed by one officer with additional police support available to Wudinna from the Lock and Elliston police stations. Subject to planning by the South Australian Police, further police resources may be provided at Wudinna commensurate with anticipated demands from population increases and the LDC workforce. Police resources are also available from the Port Lincoln Police Complex, which is the headquarters of the Eyre and Western Local Service Area, and provides criminal justice, crime scene, crime prevention and intelligence services (SAPOL 2011).

Negligible demands are anticipated on education, childcare or family services from the construction workforce.

Residual impact

The residual impact on the population and demography of local areas and associated demand for government and community services in nearby townships from the construction workforce is assessed as negligible.

Effects from the mine's operational workforce

The CEIP has the potential to attract new residents to live in townships near to the proposed mine, which could influence population dynamics and have flow-on effects in terms of the use and availability of social services and facilities. In addition, the presence of a LDC workforce (whether FIFO or DIDO) at the long term employee village adjacent to Wudinna and the mine camp near Warramboo would affect demand for social services, facilities and infrastructure.

An operational workforce of approximately 600 people would be required for the mine and railway line (excluding Adelaide-based staff). Based on an analysis of people employed in mining Australia-wide (ABS 2013f) and the resident population of Roxby Downs at the 2011 Census (ABS 2012a and 2012c) (see Attachment 1 for details), the mine's operational workforce would be likely to comprise:

- a high proportion of men to women, particularly in the LDC workforce
- a relatively young population
- high proportion of people employed as machinery operators and drivers, technicians and trades workers and professionals
- people on relatively high income levels
- people with relatively high levels of schooling.

This is in contrast to the demography of Wudinna DC and points to substantial differences between existing residents particularly in the township and the operational workforce in terms of age, level of schooling, cultural diversity, income, occupation and employment status.

In addition to the mine's operational workforce, the Economic Impact Assessment has estimated that an additional 196 flow-on jobs could be created in support industries in Wudinna DC, which could have flow-on population effects.

Locational choice among mining workers

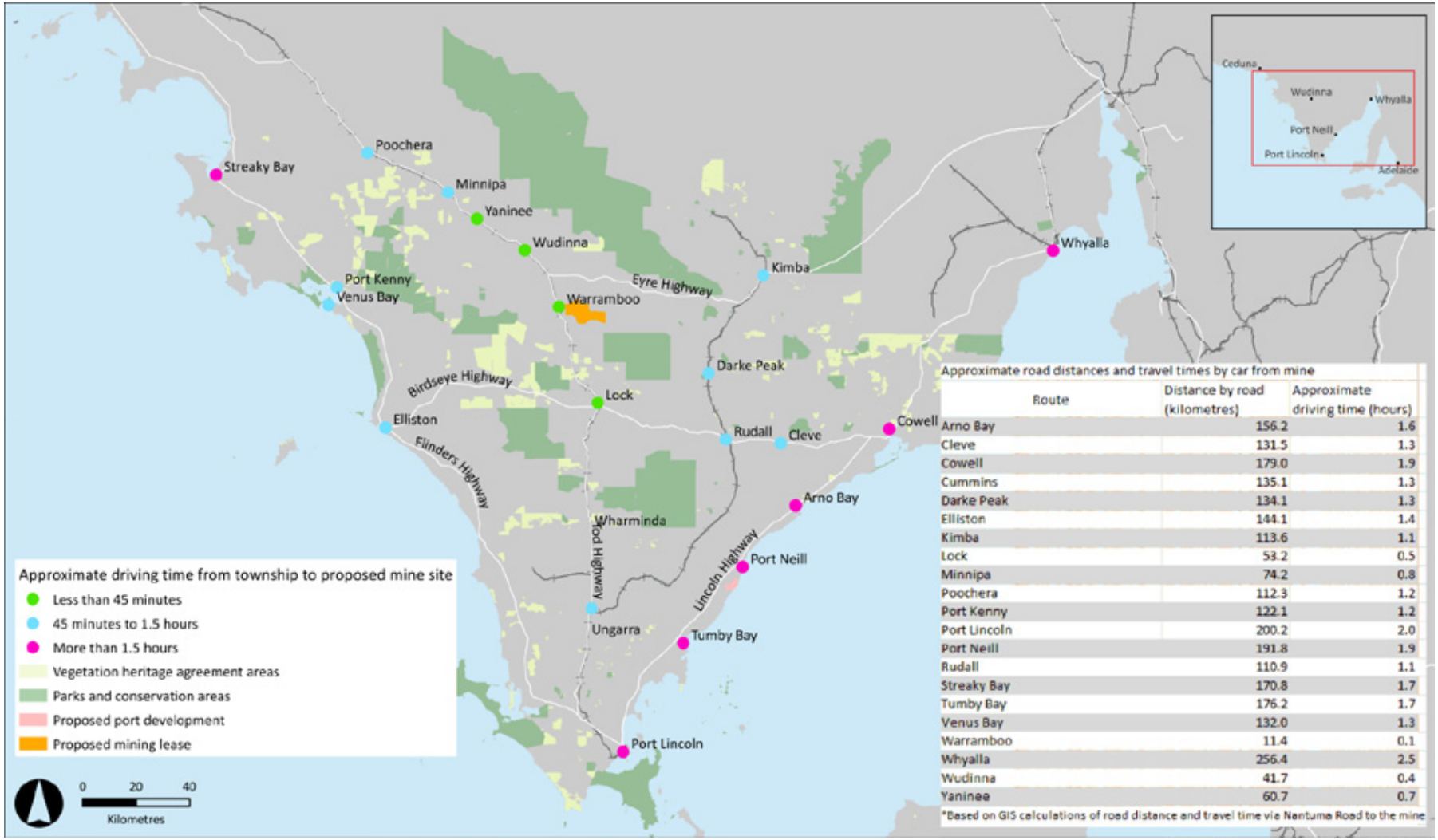
As noted in Section 4.2.1, while it is Iron Road's preference to employ suitably qualified local and regional workers wherever possible, there is unlikely to be sufficient capacity in the labour market to meet operational workforce requirements without causing adverse impacts such as labour drawdown. Iron Road has indicated it would develop policies and/or offer incentives to encourage the operational workforce to relocate to Wudinna, or other nearby townships, which may occur over time. As noted in Section 4.2.1, around a half of operational employees are likely to be on rosters of 5 days on and 2 days off, which is also likely to encourage a residential workforce. Nonetheless, regardless of the community or company's preferences, individual employees would decide what living and lifestyle arrangements would best suit them and their families.

The operational workforce could be drawn from existing residents, people who choose to relocate or return to the lower Eyre Peninsula to live and work, as well as LDC workers. As illustrated in Figure 4-2, the nearest towns to the proposed mine are Warramboo, Wudinna, Lock and Yaninee (which can be reached within 45 minutes by car) and Kimba and Rudall (located within around an hour's drive by car). Other operational workers may choose to drive from coastal or other inland locations on the Eyre Peninsula or broader region and be accommodated in the long term employee village during their work rosters. Place of residence and journey to work data contained in the South Australian Centre for Economic Studies report on the *Impact of Mining and Resource Development: A Case Study for Eyre Peninsula Councils* (2013) suggests that in 2011, the large majority of people who worked within the Wudinna DC were residents of Wudinna, with a small number of people travelling from the DCs of Streaky Bay and Elliston to work in Wudinna.

While it is difficult to predict the likely size of the LDC workforce for the CEIP, information presented to the Federal House of Representatives Standing Committee on Regional Australia *Inquiry into FIFO and DIDO Workforce Practices in Regional Australia* (2013) from the Chamber of Commerce and Industry Western Australia (2005) indicated that 53% of mining workers in the resource industry in Western Australia were employed on a residential basis and 47% were employed on a LDC basis (including 4.7% utilising DIDO arrangements), with higher levels of LDC among contractors (77.7%) compared to directly employed personnel (37.5%). This is similar to BHP Billiton's Olympic Dam operation where 61% of its workforce were reported to be locally based (ie Roxby Downs and surrounding communities of Andamooka and Woomera) and 39% were LDC in 2013 (BHP Billiton 2013). LDC rates were also higher among the contractors than employees, with 35% of employees being LDC compared to 45% of contractors in 2009 (Arup/ENSR 2009).

A trend towards mining employees living in coastal areas and commuting to their workplace has been noted by a number of researchers including Hogan and Berry (2000), Rolfe and Ivanova (2007a), Rolfe et al (2007b) and Haslam McKenzie et al (2009). A survey cited by Haslam McKenzie et al (2009) found that 61% of the mining workforce in the Issac region (in the northern Bowen Basin of Queensland) was FIFO / DIDO in 2007, with the majority assumed to be DIDO - either self-drive, or bussed to the mine from nearby towns on the coast.

Commute times were typically 2–3 hours, although some employees drove for 4 plus hours. Research by Rolfe and Ivanova (2007a) similarly noted a preference for workers to live in coastal communities rather than mining towns, and in medium sized towns (10,000-15,000 people) rather than smaller ones (1,000-3,000).



Approximate road distances and travel times by car from mine

Route	Distance by road (kilometres)	Approximate driving time (hours)
Arno Bay	156.2	1.6
Cleve	131.5	1.3
Cowell	179.0	1.9
Cummins	135.1	1.3
Darke Peak	134.1	1.3
Elliston	144.1	1.4
Kimba	113.6	1.1
Lock	53.2	0.5
Minnipa	74.2	0.8
Poochera	112.3	1.2
Port Kenny	122.1	1.2
Port Lincoln	200.2	2.0
Port Neill	191.8	1.9
Rudall	110.9	1.1
Streaky Bay	170.8	1.7
Tumby Bay	176.2	1.7
Venus Bay	132.0	1.3
Warramboo	11.4	0.1
Whyalla	256.4	2.5
Wudinna	41.7	0.4
Yaninee	60.7	0.7

*Based on GIS calculations of road distance and travel time via Nantuma Road to the mine

Figure 4-2 Travel times to the proposed mine

Research by the Western Australian Chamber of Minerals and Energy (2005, 2008), Rolfe and Ivanova (2007a) and Rolfe et al (2007b) point to a range of factors that can affect workers' locational choices, including partner and family commitments (such as job opportunities), existing social networks, access to education, health and recreational services, the availability and cost of housing, a preference for living in larger centres, and other lifestyle factors; and suggest that a LDC work style is a matter of lifestyle choice (see Attachment 1 for further details).

As noted in the RDAWEP Regional Plan (2013), a proactive marketing strategy may be required to promote the area's attributes in order to encourage workforce families to relocate. Attracting a workforce and their families to relocate to the region may also require social services and community infrastructure to be upgraded 'to provide the quality of life and liveability expected by contemporary communities'.

This would benefit existing local residents, as well as incoming residents and the LDC workforce, but may place additional pressure on local government resources, operations and service provision (South Australian Centre for Economic Studies 2013). Evidence from Queensland suggests other strategies may also be required to attract the mining workforce to live in Wudinna (see Attachment 1 for details).

Potential services implications of population growth and an LDC workforce

In order to understand the potential population and demographic effects from the operation of the proposed mine, if some workers and their families chose to relocate to Wudinna to live and work, and the implications of this for service delivery, four population scenarios have been modelled (see Attachment 1 for details). The modelling also examined the potential indirect population effects from the CEIP as a result of flow-on employment in Wudinna DC.

The baseline for the population modelling scenarios assumed that 5% of the mine's operational workforce (or 30 people) would be drawn from existing local residents initially, and that over time, there would be an increase in the local residential workforce to comprise 20%, 40% and 60% of the total operational workforce. No distinction was drawn between operational employees of Iron Road or contractors in terms of their likelihood of relocating to Wudinna for the purposes of the modelling. This reflects the findings of background research that suggests a proportion of the operational contractors may also be residentially based. These scenarios reflect low, moderate and high population growth, with the high growth scenario based on the existing residential / LDC workforce ratio at Olympic Dam, the 40% residential workforce scenario reflecting the situation in the relatively remote northern Bowen Basin region and the 20% residential workforce reflecting the early developmental stages of the project.

Indirect population effects were modelled on the assumption that 50% of flow-on jobs in Wudinna DC (ie 100 jobs) would be filled by existing local residents and 50% would be filled by incoming residents. This is likely to represent a high growth population scenario as jobs may also be taken up by people who live or relocate to areas outside of Wudinna and commute to work.

The modelling also assumed that the characteristics of incoming residents and households would be the same as the mining community of Roxby Downs, in the far north of South Australia, as suggested by the SA Centre for Economic Studies (2013).

The results of the modelling suggest that potentially, there could be an increase in the residential workforce for the CEIP of between 90 and 330 people (out of 600 operational workers) and population growth of between 260 and 960 people in Wudinna DC (assuming an average household size of 2.9 as in Roxby Downs LGA at the 2011 Census). Further population increases of around 290 people could occur from growth in support industries, in addition to the mining workforce and their families. Potentially, this could result in an increase in the resident population in Wudinna DC of between 25% and 100% from the 2011 Census.

Assuming the age of the incoming population would be similar to Roxby Downs, the greatest increase would be among people of working age (25-64 years), particularly the 25-44 year age bracket, followed by children aged 0-14 years, with little increase in the older population (aged 65 years or more). The potential population changes as a result of the CEIP and flow-on jobs are illustrated in Figure 4-3.

Figure 4-3 also compares the population of Wudinna DC (formerly the DC of Le Hunte) in 1981 and 1991 and highlights the population losses that have occurred in Wudinna DC over the last three decades, with a resident population of 1,253 people recorded in Wudinna DC at the 2011 Census (ABS 2012a).

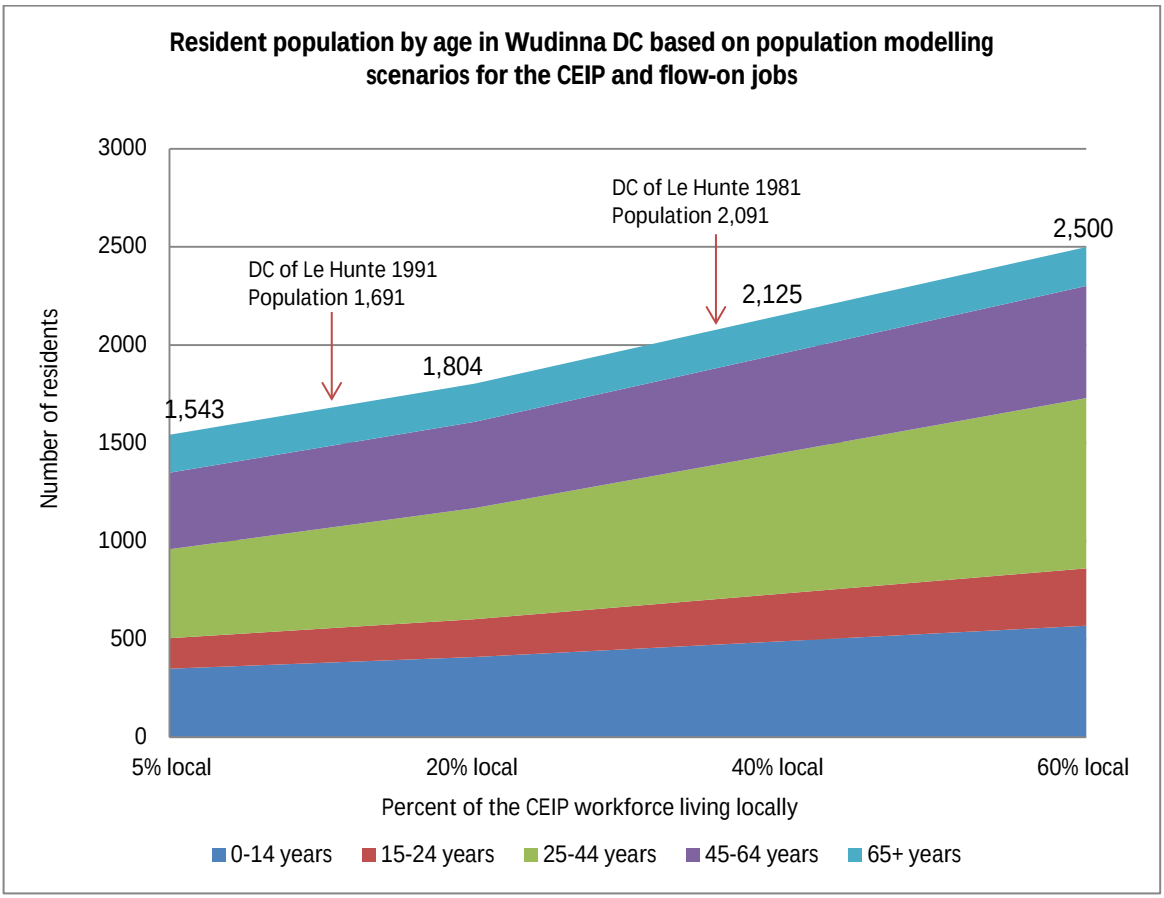


Figure 4-3 Potential changes in the population of Wudinna DC as a result of the CEIP and flow-on jobs

According to Burdge (2004), if a population increase or decrease is greater than 5% (where the existing population is less than 10,000 people) the area is likely to experience detectable changes that may require active management. The modelling has shown that population growth under the baseline (5%), 20%, 40% and 60% population scenarios are all greater than 5%, and would therefore require active management.

There are many factors that would determine whether the effects of a population increase from the CEIP would result in adverse impacts and/or benefits. As previously noted, Wudinna (like many other rural communities on the Eyre Peninsula) has experienced ongoing population losses, and many in the community see potential advantages in reversing these trends. For example, in order to maintain, improve and expand existing services, provide a larger membership base for local community, recreational and volunteer organisations, and offer new and diverse opportunities to assist in attracting and retaining young people, professionals and service providers.

Potentially, a change in population dynamics and demography and presence of a LDC workforce in Wudinna could affect the use and availability of existing services and facilities. In addition, LDC workers may use local services, but do not directly contribute to local government rates and thus the costs of local infrastructure (Haslam McKenzie 2009, 2012).

To understand the impact of the potential population increases and LDC workforce in Wudinna, consultation was undertaken with key services providers in Wudinna, as outlined in Attachment 1. Most service providers in Wudinna indicated they had the physical capacity to deal with some increase in demand (the exceptions being the police, kindergarten and childcare, which would require new facilities) and would be likely to require additional staff and/or volunteers, depending on the size of the population increases and LDC workforce.

Discussions with local services providers, described in Attachment 1, suggest that the greatest impacts from a LDC workforce during the operational stage are likely to felt by police and emergency services and on recreation and sporting facilities. While the camp at the mine site near Warramboo would be self-contained, recreational facilities at the long term employee village near Wudinna would be limited to encourage the use of local facilities and potential social interactions between the LDC workforce and residents.

There may also be some impacts on health services in Wudinna, but these are expected to be limited as medical/first aid facilities would be available at the mine site to deal with non-urgent conditions. In addition, the mining workforce would be relatively young and fit, and therefore less frequent users of service, with chronic illnesses or health concerns (other than emergencies) generally dealt with by the individual's own health practitioner at their usual residence, while they are on rostered leave.

The population modelling, detailed in Attachment 1, also examines the potential staffing implications of different population scenarios based on population to staffing ratios obtained from the Productivity Commission report on Government Services (2014) for South Australia and the Australian Children's Education and Care Quality Authority (2014) childcare standards. It looked at potential population growth as a direct result of the CEIP and growth in support industries, but did not consider the service implications from the LDC population. In considering these findings, it should be noted that a variety of factors can affect population change and service delivery, which cannot be accurately predicted in advance or with high certainty.

This assessment should therefore be treated as indicative and does not take account of the existing capacity of services to meet increased demands, the needs and characteristics of the Wudinna community or other constraints and factors that may affect service delivery (such as government policies and funding arrangements). As such, further planning would be required to assess the service implications in Wudinna as a result of the CEIP, taking account of these factors, and the size and characteristics of the incoming population.

Responsibility for the provision of social services and facilities rests largely with government agencies, although some services (eg Centacare) are also provided by the non-government sector. In order to plan for the LDC workforce and potential population increases in Wudinna, Iron Road would continue to liaise with local councils and government agencies as the project develops and provide regular information on expected workforce numbers and arrangements to allow them to plan appropriately to support anticipated population changes. It would also participate in planning initiated by the South Australian Government, Wudinna DC and other service providers to plan for future social services and facilities requirements. Iron Road would also collaborate with key agencies, including local government, to support the provision of appropriate and sustainable services and amenities that benefit existing and incoming residents and LDC workers in Wudinna.

Planning by the government agencies and service providers, in collaboration with Iron Road, would be based on demographic and household projections prepared to reflect increasingly refined workforce planning and take account of:

- the presence of a temporary construction workforce and operational contractors near Warramboo
- a long term operational LDC workforce adjacent to Wudinna
- potential increases in the residential population of Wudinna
- needs of critical population groups in Wudinna, including older people and women, who may be more susceptible to adverse impacts from the expansion
- potential population growth in other nearby townships, such as Lock
- potential contributions to community services and facilities by Iron Road.

In summary, the presence of a LDC workforce and population increases in Wudinna associated with the operation of the proposed mine and growth in support industries would be likely to generate additional demand for social and recreational services and require some increase in the level of services in Wudinna. The type and level of services would depend on the size, characteristics and timing of population increases, and would be determined by responsible agencies in consultation with iron Road.

Like the construction workforce, operational contractors based at the proposed mine site in Warramboo may choose to visit nearby townships to purchase goods or for recreation and leisure activities, but would be likely to spend most of their free time at the mine site camp while working on the CEIP. While evidence was presented to the Federal House of Representatives Standing Committee on Regional Australia Inquiry (2013) that suggests FIFO workers can impact on the provision of medical services, resulting in long waiting times and additional workloads on doctors, it is anticipated that other than serious injuries or emergencies, the LDC workforce would most likely be treated by the individual's own health practitioner, while on rostered leave. Health providers in Wudinna similarly noted that the mining workforce is likely to be relatively young and fit and so less frequent users of medical services (see Attachment 1 for details).

The potential impact on volunteer and emergency services has been raised in consultation with residents of Wudinna, including the potential decline in volunteers as a result of 12 hour work rosters, a large FIFO workforce, and increased demands on emergency services.

The high rates of volunteering within Wudinna DC compared to the Eyre region or South Australia in 2011 was noted in Section 3.5.3. A range of factors may lead to a decline in volunteering, including population losses, the ageing of the population, changing family dynamics, work pressures, shifting social and cultural values as well as the increasing demands, responsibilities and workloads placed on volunteers. In the medium to long-term, it is expected that population increases in Wudinna would have a positive impact by providing an expanded membership base for volunteer organisations. To support volunteer organisations, Iron Road would develop a corporate volunteering program to bolster the membership base of volunteer organisations. For example, this could include providing time-off for employees to participate in volunteer services or other incentives to volunteer. Iron Road would also continue to provide support to local community groups and community-based activities, including volunteer programs.

A mine rescue and emergency response team, including suitably trained medical personnel, first aid centre and appropriate firefighting and emergency response equipment, would be established and maintained at the mine. In the unlikely event of a major incident, assistance may be required from outside emergency services, including local and regional CFS and SES crews, police and ambulance services, the RFDS and hospital services in Wudinna, Port Lincoln or Whyalla. This could result in extra pressure on these services and affect their availability to others. Conversely, on-site emergency response equipment could be used to assist in local and regional emergencies as practicable, and as such, would benefit the community by increasing the emergency services capability of the area. In either event, there would be a need to ensure continuity of care between the mine medical team and local medical care (eg GP, hospital and ambulance) during retrieval and staffing in an emergency. To achieve this, Iron Road staff would regularly liaise with local health and emergency services in Wudinna about emergency response procedures. The provision of site-based emergency response team, combined with Iron Road's strong safety culture, workplace inductions and training, and operational and management systems and procedures are likely to minimise the impacts on local and regional emergency services.

The CEIP also provides an opportunity to leverage infrastructure improvements that would benefit local communities. For example, the presence of an LDC workforce near Wudinna and Warramboo during construction and operations would play a direct role in stimulating investments in the Wudinna airport and local aviation services and benefit local residents through the provision of a new airline services, potentially at a lower price as a result of economies of scale. While not part of the CEIP, Wudinna DC has indicated its intention to upgrade the Wudinna airport. Investments in regional aviation and enhanced transport connections as a result of FIFO demand have also been reported by the Federal House of Representatives Standing Committee on Regional Australia (2013), with flow-on benefits for local residents and tourism operators.

In addition to its plan to reinforce the Eyre Peninsula transmission line from Cultana to Port Lincoln, ElectraNet would construct a 132 kV transmission line to connect the port site to the main grid as a direct result of the CEIP. While not part of this project, the planned reinforcement would nonetheless benefit residents on the Eyre Peninsula by improving electricity supplies.

Residual impact

The residual impact on the population and demography of Wudinna as a result of the mine's operational workforce has been assessed as medium as a result of the long term and localised nature of changes, which would generate increased demand for services. Population increases may also result in a medium residual benefit by reversing population declines, providing an expanded membership base for volunteer organisations and a critical population mass to support and sustain different lifestyles, opportunities and services in the long term.

No assessment has been made of the residual impact on social services and facilities as the provision of government and non-government services is outside the control of Iron Road.

Effects from the operation of the port and associated infrastructure

A workforce of approximately 100 people would be required to operate facilities at the port at Cape Hardy and to operate and maintain rail and water infrastructure. These workers would be drawn from existing residents, people who choose to relocate or return to the lower Eyre Peninsula from elsewhere, or FIFO workers.

Figure 4-4 shows the driving time from various towns and settlements to the proposed port. The nearest towns to Cape Hardy are Port Neill, Tumby Bay, Arno Bay and Cummins, which can be reached within 45 minutes by car, and Cleve, Cowell and Port Lincoln, which can be reached within an hour.

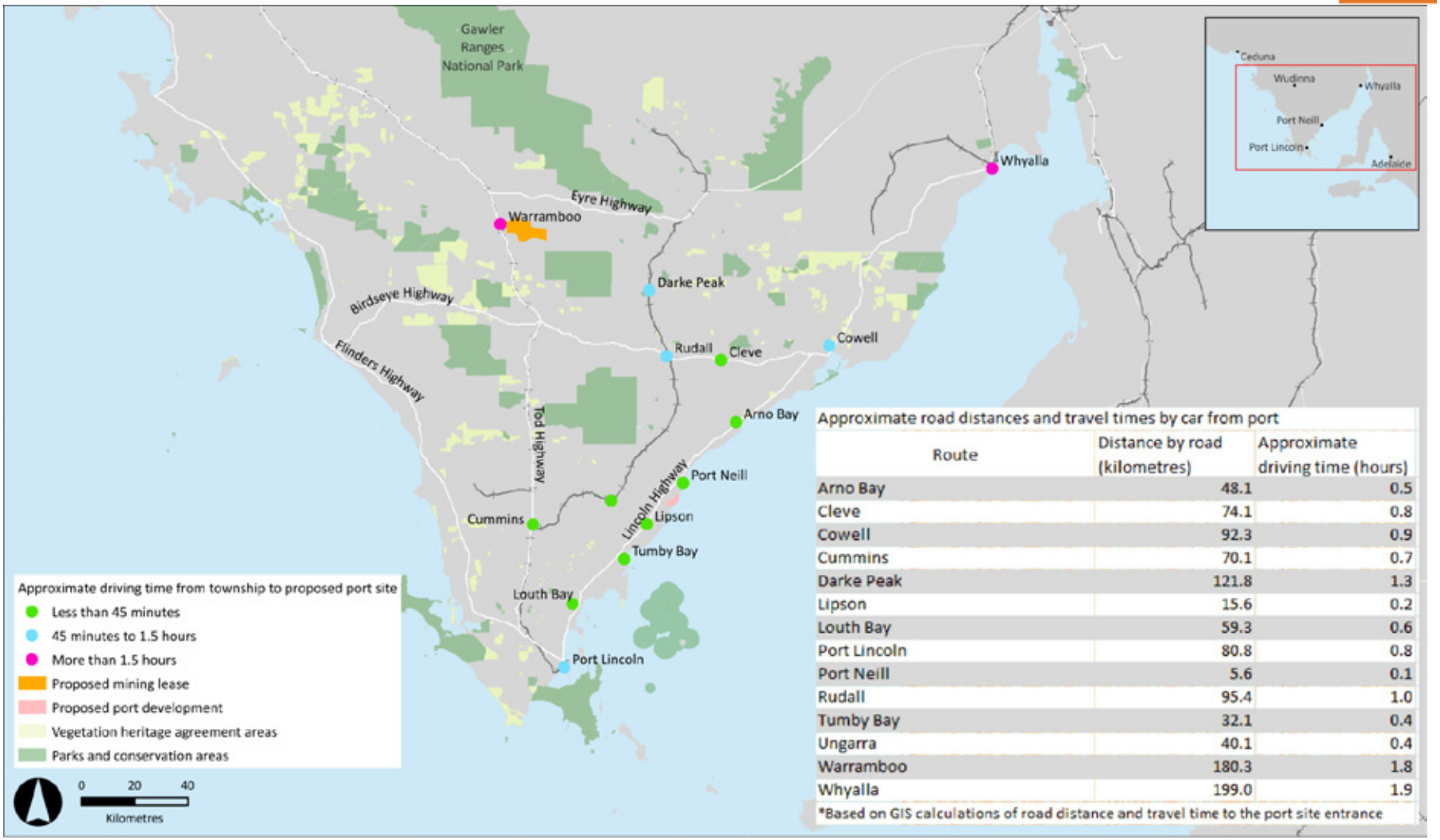
The largest of these is the regional city of Port Lincoln, and except for Arno Bay and Port Neill, all serve as major centres for the surrounding district and offer a range of services. It would be feasible for operational staff to live in these towns, or in the surrounding rural area, and commute to work on a daily basis. The availability of housing in these localities, and the potential effects on housing supply and affordability is discussed in Section 4.2.3.

As discussed in Section 3.4.2, there may be limited capacity in the local labour market to meet operational workforce requirements for the port and off-site infrastructure. This may require some employees to work on a FIFO basis (who would be accommodated in short-term local accommodation) or alternatively, some workers and their families may choose to relocate to the Eyre Peninsula to live and work, which is Iron Road's preferred employment option.

Population change as a result of the operation of the port and other infrastructure could affect the demography of the local population with flow-on effects on the provision of services. As described in Section 3.2, the DC of Tumby has an older population profile, with a relatively low proportion of children (under 15 years) and people of working age (15-64 years). The townships of Tumby Bay and Port Neill are older than the council area at large, and have a higher proportion of women than men, a smaller average household size, a higher proportion of single-person households and fewer family households.

In comparison, incoming port workers and their families are likely to include young adults and families with children, which may affect the age, sex and household composition of the population.

In order to understand potential population effects arising from the operation of the port at Cape Hardy and water and rail infrastructure, it is assumed that around 50% of the operational workforce may come from existing residents and 50% may be new residents. In addition, the Economic Impact Assessment estimated there may be a small number of flow-on jobs in Tumby Bay as a result of the port's operation (although some of these positions could be filled by workers from surrounding areas). Based on 50 new workers choosing to live in local townships or rural communities in the Lower Eyre Peninsula and an average household size of 2.4 people (the average household size for South Australia, which is larger than the Eyre region or the DC of Tumby Bay), this would equate to approximately 120 new residents. Taken as a percentage of the existing population of the DC of Tumby Bay (of almost 2,600 residents), this would represent a population increase of around 4.6%. Based on Burdge's criteria (2004), the area would be unlikely to experience detectable changes that require active management as the population change would be less than five percent.



Approximate road distances and travel times by car from port

Route	Distance by road (kilometres)	Approximate driving time (hours)
Arno Bay	48.1	0.5
Cleve	74.1	0.8
Cowell	92.3	0.9
Cummins	70.1	0.7
Darke Peak	121.8	1.3
Lipson	15.6	0.2
Louth Bay	59.3	0.6
Port Lincoln	80.8	0.8
Port Neill	5.6	0.1
Rudall	95.4	1.0
Tumby Bay	32.1	0.4
Ungarra	40.1	0.4
Warramboo	180.3	1.8
Whyalla	199.0	1.9

*Based on GIS calculations of road distance and travel time to the port site entrance

Figure 4-4 Travel times to the proposed port facility

The CEIP Infrastructure may offer benefits in reversing the outflow of young people to metropolitan areas schools, which has been identified as a challenge for the region by the RDAWEP (2011 and 2013) and (former) DEEWR (2013a). It may also lead to an increase in demand for services that assist in sustaining or improving levels of service provision. For example, enrolments have fluctuated at Port Neill Primary School, and at times it has reportedly had difficulty maintaining adequate student numbers due to its small size and the age of the town's population (DEEWR 2013a).

Residual impact

In summary, the population and demographic impacts from the operation of the proposed port are likely to be negligible in terms of increased demand for services and may offer some benefits by sustaining existing services and businesses, particularly in Port Neill.

4.2.3 Housing and accommodation

Workforce accommodation

Iron Road plans to provide accommodation for the CEIP workforce based on the Eyre Peninsula during the construction and operation of the CEIP as summarised in Table 4-4.

Table 4-4 Location and size of Iron Road accommodation for the CEIP

Accommodation site[1]	Construction stage (number of beds)	Operations stage (number of beds)
Port	650[2]	0[3]
Mine	1,300[4]	600[5]
Wudinna	0	300[6]

[1] Accommodation would not be provided by Iron Road for the Adelaide-based CEIP workforce during construction or operations.
[2] To accommodate the workforce involved in constructing the southern half of the infrastructure corridor (250 workers) and the port construction workforce (400 workers).
[3] The port's operational workforce (100 workers) and shutdown workforce (10 workers) would be accommodated locally.
[4] To accommodate the workforce involved in constructing the northern half of the infrastructure corridor (250 workers) and the mine construction workforce (1,050 workers).
[5] To accommodate 300 operational contractors and 300 shutdown workers.
[6] To accommodate 300 long term Iron Road employees (including railway line operational workers).

The construction workforce for the CEIP would be accommodated in two purpose-built camps, one at the proposed port site at Cape Hardy and the other at the proposed mine site near Warramboo. The majority of the construction workforce would be FIFO, who would arrive at regional airports at Port Lincoln and Wudinna respectively and be bussed to both their accommodation and worksites. Some construction workers may also be local residents, who would live locally and commute to work daily, or DIDO from across the region, and would be accommodated at camps while on work rosters.

At its peak, the temporary construction camp at the port would accommodate a maximum of 650 workers, with approximately 250 workers involved in constructing the port facilities, and the remainder involved in constructing the southern half of the infrastructure corridor. These workers would be transported to work sites by bus on a daily basis. The construction camp at the port site would be in use for approximately two and a half years, with the accommodation units being decommissioned and removed after the completion of the construction activities. During operations, Iron Road anticipates that the workforce for the port would live locally in residential housing and commute to work on a daily basis.

At the peak of mine construction activities, the camp at the mine site would accommodate up to 1,300 workers. These workers would be involved in constructing the mine and processing facilities, the long term employee village, and the northern part of the infrastructure corridor over a three year period. Approximately 600 accommodation units would be maintained at the mine site following completion of construction activities to accommodate operational workers engaged on a contract basis and short-term contractors engaged periodically for activities such as routine maintenance shutdowns. Accommodation units that were surplus to requirements would be decommissioned and removed.

The construction camps would be managed by outside contractors. No detailed layout has been prepared, although an indicative construction camp layout is provided in the Iron Road's EIS and MP.

It is also proposed that a long term employee village would be constructed adjacent to the town of Wudinna (see Figure 4-5) to accommodate Iron Road employees on a rostered LDC basis. This would be necessary to meet the preferences of the workforce, fulfil labour requirements and mitigate potential impacts. The village would be readily accessible to the airport and a bus provided by Iron Road would enable workers to be transported to work sites daily and avoid the township, in order to minimise traffic impacts. While Iron Road would encourage the operational workforce to reside locally, as indicated in Section 4.2.2, this may not be a viable or attractive option for some employees. Catering for the LDC option is important, as inadequate provision for the operational workforce would otherwise place considerable pressure on short-term visitor accommodation, as well as on the supply and cost of housing for local residents and workers employed in other industries in Wudinna.

The village would be located on the north east perimeter of the township of Wudinna and comprise around 300 accommodation units. Further consideration of the source of employees, including the level of FIFO or DIDO, may impact on final accommodation capacity. Over time, it is also anticipated that a proportion of the operation workforce may choose to relocate to live locally in residential housing.

The long term employee village would cover approximately 2 hectares of land (the approximate size of the Wudinna town oval) and have an operational lifespan of around 30 years. The development of the village would provide a logical extension to the township and enable employees to walk to the township centre, to capitalise on available existing infrastructure and services, and facilitate the patronage of local businesses. The exact location of the village will be determined in consultation with the Wudinna DC to maximise local opportunities and support its integration within the existing Wudinna township. This would occur through a structure planning process to be undertaken by the Wudinna DC, in conjunction with Iron Road.

An indicative layout for the long term employee village and description of its facilities and landscaping features is provided in the Project Description Chapter of the CEIP EIS. The long term employee village would be designed to be of high quality, aesthetically pleasing and locally appropriate to enhance perceptions of the town. In order to attract and retain employees, the village in Wudinna would offer a high level of amenity and comfort and cater for couples as well as single people.

Residual impact

The impact on local housing from the LDC construction and operational workforce is predicted to be negligible, given the availability of accommodation to be provided by Iron Road.

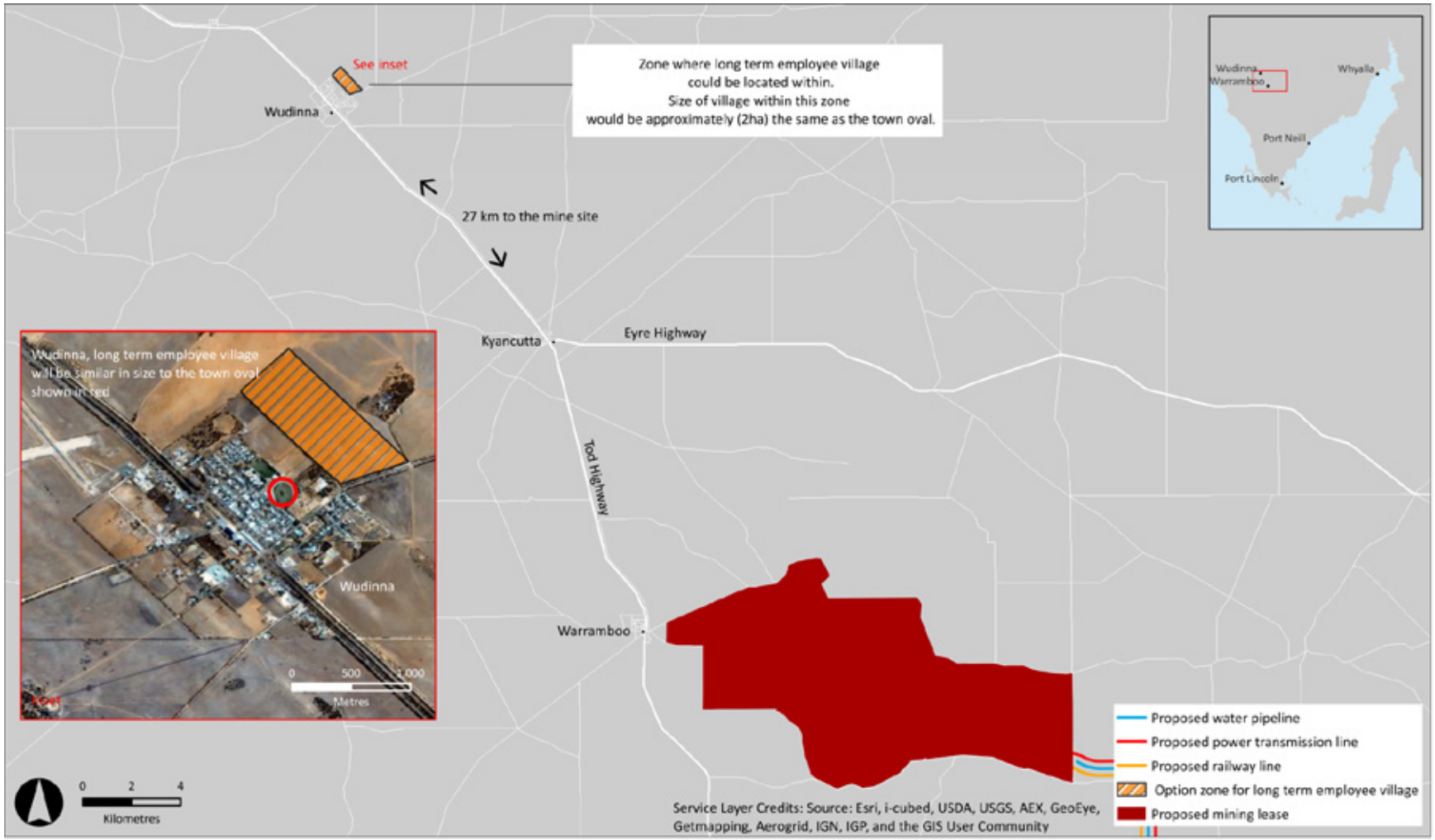


Figure 4-5 Indicative location of the proposed long term employee village

Housing supply and affordability in Wudinna

Consultation with residents has raised a number of potential issues associated with the capacity of the local housing market to support an increase in the residential population and potential flow-on effects on housing affordability.

The experiences of other large scale mining projects points to the potential impacts and concerns arising from population growth on the housing market (Scheltens and Morris 2006; Rolfe et al 2007b and 2007c; Petrova et al 2009; Carrington et al 2010; Haslam McKenzie 2009; Haslam McKenzie et al 2009 and 2013; Lawrie et al 2011; Federal House of Representatives Standing Committee on Regional Australia 2013, South Australian Centre for Economic Studies 2013) including:

- increased demand for housing that outstrips supply and leads to housing shortages
- difficulties aligning housing demand and supply
- rising housings costs that impact on housing affordability
- potential speculation in land and housing
- flow-on effects on the ability of public and private sectors to attract and retain staff, especially in the service sector
- the vulnerability of people on low or fixed incomes, including young people, single parents, women and older people to housing stress as a result of high housing costs.

As described in Section 4.2.2, the operation of the mine near Warramboo could potentially result in an increase in the residential workforce of between 100 and 430 people, based on scenarios where between 20% and 60% of the mine's operational workforce and 50% of support workers (eg employed in flow-on jobs) relocate to the local area to live and work. Assuming the household composition of incoming residents is similar to Roxby Downs, this might result in an additional 17 to 72 single person households, 78 to 337 family households, and 5 and 22 group households in Wudinna DC (see Attachment 1 for further details).

Consultation with residents and stakeholders indicates there is minimal capacity in Wudinna to meet increased demands for housing and associated infrastructure, including water, but there may be some capacity in Lock, approximately 40 km south of Warramboo.

As discussed in Section 4.2.2, towns within daily commuting distance of the mine include Warramboo, Wudinna and Lock. Kimba and Rudall can also be reached within an hour or so by car. Given the limited services that are available in Warramboo, it is unlikely to be the preferred choice for incoming workers and their families, although some young single workers may choose to live there, given its proximity to the mine site. As noted previously, operational workers may also choose to drive from coastal or other inland locations on the Eyre Peninsula or the broader region and stay in the long term employee village during their work rosters.

An analysis of the housing market suggests there is minimal capacity in the township of Wudinna to accommodate a large increase in demand, with 24 dwellings in Wudinna (UCL) recorded as being unoccupied at the 2011 Census (2012a) and few building approvals in the district in 2012-2013 (ABS 2013i). In comparison, there were 37 dwellings in Warramboo (SSC) and 64 dwellings in Lock (SSC) that were unoccupied. Median weekly rental costs were also higher in Wudinna ($110) compared to Warramboo ($30) and Lock ($50) in 2011 (ABS 2012a). Similarly, median house sale prices were higher in Wudinna in 2012 ($220,000 in the suburb of Wudinna compared to $154,000 in Lock in 2012 and less than $110,000 in Warramboo) (State Valuation Office 2013 and RP data 2014).

As noted in Section 3.3, rental housing makes up almost a third of the housing in the township of Wudinna. While an increase in the cost of housing in Wudinna would benefit existing home owners and new investors, the most noticeable social impacts would be faced by people in rental housing – typically, low and moderate-income households, including women and young adults, and other people employed in the non-mining sector. While any unplanned increase in housing demand would lead to rising housing costs, the availability of company accommodation near Wudinna and at the mine site would provide a mitigation to meet underlying demand and avoid accommodation shortages in the short to medium term.

The Federal House of Representatives Standing Committee on Regional Australia (2013) has pointed to the importance of making land available for housing development in resource communities, which requires the support and involvement of local and state government in planning and development processes. Case studies by AHURI (Haslam McKenzie et al 2009) similarly highlight the importance of effective and co-ordinated growth management during periods of boom in the resources sector.

In this regard, forward planning would need to be undertaken to meet future housing demands arising from population growth in Wudinna, taking account of the immediate housing needs of the community as well as the longer-term scenarios for the town and the region. It would also need to recognize the long lead times for housing production, particularly in remote areas, and the associated physical infrastructure requirements such as roads, power, water and waste, to ensure supply does not lag behind growth pressures. Iron Road would support the preparation of a Structure Plan by the Wudinna DC and would collaborate with both the Wudinna DC and South Australian Government to facilitate planning for new residential development, including the provision of strategic infrastructure, to ensure housing demand would not out-strip supply. With forward planning, there may also be opportunities to support township growth/resource management issues on a more sustainable and cost effective basis and create new investment benefits.

Residual impact

Residual impacts on housing from the mine's operational workforce have been assessed as low, given the potential for demand to outstrip supply in Wudinna in the short term as a result of a lag in housing construction. Proposed management measures including the availability of company accommodation and Iron Road's participation in structure planning with the Wudinna DC would reduce housing impacts.

Housing impacts in Tumby Bay and other areas

The workforce required to construct the port facility at Cape Hardy and the southern half of the infrastructure corridor would be accommodated in the construction camp located at the port site. As a consequence, impacts on local housing arising from the construction workforce would be negligible.

Around 100 operational workers would be required for the proposed port development. It is Iron Road's expectation that the majority of the operational workforce would live locally, in townships or surrounding rural areas. These workers would be drawn from existing local residents or people who choose to relocate to the lower Eyre Peninsula to live and work. Assuming that half of the 100 operational workers were new residents, this would potentially equate to 50 new households. As discussed in Section 4.2.2, towns that can be reached within 45 minutes by car of Cape Hardy include Port Neill, Tumby Bay and Arno Bay, while Cowell, Cleve, Cummins and Port Lincoln can be reached within an hour or so, from where it would be possible to commute daily for work. In addition, some workers may choose to work on a FIFO basis, and would be accommodated in local short-term / visitor accommodation, as Iron Road does not intend to maintain long term accommodation at the port.

An assessment of the housing market in the DC of Tumby Bay suggests a relatively high proportion of dwellings (around 30%) were unoccupied at the 2011 Census (ABS 2012a), including close to 200 dwellings in the township of Tumby Bay and over 100 dwellings in Port Neill. Almost 90% of dwellings in Port Neill and 70% of dwellings in Tumby Bay are owned or being purchased. This includes a number of shacks and holiday homes, with a 'significant proportion of dwellings in the township occupied predominantly on a seasonal basis' (DC of Tumby Bay 2013c, *Port Neill Sustainable Future Structure Plan*). The Port Neill Structure Plan further notes that the 'unoccupied nature of two thirds of the existing dwellings within the township means that the township could theoretically accommodate a tripling (or slightly greater with an increase in the average household size from 2.0 to 2.2) of the population without requiring the construction of any additional dwellings. This would take the population in the current dwelling stock [of around 136 people] to something in the order of 400 persons' (page 13).

Demand for housing in these areas remains strong as reflected in the relatively high housing costs (both rental and house sales). The RDAWEP (2103) has noted the growth in coastal sections of the Eyre region, accelerated by the 'sea change' phenomenon, which has resulted in new housing construction in coastal towns, including Tumby Bay. This is reflected in the relatively high level of building approvals in the DC of Tumby Bay in recent years, compared to other local study areas, although approvals have declined from 24 in 2009-2010 to 14 in 2012-2013 (ABS 2013i).

As discussed in 22.5.1, the operation of the port and associated infrastructure may require some employees to work on a FIFO basis. Both Tumby Bay and Port Neill are known coastal holiday towns, with established holiday accommodation located along the coast. Short-term visitor accommodation in Tumby Bay and Port Neill includes three small hotel/motels of between 5 and 14 rooms (ABS 2011b), two caravan parks, as well as holiday rentals (houses and apartments) (see Attachment 1 for details). A hotel/motel and a caravan park are also located in Arno Bay. Information is not available on room occupancy in the DC of Tumby Bay, but data for the Eyre Peninsula Tourist Region suggests an occupancy rate of 50% and around 70% in Port Lincoln in tourist accommodation of 15 or more rooms. This suggests some short-term accommodation would be available locally to accommodate a small number of FIFO workers if required, but could have flow-on effects on the availability of tourist accommodation, particularly during the high season (in summer and holiday periods).

Iron Road will liaise with tourist accommodation providers to manage the potential effect of accommodation demand arising from the operation of the port on the availability of short term accommodation in Tumby Bay and Port Neill. Should it be required, Iron Road would also explore strategies, such as the successful Victorian Desalination Plant Housing Accord, to assist in managing rental housing for operational workers at the port. This program was developed by the local council, real estate agents and the construction contractor to minimize impacts on long-term rental housing and tourism markets by tapping into holiday homes that were not previously available for rent (Aquasure nd).

Residual impact

Given the size of the operational workforce, the availability of housing for rent and purchase in townships within commuting distance of Cape Hardy, and existing structure plans for Tumby Bay and Port Neill, the impacts on housing are predicted to be negligible.

4.2.4 Social character and wellbeing

Issues identified in community consultation and a review of mining projects and developments in other rural communities highlight potential impacts on social character and wellbeing associated with:

- changes to the nature, character and lifestyle of the community as result of population growth, demographic change and the influx of a large LDC workforce
- increases in the cost of living and development of a two tiered economy in Wudinna
- safety and security, including the misuse of alcohol and drugs, crime and anti-social behavior and perceptions of safety
- outcomes for socially or economically disadvantaged people and critical population groups.

Social change (community cohesion, identity and lifestyle)

An influx of new people to Wudinna and a large LDC workforce has the potential to impact on community cohesion, identity and lifestyle, particularly when the characteristics of the incoming population differ significantly from the existing population.

Residents in Wudinna and Warramboo have expressed concerns about changes to the existing social fabric and sense of community as a result of the proposed mine and LDC workforce and the displacement of farming families. Lifestyle impacts on the townships of Port Neill and Tumby Bay as a result of the proposed port facility at Cape Hardy have also been raised by local residents.

A review of mining projects in other rural communities highlights the potential impacts on community identity and cohesion, culture and lifestyle as a result of population increases and the presence of a large transient workforce, including the development of an 'us versus them' mentality (Rolfe et al 2003; Lockie and Franettovich 2003; Petkova et al 2009; Jacquet 2009; Storey 2010; Carrington and Pereira 2011; Haslam McKenzie 2009 and 2012, Federal House of Representatives Standing Committee on Regional Australia 2013).

As noted earlier, the construction workforce for the CEIP would be accommodated in two self-contained accommodation camps – one on the mine site near Warramboo and the other at the port site at Cape Hardy. While workers may visit nearby townships to purchase goods or for social and recreational purposes, it is envisaged that most workers would spend their free time at the self-contained camps, with minimal short-term impacts on the social fabric of nearby townships.

Approximately 600 workers would be required for the operation of the mine and infrastructure corridor. Of these workers, approximately half would be Iron Road employees who would (at least initially) be accommodated in the long term employee village near Wudinna, with the remainder of the contract workforce accommodated at the mine site. This has the potential to affect the social, cultural and economic fabric of Wudinna, both positively and negatively.

The size of the operational workforce to be based near Wudinna, whether arriving as residents or part of a LDC workforce, and potential growth in support workers, would represent a large increase in the township's population and comprise people with a different demographic profile, values and background to existing residents. At the 2011 Census, the township of Wudinna had a resident population of 560 people and comprised an older profile than the surrounding district, more women than men and low levels of cultural diversity, in contrast to the likely makeup of the operational workforce and their families. In addition, the development of the long term employee village on the perimeter of town could potentially lead to perceptions of an 'enclave' of highly paid workers, living in separate facilities 'outside' of the residential community, who support the town's economy but have a limited sense of connection to it, and do not participate in, or contribute to the functioning of the community.

The location and design of the long term employee village provides an opportunity to integrate the village and town communities. Opportunities could also be provided for employees to build networks with the community and to have a more 'normal' work experience through interaction and participation with the local community (for example, in sport, clubs, socializing, volunteering and community projects). The use of local services and facilities by the LDC workforce would also increase opportunities for interaction between non-resident workers and local residents, and promote a greater sense of familiarity and belonging. Directing resources and efforts to building relationships and investing in benefits for the community and employees would enhance integration and social cohesion between residents and non-resident workers.

As noted by a number of researchers including Brown et al (2005) and Brasier et al (2011), community perceptions of impacts can vary over the stage of development, with negative impacts highest during the initial stages of growth and development. In the medium to long term, population increase in Wudinna could also have a positive effect on the social fabric of the community as a result of families and young people returning to the community, improvements in the level and type of services, an expanded membership base for local recreational and volunteer organisations, and a greater diversity of lifestyles and opportunities that would be afforded in a larger township.

Iron Road would work with the Wudinna DC to develop strategies to strengthen social cohesion and social interactions between non-residents, incoming residents and existing residents in Wudinna and Warramboo. The development of these strategies would be informed by regular surveys of workers and residents attitudes and perceptions. This would also build on best practice, for example, strategies recommended by the Federal House of Representatives Standing Committee on Regional Australia (2013) and Western Australian Chamber of Mining and Energy (2012) such as:

- undertaking joint company and community events (eg sports events, Christmas celebrations, open days and village and mine site tours)
- holding LDC family days on site to showcase the community to potential residents and to breakdown divisions between LDC workers and local residents
- providing information to workers about the local community, it's rural nature and local activities and services, and information to the local community about the mine, life as a non-resident worker and standards of behaviour expected of Iron Road workers to encourage mutual interest, care and respect.

In addition, Iron Road would assist in maintaining the sense of community by:

- giving preference to suitably qualified local and regional workers wherever possible
- encouraging the operational workforce to live locally
- developing induction procedures and information that includes an orientation into the values and expectations of the local community
- developing a corporate volunteering program that provides opportunities for workers to participate in community fundraising events and volunteer organisations
- continuing to provide support to community groups and community-based activities
- continuing its program of active engagement and consultation with the local community.

Approximately 100 workers would be required to operate the port. Iron Road anticipates these workers would be made up of existing residents, new residents (who would relocate to work and live in nearby townships) or LDC workers (who would stay in short-term accommodation during work rosters). As noted in Section 4.2.2, a number of towns are within daily commuting distance of the port. While there may some minor changes to the population and demography in these townships, the operation of the port is not expected to affect the sense of community or impact people's way of life in the long term, and residents, workers and visitors would be able to continue to live and use the local area in the same way they currently do.

Residual impact

The residual impact on social character and well-being has been assessed as medium in terms of the changes to the social fabric in Wudinna as a result of the LDC workforce and population and demographic changes over the long term. The benefit in terms of community character and well-being is considered to be medium as a result of the vitality and diversity in lifestyles and opportunities a larger township would offer in the long-term.

Negligible residual impacts on social character and well-being are predicted from the operational workforce in the DC of Tumby Bay.

Cost of living

Consultation with residents together with a desktop review of the available literature has identified potential issues associated with increased housing and living costs as a result of wage and price inflation, and the development of a two tiered economy based on the mining and non-mining sectors (Brereton and Forbes 2004; Storey 2010; Reeson et al 2012; Haslam McKenzie et al 2013, South Australian Centre for Economic Studies 2013).

As noted previously, income levels are relatively low within the Wudinna DC, with personal median income in the order of $550 per week in 2011 (ABS 2012a). This is in contrast to the likely income of a mining workforce, where personal incomes could be in the order of $2,000 a week or more, based on the average income of people employed in mining Australia wide (ABS 2013f, see Attachment 1 for details). This highlights the potential socio-economic divide when a large number of people involved in the mining industry and associated sectors, who have high disposable incomes, reside alongside a population not involved in mining, on substantially lower incomes.

These effects may be more noticeable among particular population groups, for example women, the elderly and people on low or fixed incomes. Research by Reeson et al (2012) examined income equality and mining employment in 781 Statistical Local Areas in regional Australia and found that while income inequality initially increases with mining activity, it decreases at intermediate and high levels of mining activity (ie once mining employment passes 10%). However, there were major differences between men and women; among females, they found income inequality increases throughout the range of mining employment levels, most likely due to the tendency towards male dominated workforces in the mining sector. Lozeva and Marinova (2010) have similarly reported on the male dominance of the mining sector and barriers to women's employment. Jacquet (2009) found that elderly persons are often the most at risk as they face a double impact of a largely fixed income among high inflation as well as more ridged resistance to social changes in the community. Schelton and Morris (2006), Haslam McKenzie and others (2012 and 2013) and Storey (2010) have also pointed to the potential marginalisation of people employed outside the mining sector or in low income jobs as a result of high living costs.

Numerous studies have also identified positive economic and social benefits from mining as a result of economic diversification, increased employment, household income and expenditure, reduced welfare dependence, expansion of business opportunities, improved services and infrastructure, such as roads and communication, town development, and improvements to buildings and housing, financial and other support for local community groups, increased land and property values and improvements in other quality of life indicators (Brereton and Forbes 2004; Lawrie et al 2011; Hajkowicz et al 2011; Rolfe et al 2003 and 2007c; Petrova et al 2013; Federal House of Representatives Standing Committee on Regional Australia 2013).

A number of mitigations have been outlined in other sections that provide a means to address potential income differentials between existing residents and incoming mine workers and cost of living pressures. These are outlined in Section 4.2.1 and include strategies to enhance local employment and business opportunities and to facilitate the employment of women in the CEIP and Section 4.2.3 on housing and workforce accommodation to maintain housing supplies and affordability.

Residual impact

The residual impact on the cost of living and income differentials has been assessed as medium within the Wudinna DC, with increasing local and regional employment and businesses participation in the CEIP likely to reduce adverse impacts over time. Benefits are also likely to be realised in the long term at the local level as a result of economic diversification and increased employment and household incomes, resulting in a moderate residual benefit.

Negligible residual impacts on cost of living are predicted within the DC of Tumby Bay.

Safety and security

Some residents in Wudinna, Warramboo and Port Neill have expressed concerns about safety and security as a result of the CEIP, particularly during the construction stage. These concerns include the potential misuse of alcohol and drugs, increasing crime rates and decreasing levels of trust and perceived safety associated with the FIFO workforce and changes in the size and characteristics of the population in Wudinna.

Concerns about increasing levels of crime and fear of crime have been identified in other mining developments (Rolfe et al 2003; Carrington and Pereira 2011; Petkova et al 2009; Federal House of Representatives Standing Committee on Regional Australia 2013). Among the factors that may potentially contribute to these concerns are:

- the age and gender of the incoming workforce, comprising a large number of young, single male workers who may be perceived as less accountable to the local community or who may have different views about acceptable behaviour
- alcohol and substance misuse, with high levels and tolerance of alcohol consumption within particular industries, locations, occupations and population groups, including mining and construction (Australian Institute of Health and Welfare 2008; Iverson and Maguire 2000; Carrington et al 2010; Lozeva and Marinova 2010; Federal House of Representatives Standing Committee on Regional Australia 2013)
- disruption to existing social networks as a result of a large increase in the resident and non-resident population
- the presence of 'strangers' who are unfamiliar to local people leading to greater suspicion and distrust
- behaviours that are more prominent or visible in smaller rural communities than in larger cities (such as substance abuse and gambling)
- an older population, a higher proportion of women and lower income levels in the existing community, which may increase the fear of crime (Grabowsky 1995; Tulloch et al 1998; ABS 2010b).

As noted by Haslam McKenzie (2012), a LDC workforce provides companies with considerable control over the labour force as accommodation and work sites are usually 'closed', the supply of alcohol is regulated, and worker behaviour is closely monitored, with minimal opportunities for negative interactions with the broader community.

In addition, most mining companies have strict policies about the use of alcohol and other drugs affecting fitness for work and use random testing of breath or body fluids to monitor alcohol and drugs and ensure workplace safety. Iron Road would implement these policies for the CEIP, as well workforce inductions to communicate safety and security expectations, among other matters.

The design of the construction camps at both the port site and the mine site includes a gatehouse and security systems at the entrance to monitor and control access to the camps. Security systems, including an electronic access control system and closed circuit television, would also be installed at the camps. In addition, Iron Road would develop and implement appropriate visitor management policies and procedures. Workers would be required to sign a 'Code of Conduct', linked to their employment contract, outlining behavioural expectations applicable at workforce accommodation and in local towns. Contractors as well as employees would be required to adhere to the code of conduct and Iron Road's policies regarding drugs and alcohol.

While there is potential for the construction workforce at Cape Hardy and Warramboo to visit local towns and tourist attractions, these opportunities would be limited given the siting of camps away from major townships and the FIFO and bus-in/bus-out workforce arrangements. While on work rosters, workers would have limited free time and would be likely to spend their leisure time at the camp and during their rostered time off-site, they would be at their usual residence elsewhere. Nonetheless, there is the potential for construction workers to visit nearby townships, including Tumby Bay, Port Neill and Wudinna, for social and recreational purposes.

As noted earlier, police stations in Wudinna and Tumby Bay are currently staffed by one officer during business hours from Monday to Friday and after hours as required. Additional police support is also available from Port Lincoln.

Iron Road would liaise with police and provide regular updates of workforce schedules so that the South Australian Police can ensure adequate police resources would be available. The company would work with police, local councils, residents and other stakeholders to develop and implement community-based safety awareness programs and strategies to reduce the potential for crime and fear of crime.

The induction process, implementation of 'fitness for work' policies, community feedback/complaints mechanisms and police presence in nearby townships would minimise the potential for negative interactions between the workforce and local communities.

Residual impact

The implementation of proposed management measures would reduce adverse impacts associated with safety and security. The residual impact arising from the LDC workforce or incoming population has been categorised as medium as a result of heightened concerns among residents about crime in Wudinna and Warramboo during construction and in the early stages of the mine's operation.

Negligible residual impacts on safety and security are predicted within the DC of Tumby Bay.

Critical population groups

A review of literature on other mining towns in Australia and consultation with service providers in Wudinna points to a number of critical population groups who may be more susceptible to adverse impacts from the proposed mine, including women, children, older people and people on low incomes (Rolfe et al 2003; Schelton and Morris 2006; Rolfe et al 2007c; Ennis 2009; Jacquet 2009; Lozeva and Marinova 2010; Reeson et al 2012).

Section 3 of this document describes the existing social and economic environment within the DCs of Wudinna and Tumby Bay, the two council areas that are most likely to be directly affected by the operation of the CEIP. Residents in the townships of Wudinna, Tumby Bay and Port Neill comprise more women than men, are older than the likely profile of incoming the CEIP workers or residents, have lower incomes, less schooling, differ in their occupation and employment status and are less culturally diverse.

Population groups who may be more susceptible to adverse impacts from the CEIP include:

- women, due to income inequalities (Reeson et al 2012), barriers to women's employment (Lozeva and Marinova 2010), a gender imbalance in a predominantly male workforce (Lozeva and Marinova 2010) and concerns about safety and security for themselves and as parents (Tulloch et al 1998; Carrington et al 2010)
- older people, who may be vulnerable to economic hardships (Jacquet 2009) and feel more concerned about the presence of a predominantly young male workforce and issues associated with crime and safety (Tulloch et al 1998)
- people in rental housing, who may be more susceptible to accommodation shortages and rising housing costs (Schelton and Morris 2006; Petkova et al 2009; Haslam McKenzie 2012)
- people employed outside the mining sector or on low or fixed incomes as a result of high living costs (Schelton and Morris 2006; Rolfe et al 2007c; Jacquet 2009; Haslam McKenzie 2009 and 2012).

A range of management measures have been outlined in this chapter that would assist in meeting the needs of critical population groups including:

- Section 4.2.1 and 4.2.4 on the employment of women and other measures to ensure equality of opportunity for females
- Section 4.2.4 on strategies associated with the misuse of alcohol and drugs, crime and anti-social behaviour and fear of crime
- Section 4.2.4 on mechanisms to strengthen social cohesion and social interactions between non-residents, incoming residents and existing residents
- Section 4.2.3 on the supply of housing and workforce accommodation
- Section 4.2.4 and 4.2.4 on the employment of local people and other mechanisms to address potential increases in the cost of living.

Residual impact

The implementation of proposed management measures would reduce adverse impacts associated with critical population groups. However, given the demographic profile within the Wudinna DC, these groups may be more susceptible to adverse impacts from the CEIP over the long term, and the residual impact has therefore been assessed as medium.

Negligible residual impacts on critical population groups are predicted within the DC of Tumby Bay.

4.2.5 Amenity, access and disturbance

Landholders, businesses, visitors and the general public who may be affected by the CEIP include:

- landholders who live near to the mine site in Warramboo
- landholders who live near to Cape Hardy and visitors who use the area for recreational purposes
- landholders whose properties fall within, or lie adjacent to, the infrastructure corridor and borefield
- landholders in Wudinna
- landholders near the transport corridor and visitors and businesses who may be affected by the increased road traffic and changed road conditions.

Amenity, access and disturbance impacts associated with land use and tenure, air quality, noise and vibration, visual amenity and traffic are discussed in the CEIP EIS and MP. The remaining social issues are associated with the loss of amenity, nuisance, inconvenience and delays for landholders and visitors near the mine and CEIP Infrastructure; the division of land and access issues; and restrictions on coastal access affecting recreation and marine activities.

Effects on landholders around Warramboo

Consultation with landholders who live near to the mine site and in Warramboo have raised a number of potential social issues including:

- the loss of productive agricultural land and income and impacts on the viability, value and saleability of land and products (see also assessments of land use and tenure)
- the displacement of farming families and the emotional stress and lack of choice for directly affected landholders
- the loss of amenity as a result of dust, noise and vibration, light spill and changes to the visual landscape (see also assessments of air quality, noise and vibration, and landscape and visual amenity in the CEIP EIS and MP)
- inconvenience, delays and disturbance associated with the construction and operation of the proposed mine, including increased travel times as a result of permanent road closures and increased road and rail traffic (see the CEIP Traffic Impact Assessment report for details).

Air quality, noise, vibration, light spill, visual amenity and traffic have been identified as possible issues that may result in impacts for landholders near the proposed mine site. Technical assessments of these potential impacts are dealt with in detail in the CEIP EIS and MP. This SIA deals with the remaining social effects as it relates to amenity, nuisance, inconvenience and loss of access.

Figure 4-6 shows the proposed mine site and layout in relation to Warramboo, which is located approximately 3 km west of the mine pit. At the 2011 Census, Warramboo and surrounding area had a resident population of 47 people (ABS 2012b, Mesh Block Counts). Other towns include Kyancutta, Wudinna and Lock, which are located approximately 12 km, 25 km and 40 km from mine site respectively.

Figure 4-7 shows the sensitive receivers within 2 km of the proposed mine and adjacent infrastructure corridor.

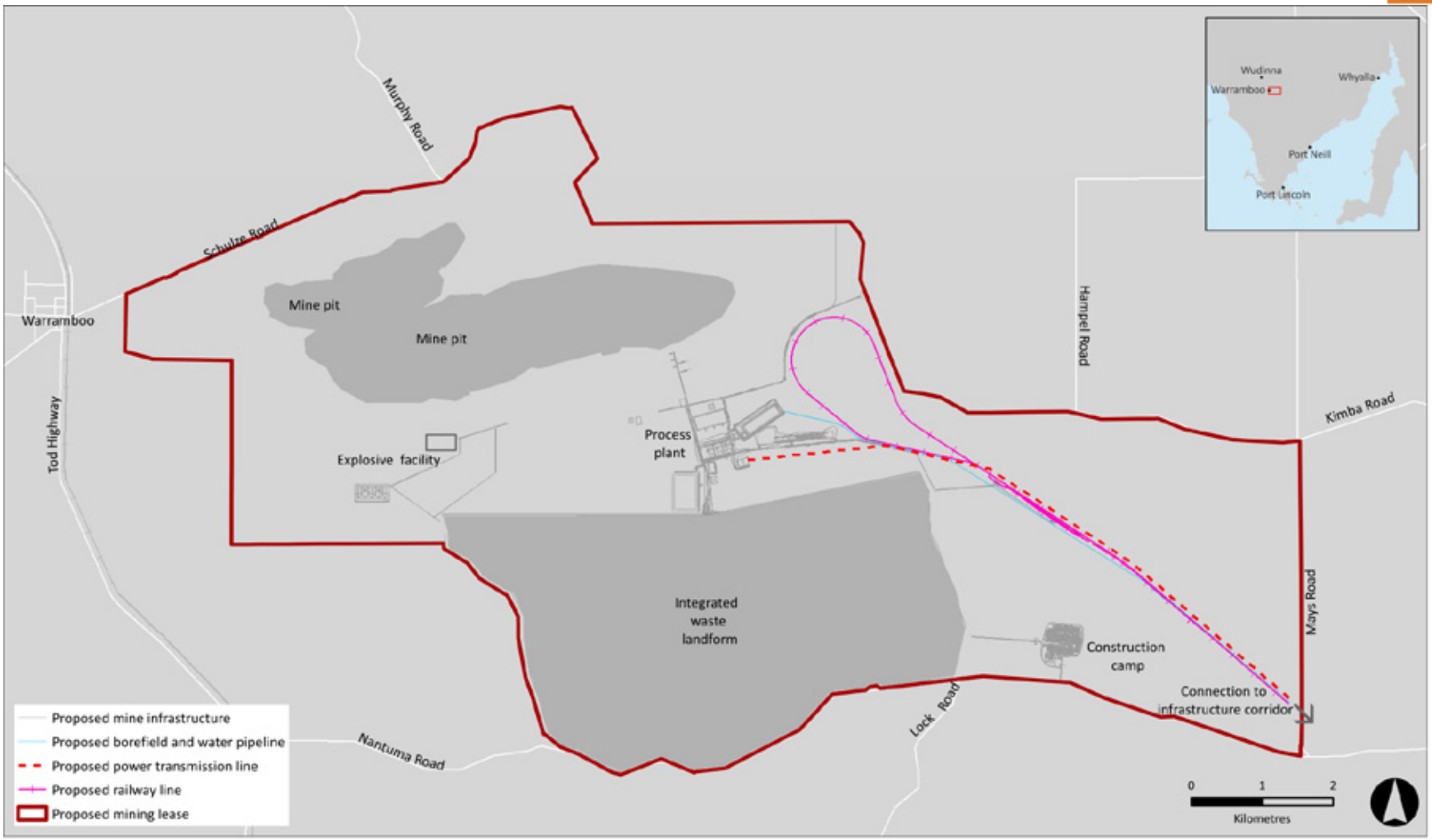


Figure 4-6 Proposed mine site layout

Note: The locations of sensitive receivers have been primarily determined by desktop assessment of aerial imagery and are subject to field and community verification.

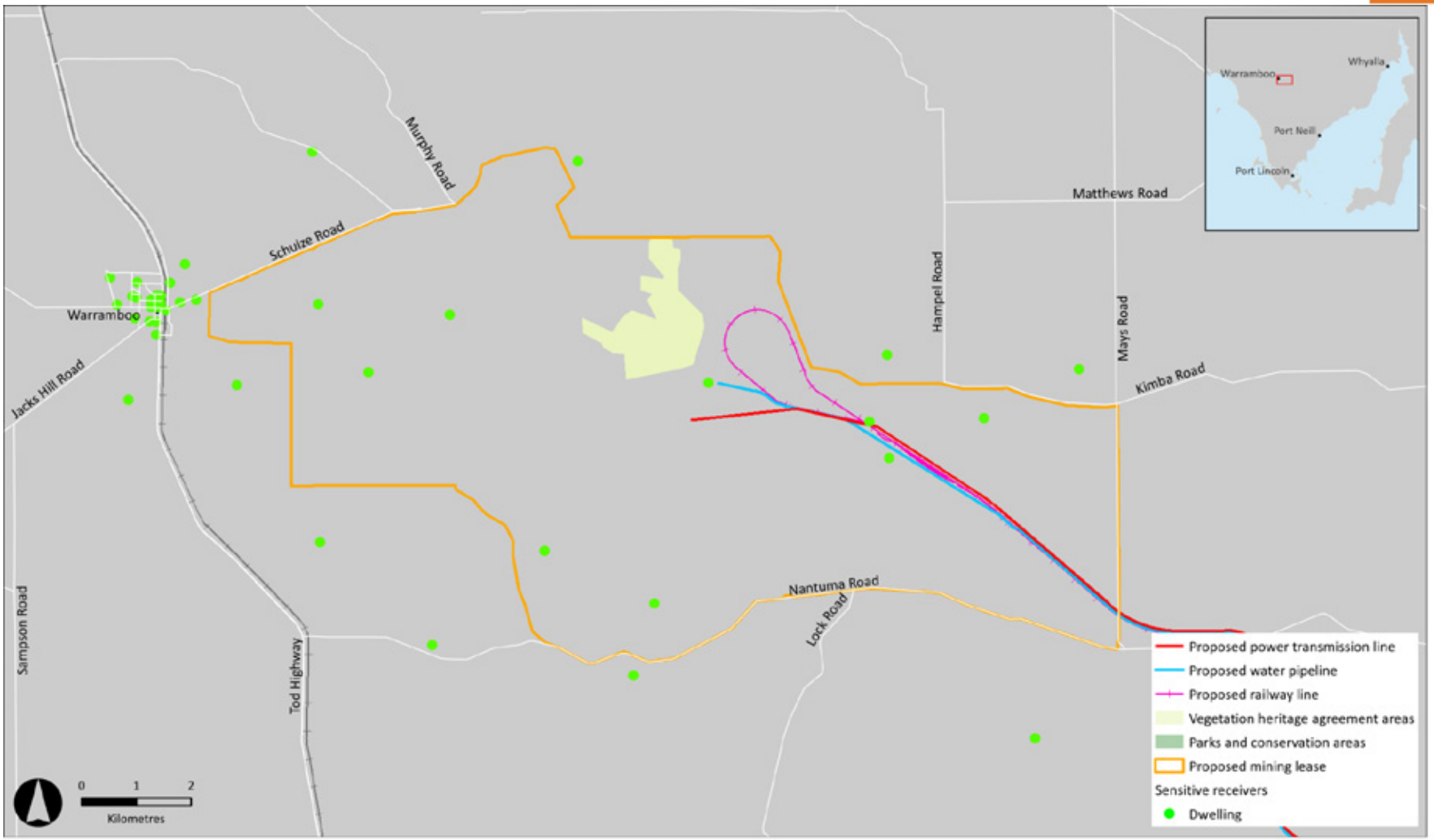


Figure 4-7 Sensitive receivers within 2 km of the proposed mine and northern infrastructure corridor

Note: The locations of sensitive receivers have been primarily determined by desktop assessment of aerial imagery and are subject to field and community verification.

(i) Loss of agricultural land

The mine would result in the permanent loss of some productive agricultural land. Some landholders have expressed concerns about the loss of land and potential effects on the viability of farming operations, farm incomes and council revenue.

Conversely, the mine could benefit farmers by providing a source of employment to supplement often variable farming incomes and maintain farming enterprises particularly during periods of drought and/or low commodity/grain prices (see Section 3.4.5 for further information on the financial performance of broadacre farms on the Eyre Peninsula).

The proposed mine site has a footprint of approximately 8,496 hectares (ha), which is currently used for agricultural purposes (see Plate 3-1). This land is currently held by 6 landholders and involves 13 land parcels covering 10,030 ha.

Iron Road is currently talking with the directly affected landholders about the acquisition of land and will negotiate with them with respect and in accordance with the law. Iron Road will maintain effective, regular and transparent communication with those landholders throughout this process and provide accurate and comprehensive information about the CEIP and its potential impact on their properties. Compensation will be negotiated on a case-by-case basis having regard to any economic loss, hardship and inconvenience suffered by the landholder as a consequence of the mining operation. In addition to the purchase of land, consideration will be given to any potential damage to land and the loss of productivity or profits as a result of the mining operation as well as any other relevant matters. However, discussions and negotiations are of a commercial and confidential nature and will not be referred to in any detail in any of Iron Road's approval documents.

Iron Road would also be required to pay rates on land within the proposed mining lease.

While the proposed mine would result in some loss of agricultural land, this would represent around 0.3% of agricultural land on the Eyre Peninsula (as reported by the SA Centre for Economics (2012), RDAWEP Fact Sheet) and around 2.3% of agricultural land within the Wudinna DC. This would not affect the functionality or sustainability of existing farming operations or the viability of regional agricultural production. As noted previously, the CEIP would also provide an opportunity to diversify the economic base of the region and supplement often variable farming incomes with off-farm earnings. In this regard, the CEIP may result in increased income for some landholders by providing an alternative source of direct and indirect employment.

Residual impact

The residual impact is predicted to be low in the short term, assuming that fair agreements and compensation are negotiated with directly affected landholders.

(ii) Displacement of farming families

A number of concerns have been raised by some landholders in Warramboo about the displacement of farming families as a result of the mine and:

- the lack of choice and emotional challenges for directly affected landholders
- effects on the community from the loss of landholders and farming families.

As noted in the previous section, the land contained within the proposed mining lease is currently held by six families.

Of these, one family would be required to relocate for mining and processing to occur due to the location of the home. One other family may choose to reside on the land as their home would not be directly impacted by the mining and processing infrastructure. One family is an absentee landlord and therefore is not directly affected by any requirement to relocate. The other three families do not live within the mining lease boundary and may choose to move if their remaining land is insufficient to provide a viable business or they are unable to purchase nearby additional land. The decision to stay in the local area or to relocate outside of the district would be made by individual landholders.

For some landholders, negotiations about the acquisition of land and property are viewed positively while other landholders may feel stress and are concerned over the loss of land and/or property, which in some cases has been held within the family for generations. Many farmers have a strong attachment to the land and the surrounding district and are worried by the proposed changes and lack of choice. The uncertainty and emotional stress this can create and the link to mental health has been raised in discussions with stakeholders. To assist landowners deal with these challenges, Iron Road has had a voluntary and confidential professional counselling available for landholders and their families since August 2013. In addition, Iron Road will work with directly affected landholders to provide practical and appropriate support and assistance where sought.

Potential changes to the social fabric and sense of community as a result of the proposed mine are discussed in Section 4.2.4. As noted in Section 3.2.1, the Wudinna DC has experienced population losses of around 40% from 1976 to 2011. Potentially, the mine's operation may attract new people to live and work in the area and reverse this population decline. There is also a process of ongoing change within rural communities as farming families move in and out of the area. This is evidenced by data from the State Valuation Office (2015) which shows that since 2010, there have been 102 sales of primary production sections in Wudinna DC, including 44 properties with a house.

Residual impact

The residual impact is predicted to be medium as a result of the long term emotional challenges that may be experienced by some directly affected landholders as a result of the mine.

(iii) Amenity

Consultation with local landholders and residents in Warramboo has raised concerns about amenity impacts associated with dust, noise and vibration, increased traffic, changes to visual amenity and other issues affecting the amenity.

Dust deposition from the mine poses potential amenity and nuisance impacts for residences around the mine and in Warramboo. The effects of dust on health, amenity, vegetation, land use and water have been raised in consultation with residents (see information on stakeholder consultation for further details). The potential impacts of dust on health and the physical environment, including terrestrial flora and fauna and surface water, are discussed in other technical assessments contained in the CEIP MP. The remaining social issues are concerned with the amenity and nuisance impacts from dust.

Amenity relates to both the aesthetic and lifestyle values and perceived impacts on those values. From a public amenity perspective, dust can result in visual amenity impacts as a result of reduced visibility (or visibility degradation) or nuisance impacts from dust deposition (eg on surfaces such as washing, cars or house roofs). As noted by the NSW Minerals Council (2011), amenity impacts from dust are usually associated with coarse dust particles that generally equate to total suspended particulates (TSP), and depend on the distance from the mine site and climatic conditions such as wind speed and direction.

Negative public reactions and concerns about increased dust concentrations from mining operations have been reported in a number of communities including Whyalla, Port Hedland, Yallourn, Hunter Valley and the Bowen Basin. Reports from the Australian Coal Association Research Program (1999) and NSW Minerals Council (2011) suggests that community perceptions of dust and amenity impacts are often based on visual clues and relate to the 'visibility' of dust plumes and dust sources (such as general haze and dust 'fallout'), with most resident complaints occurring during peak events (eg short-term episodes of high emissions, such as blasting).

A number of other factors, apart from dust concentrations, have also been shown to affect community perceptions of, and sensitivity to dust. A study by Dean et al (1987) concluded that the most important factors in determining community responses to dust were existing air quality, its rate of change and other community and environmental characteristics. This suggests there may be differences in perceptions of amenity impacts across communities, which are not necessarily related to the level of dust concentration.

The air quality assessment concluded that dust emissions from the proposed mine site would comply with air quality standards at all sensitive receptors outside the proposed Mining Lease boundaries for the construction phase and the peak mining phase. It also predicted there would be no nuisance dust impacts at any of the sensitive receptors based on criteria from the NSW Environment Protection Authority for the protection of amenity from nuisance dust.

Iron Road has committed to a range of management controls and mitigation measures to meet applicable air quality limits and to reduce potential amenity impacts (see the CEIP Mine Air Quality Assessment report) and would conduct monitoring of dust levels at selected locations to confirm this. The operational controls and monitoring system would be documented in a dust management plan, which would be prepared by Iron Road prior to the commencement of mining activities. The dust management plan would include the provision of weather forecasts and real-time, continuous dust monitoring at selected locations. It would also set out specific dust mitigation activities and best practice for dust emissions management. This approach would enable modification or suspension of operational activities at the mine site in response to the following triggers:

- predicted increased dust risk from meteorological forecast information e.g. specific wind speeds in specific directions
- warnings or exceedance alarms from dust monitoring
- visual observations of significant dust generation and community complaints.

While Iron Road would comply with legislative air quality limits, local landholders may be concerned about amenity and nuisance impacts from the mine. To reduce potential amenity impacts from dust, Iron Road would adopt the following best practice management measures (see also Air Quality assessment):

- establish real-time dust monitors at government approved locations
- provide real-time information to local landholders and the Warramboo community on dust monitoring via the internet
- continue to operate a toll free phone hotline and a complaints management system with targets for the time taken to respond to / take action on complaints and grievances; this may require the investigation and implementation of additional controls and adaptive management measures as required
- prepare information and education programs, and hold regular forums with residents and stakeholders to discuss air quality issues.

Iron Road is willing to discuss and negotiate land acquisition with those landowners that are adjacent to the mining lease if those landowners wish to move because mining operations are impacting negatively on the use and enjoyment of their land.

The assessment of noise and vibration for the CEIP Mine found that noise criteria, based on the *Environment Protection (Noise) Policy 2007* (Noise Policy), would be met at all of the nearest sensitive receivers during the construction and operation of the proposed mine.
To monitor noise emissions, a permanent monitoring station would be located at a strategic location to identify if there were noise exceedances and to provide for noise management procedures to be implemented to ensure compliance. The assessment also predicted that ground vibration levels generated during construction and operation of the proposed mine due to mining plant and equipment would be below preferred human response vibration levels at a distance of 200 m and below structural damage criteria. As the nearest sensitive receiver to the proposed mining lease boundary is located approximately 250 m from the boundary and approximately 1,950 m from the edge of the pit, it concluded there was a low probability of adverse comment or disturbance to sensitive receivers due to ground vibration generated by mine construction, operational plant and equipment, or blasting.

The assessment of visual impact conducted for the MP found that the implementation of design and management controls during the construction, operation and closure of the proposed mine would reduce the impacts and risks to visual amenity to a level of medium or lower. Proposed management strategies include landscaping and establishment of vegetation screens at key viewpoints around the perimeter of the proposed mining lease to reduce visual impacts from public roads and highly exposed areas. Targeted landscaping would also be undertaken where practicable at dwellings within 2 km of the mine site to minimise the visual impact on individual landholders. The final location and nature of the landscaping would be determined in conjunction with the Wudinna DC, the Department of Planning, Transport and Infrastructure and the local community. Outdoor lighting on site would also be designed to minimise light spillage and the visual impact of the mining lease, without compromising the safety of workers on site.

To further reduce potential amenity and lifestyle impacts on Warramboo, Iron Road would:

- maintain transparent communication and consultation with the local community to ensure that lifestyle impacts are maintained to an acceptable level
- provide regular and timely information to local residents and the community about the CEIP and planned works to assist in reducing disruptions and complaints
- continue to provide support to local community groups and community-based activities in Warramboo through the community development program.

Residual impact
The residual impact is predicted to be medium as a result of long term changes to local amenity experienced by landholders and residents living around the mine and in Warramboo.

(ii) Closure of public roads
There are four public roads situated within the proposed mine site that would be permanently closed as part of the CEIP Mine. Community members in Warramboo have raised concerns about the increased travel times as a result of road closures and potential effects on agricultural and community practices (for example, to access sporting clubs, transport grain, check stock or machinery, on school bus routes and during emergencies). A concern has also been raised about the impact of the mine on the supply of utilities. Issues associated with road safety as a result of road closures are dealt with in the Traffic Impact Assessment.

Every effort has been made to minimise the increases to travel times, but by the very nature of a mine, roads must go around the facility. Sections of existing public roads that fall within the proposed mining lease and would be closed include:

- Dolphin Road

- Murphy Road
- Kimba Road
- Lock Road.

There would be no road closures on Schulze Road (on the north-west boundary of the proposed mining lease), on Nantuma Road (on the southern boundary) and on Mays Road (on the eastern boundary) to maintain public access around the proposed mine site.

The Traffic Impact Assessment noted that these roads provide access to a small number of farming properties and have very low traffic volumes. Access to the township of Warramboo from outlying areas around the proposed mine site would be maintained via Nantuma and Schultz Roads. The closure of public roads within the mine site would increase travel times and cause some inconvenience for local residents, landholders and other road users. For example, a motorist travelling east from Warramboo could use Nantuma Road as a replacement for the closed section of Kimba Road, which would increase travel time by approximately seven to eight minutes (see CEIP Traffic Impact Assessment report for further details). In the context of the large distances and travelling times experienced by people living in remote rural areas, this increase, while unfortunate, is unavoidable.

Iron Road would work with councils and the community on planning for the closure of public roads. It would also liaise with local schools to discuss any impacts on bus routes due to road closures or increased traffic during the construction and operation of the CEIP, including the transport of modules. Local residents and road users would also be regularly informed of planned changes to traffic and access conditions.

Existing mains water, electricity supply and telecommunications are not the ownership of Iron Road. Iron Road would work with the owners of these utilities eg SA Water, Electranet and Telstra, to provide plans and timely updates on project progress. Iron Road, the Council and the utility owners would work closely with the specific aim to eliminate or minimise any disruption to services as a result of the mine development.

Residual impact
The residual impact is predicted to be medium as a result of the increased travel time and inconvenience for local residents, landholders and other road users from the permanent closure of public roads around the mine site.

Effects on landholders and visitors around the proposed port at Cape Hardy
Consultation with stakeholders has identified a number of potential social impacts associated with the proposed deep sea port facility at Cape Hardy including altered access to coastal areas, changes to land and marine-based activities, and altered land and seascape affecting local land values and amenity.

The on-shore port site has a footprint of approximately 1,100 hectares (see Figure 4-8), some of which is currently used for agricultural purposes (see Plate 4-1). All the land is owned by Eyre Properties Pty Ltd, a wholly owned subsidiary of Iron Road, and some parcels are leased to local owners. The proposed port operating limits (marine waters) would cover approximately 147 ha and the proposed coastal exclusion area would be approximately 2 ha.

Figure 4-9 shows sensitive receivers within 2 km of the proposed port facility at Cape Hardy and adjacent infrastructure corridor. Towns and residential properties were avoided where possible in selecting the location of the proposed port facility.

Figure 4-8 Proposed port site at Cape Hardy

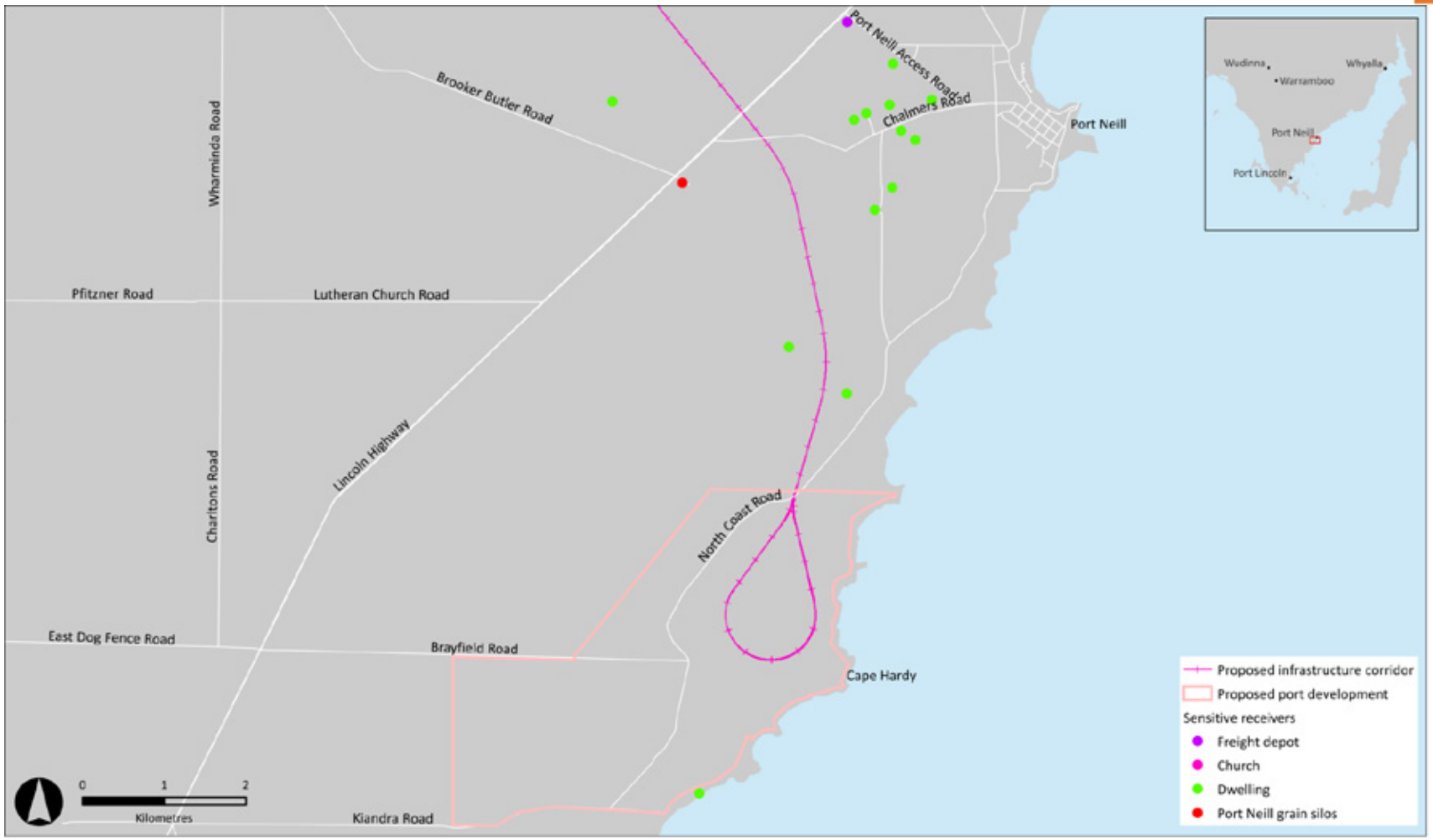


Figure 4-9 Sensitive receivers within 2 km of the proposed port site and southern infrastructure corridor

Note: The locations of sensitive receivers have been primarily determined by desktop assessment of aerial imagery and are subject to field and community verification.

Plate 4-1 Cowleys Beach

Port Neill is the nearest township and is located approximately 5 km to the north of the proposed port site entrance. The resident population of Port Neill (SSC) was 136 people at the 2011 Census.

As shown on Figure 4-9, one property abuts the proposed port site boundary and four other properties are located within 2 km of the port site. The property to the south is the nearest sensitive receiver and is located on council owned land, approximately 1,000 m south west of proposed security fence for the port.

The coastline adjacent to the proposed port site offers opportunities for recreational and marine activities, including fishing, swimming, surfing and boating. There are several beaches around Cape Hardy, including Cowleys Beach (see Plate 4-1), which is identified as an area of interest for fishing by the DC of Tumby Bay (2013e). The Cowleys Beach campground comprises an open graveled area that offers beach access for boats and four wheel drive vehicles, but has no other public facilities or amenities.

(i) Access

Several changes are proposed to the public road system near the port site. These will be subject to further consultation with the DC of Tumby Bay as detailed design progresses and include:

- the construction of new bridge over rail for the existing North Coast Road at the northern port site boundary
- the closure of Brayfield Road on the eastern side of North Coast Road and upgrade of Brayfield Road between North Coast Road and Lincoln Highway
- a minor realignment and upgrade to sections of the Port Neill Access Road, including the Port Neill Access Road/North Coast Road intersection and Port Neill Access Road/Lincoln Highway intersection.

As shown on Figure 4-8, public road access along North Coast Road would be maintained as it currently operates through the proposed port site.

Access to nearby properties would remain largely unchanged, with the exception of one property located to the north of the port site boundary, on the western side of the proposed railway line (see Figure 4-9). Iron Road will continue discussions with the affected landholder regarding property access.

As shown on Figure 4-8, Cowleys Beach is located near to the south-eastern boundary of the proposed port site, approximately 2 km from the port's wharf and jetty, and can be accessed via Kiandra Road. Kiandra Road is located alongside the proposed port site boundary but access would be unaltered as fencing would be placed on the northern side of the road. Access to Cowleys Beach would not be impacted by the proposed port development and recreational vehicles and campers would still be able to access the camping grounds and beach.

As shown on Figure 4-8, public access to the beach front along the coastal boundary of the port site would be largely maintained except for a small area that forms part of the jetty, wharf, customs and security. The total proposed coastal exclusion area would be approximately 2 ha, which would ensure that as much of the coast as practicable was retained for public use.

In order to meet maritime security requirements and to ensure its secure use by Iron Road, public access to, and use of, the port facility would not be permitted. As outlined in the Project Description, security at the port site would be governed by a maritime security plan for the site in accordance with *the Maritime Transport and Offshore Facilities Security Regulations 2003*. Security measures would include fencing, Electronic Access Control System (EACS) and Closed Circuit Television (CCTV). A gatehouse and security checkpoint located adjacent the main entrance to the site would also monitor and control site access. Within the port site, a car park for visitors and staff would be provided at the site entrance, with a mini-bus used to shuttle people within the port site. Provision for parking of site vehicles would be provided adjacent the administration building.

Residual impact

While there would be some minor limitations on public access, the residual impacts are predicted to be negligible.

(ii) Recreation and marine-based activities

The potential social impacts associated with the proposed development include changes to recreation, boating and marine-based activities for residents and the general public.

The proposed export facility at Cape Hardy would be a designated port, operate 24 hours a day and cater for Panamax and Capesize vessels. The 1.3 km modular jetty and wharf structure could receive between 125 and 180 vessels per year, depending on the mixture of vessel sizes. At the upper end of this range, the port would be handling three to four vessels per week. With an arrival and departure movement for each ship that visits the port facility, this equates to a large vessel movement at the facility on most days.

A designated anchorage area in the vicinity of the port site marine facilities would be established for vessels waiting to berth and load cargo at Cape Hardy, which would be marked on charts but would not be delineated in the field by navigation beacons or buoys. The proposed anchorage area and approach routes are shown on Figure 4-10.

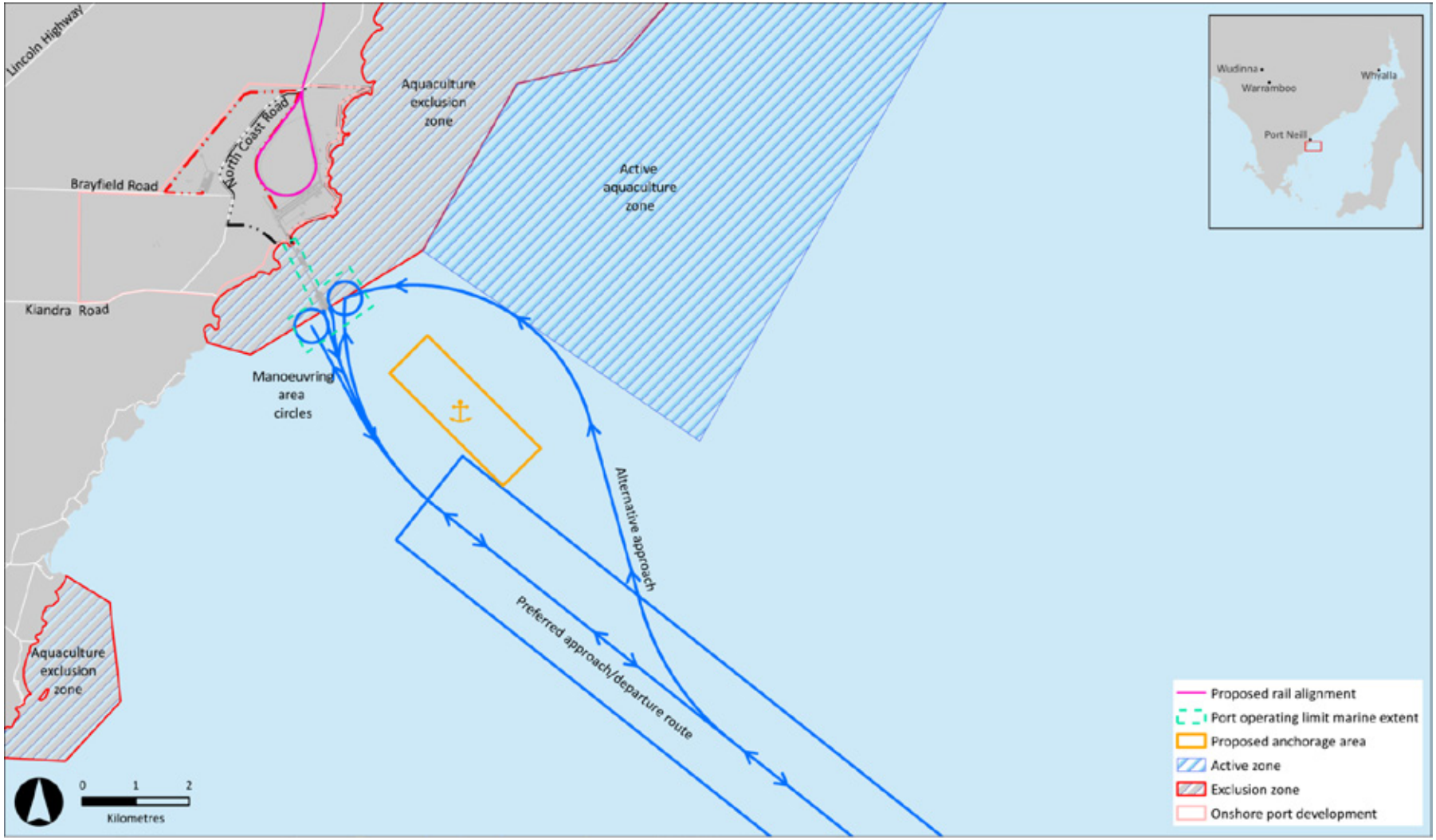


Figure 4-10 Proposed port operational limits and anchorages

A suitable port boundary would be designated as the limit of jurisdiction of the port operator (see the proposed port operating limits (marine waters) on Figure 4-10). This would comprise approximately 147 ha of water in the immediate area of the port site, including the jetty, wharf and manoeuvring area, but would not include the anchorage area. The port operator would ensure that vessels bound for Port Neill, Tumby Bay or other destinations could freely pass the port site. As shown of Figure 4-10, the proposed port operating limits (marine waters), approach routes and anchorage area would lie outside the active aquaculture zone, so no interference with existing or future aquaculture enterprises is anticipated from the port's operation.

During construction activities, appropriate exclusion zones would be established to ensure public safety for people on land and on or in the water, and to protect marine life. There would also be some restrictions on boating, swimming, diving, skiing, mooring or anchoring in the vicinity of the wharf and jetty, and during loading and unloading of vessels to ensure public safety. These restrictions would be determined by the South Australia Department of Planning, Transport and Infrastructure and would form part of a port operating agreement.

The recently approved EIS for the Port Bonython Bulk Commodities Export Facility (Arup 2013) indicated there would be a minor restriction on recreational fishing near the proposed jetty, within a 50 m exclusion zone, and that the overall the effect on recreational fishing would be negligible. It also noted that this requirement is similar to those in place for the Whyalla Ore Jetty, as defined in the *Harbours and Navigation Regulations, 2009* (SA). While the new jetty and wharf for the proposed port facility at Cape Hardy would remove some of the area currently available for recreational boating and fishing, the exclusion zone is likely to be in the order of 50 m, any restrictions would be limited.

Iron Road will continue to consult with local residents, maritime users and other stakeholders about the port facility and will provide regular updates as detailed planning progresses.

Residual impact

While there would be some minor limitations on recreational, boating or other marine activities by local residents and the general public around the port facility, the residual impact is predicted to be negligible.

(iii) Amenity

Local residents and visitors may experience some disturbance, inconvenience and loss of amenity associated with the construction and operation of the proposed port. Technical assessments of noise and vibration, air quality, traffic and visual amenity are contained in the CEIP EIS. This section deals with associated effects on amenity in terms of people's experience and enjoyment of the local environment.

Construction activities at the proposed port would take place over a period of approximately two and a half years, 7 days per week, and up to 12 hours per day. Blasting would occur over a period of approximately 5 to 6 months as part of construction of the port infrastructure. Personnel would be on site between 6am to 6pm, with construction occurring between 7am and 5pm. The majority of the construction workers would fly-in and fly-out from Port Lincoln, and would be bussed to the onsite accommodation camp and work sites at the port.

As discussed previously, the proposed port would operate 24 hours a day and would handle up to three or four vessels per week. With an arrival and departure movement for each ship, this equates to a large vessel movement at the facility on most days. The majority of the operational workforce would be likely to reside locally.

The assessment of noise and vibration found that construction activity could be managed to minimise noise at sensitive receivers near the port site and avoid adverse impact on amenity, in accordance with the *Environment Protection (Noise) Policy 20*07. Noise criteria would be met at all sensitive receivers during the operation of the port. Levels of ground vibration during construction were predicted to be below applicable vibration criteria at a distance of 1,000 m, which is the distance to the nearest sensitive receiver. Vibration levels during operations at the port site (from train movements, unloading of iron concentrate, conveying and materials handling) are predicted to be less than during construction and well within the preferred human response vibration criteria. The assessment also found that the majority of blasting is likely to be further than 1,000 m from the closest sensitive receiver, with scope for a well-designed and executed blasting operation to be managed well within the blasting criteria.

The assessment of air quality from construction activities found that dust emissions could be effectively managed by the use of conventional dust control mitigation practices, which would be detailed in the construction environmental management plan. The main dust emissions during operations would occur from handling and stock piling of the iron concentrate. Modelling of worst case dust emissions found that air quality standards could be achieved at all sensitive receptors outside the port site boundary with minor changes to operational activities in response to meteorological forecasting and/or real-time dust monitoring. The modelling also showed that nuisance dust would be minimal outside the port site boundaries and dust deposition would comply with criteria at all of the sensitive receptors. An operational dust management program would be implemented at the port site to assist with air quality management.

The impact of the port facility on the landscape and visual amenity has been assessed and the findings are presented in the CEIP EIS. The assessment identified potential high level impacts on visual amenity at North Coast Road and Cowleys Beach due to the proximity of port site infrastructure, the sensitivity of the surrounding landscape and the utilisation of the area for scenic and recreation purposes. Visual impacts would be mitigated by establishing native vegetation to the east of North Coast Road adjacent to the port site to provide visual screening of the port site and other design and control measures. Given the distance to residential properties and landscape mitigations proposed by Iron Road, no impacts are expected on local land or property values as a result of changes to the seascape surrounding Cape Hardy.

There would be some increase in road traffic on the Port Neill Access Road and the North Coast Road during the construction and operation of the port, including module deliveries, which may cause short-term disruptions, inconvenience and delays to road users, including local residents, visitors and commercial drivers. As noted previously, a number of upgrades and minor realignments to local roads are also planned in the vicinity of the proposed port. The Traffic Impact Assessment predicted that the net effect on travel time and distance as a result of these changes would be negligible.

To minimise potential impacts on the community and the operation of the road network, Iron Road would develop a construction traffic management plan. This would include a traffic management plan to manage the interaction between public traffic and construction traffic particularly at the turn off from North Coast Road to the construction site. Iron Road would also inform local residents and road users of planned changes to traffic and access conditions.

Iron Road will provide regular updates to local residents and stakeholders about the construction and operation of the port as detailed planning progresses.

Residual impact
Some minor impacts on amenity may be experienced by local residents and visitors as a result of inconvenience and disturbance from increased traffic, noise and vibration and air quality during the construction of the port, with limited changes predicted to the amenity, lifestyle or enjoyment of local residents and visitors to the area during operations. The residual impact is therefore assessed as low.

Effects on landholders around the infrastructure corridor
Consultation with landholders in the infrastructure corridor and a review of linear infrastructure projects in other rural communities has identified a number of potential social impacts for landholders near the infrastructure corridor. These include:

- the division and loss of agricultural and pastoral land and access issues in constructing, operating and maintaining infrastructure (see also Land Use and Tenure)
- the loss of amenity, inconvenience, nuisance and delays as a result of noise and vibration, air quality, road and rail traffic and changes to the visual landscape (see assessments of Noise and Vibration, Air Quality, Traffic, and Visual Amenity)
- the introduction of weeds during construction and maintenance of infrastructure (see assessment of Terrestrial Flora and Fauna)
- livestock injury and loss during construction and operations from increased road and rail traffic

A number of potential impacts are discussed in detail in the CEIP EIS (see Land Use and Tenure for information on existing land use and tenure; Terrestrial Flora and Fauna for potential impacts from the introduction of weeds and injury to fauna during construction activities; Traffic for potential impacts associated with increased road and rail traffic; Air Quality, Noise and Vibration and Visual Amenity for potential impacts associated with dust, noise and vibration, and the visual landscape). The remaining social issues concern the division of land and access issues and the potential loss of amenity, inconvenience, nuisance and delays in constructing, operating and maintaining infrastructure.

An overview of the CEIP components, including the proposed infrastructure corridor, borefield and power transmission line is presented in Figure 4-11. The infrastructure corridor would connect the mine site to the port site, and extend approximately 130 km through the DCs of Tumby Bay, Kimba, Cleve and Wudinna.

The proposed power transmission line would originate from the existing Yadnarie substation and run west, parallel to the existing ElectraNet transmission line, for approximately 20 km until its intersection with the proposed railway line, and would then form part of the infrastructure corridor and run parallel to the railway line.

The above ground water pipeline would supply saline water from the borefield to the mine site, approximately 60 km to the north, for use in the processing plant. It would incorporate 10 bore wells, all located within existing road reserves. Nine boreholes would be located west of the infrastructure corridor and one would be located to the east.

The proposed standard gauge railway line would connect the mine site to the port site. During operations, three trains, of approximately 1.3 km in length, would run two return trips daily (ie 6 loaded trains per day) to transport 21.5 Mtpa of concentrate from the mine to the port for export. The proposed railway line would cross approximately 36 roads, including the Lincoln Highway and the Birdseye Highway, as well as numerous private roads. A total of 21 public road crossings are proposed, including one active level crossing at the intersection of the Birdseye Highway, 16 passive level crossings and 4 culvert/grade separation crossings (either road over rail or rail over road).

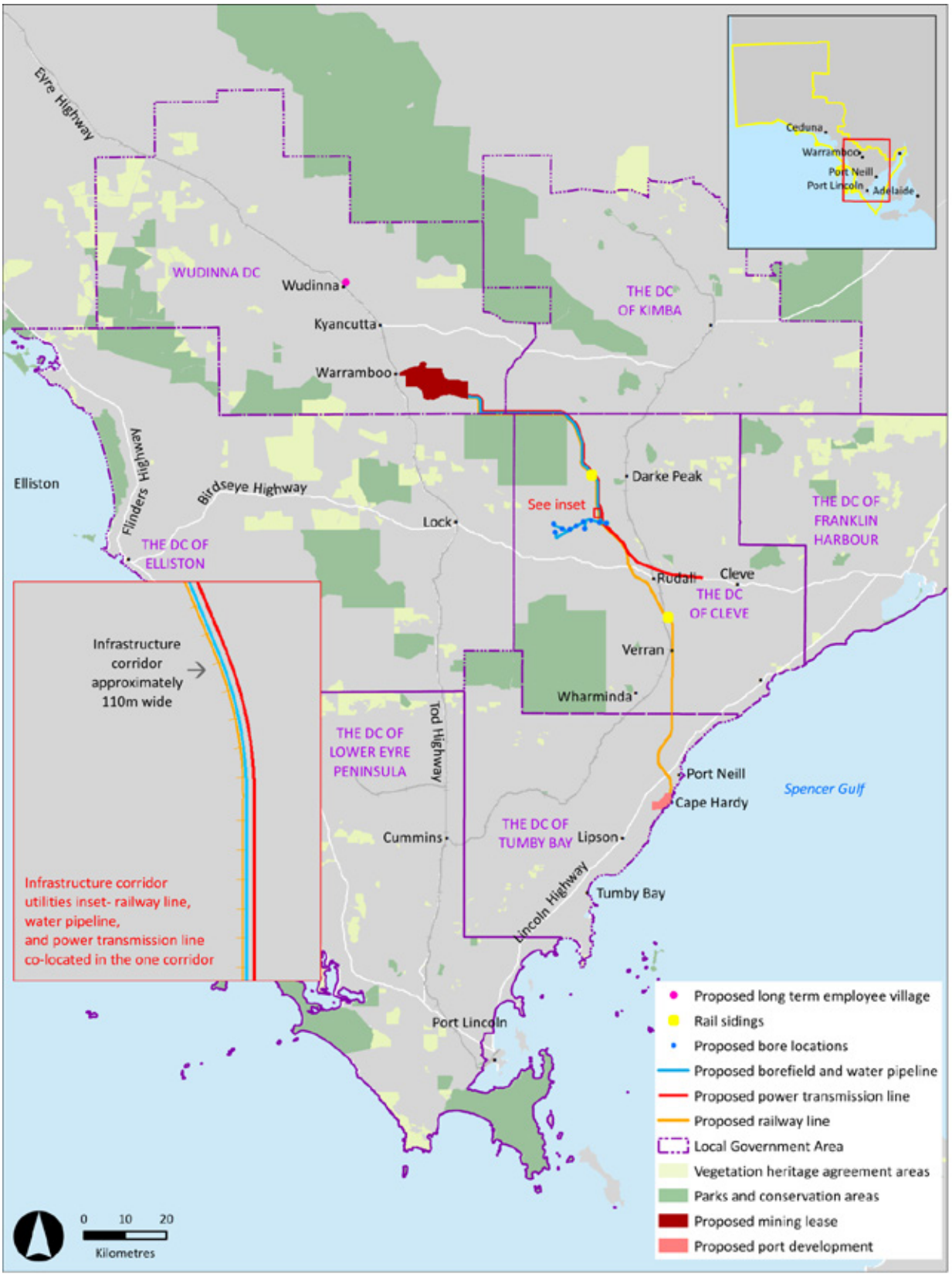


Figure 4-11 Overview of the infrastructure corridor

The proposed railway line would be constructed over the existing Cummins-Buckleboo railway line, require several water crossings and the realignment and upgrade of several local roads.

At the southern end, the infrastructure corridor would be approximately 60 m wide and at the northern end would be approximately 110 m wide when it incorporates the railway line, access road, power transmission line and water pipeline.

A construction workforce of approximately 500 people would be required to construct the infrastructure corridor and borefield. These workers would be accommodated in construction camps at the proposed port and mine sites, and transported daily by bus to work sites. Around 40 workers would be required to operate the railway line, who would be accommodate at the long term employee village immediately adjacent to Wudinna, or reside locally.

Residential areas and townships have been avoided where possible in selecting the route for the infrastructure corridor to reduce potential amenity impacts. As shown on Table 4-5, there are four townships within 5 km of the proposed infrastructure corridor, borefield and power transmission line including Port Neill and the small towns of Rudall, Verran and Kielpa.

Table 4-5 Proximity of townships to the CEIP Infrastructure

Suburb (SSC)	Township(s)	Distance to infrastructure corridor	Estimated resident population[1]
Warramboo	Warramboo[2]	12.8 km	300[2]
Cleve	Cleve	9.0 km	972
Port Neill	Port Neill	2.9 km	136
Rudall	Rudall	3.3 km	260
	Verran[3]	0 km	
	Wharminda	8.6 km	
Darke Peak	Darke Peak	7.4 km	271
	Kielpa	4.1 km	

Source: ABS 2012a, *Basic Community Profile*.
[1] Population of the entire suburb (SSC) as defined by Census boundaries, which includes multiple small towns.
[2] Population of Warramboo and the surrounding area was estimated to be 47 people at the 2011 Census (ABS 2012b, *Mesh Block Counts*).

Figures 4-7, 4-9, 4-12 , 4-13 and 4-14 show the sensitive receivers within 2 km of the CEIP Infrastructure corridor. This includes residential properties intermittently spread along the proposed infrastructure corridor and near the proposed borefield and power transmission line.

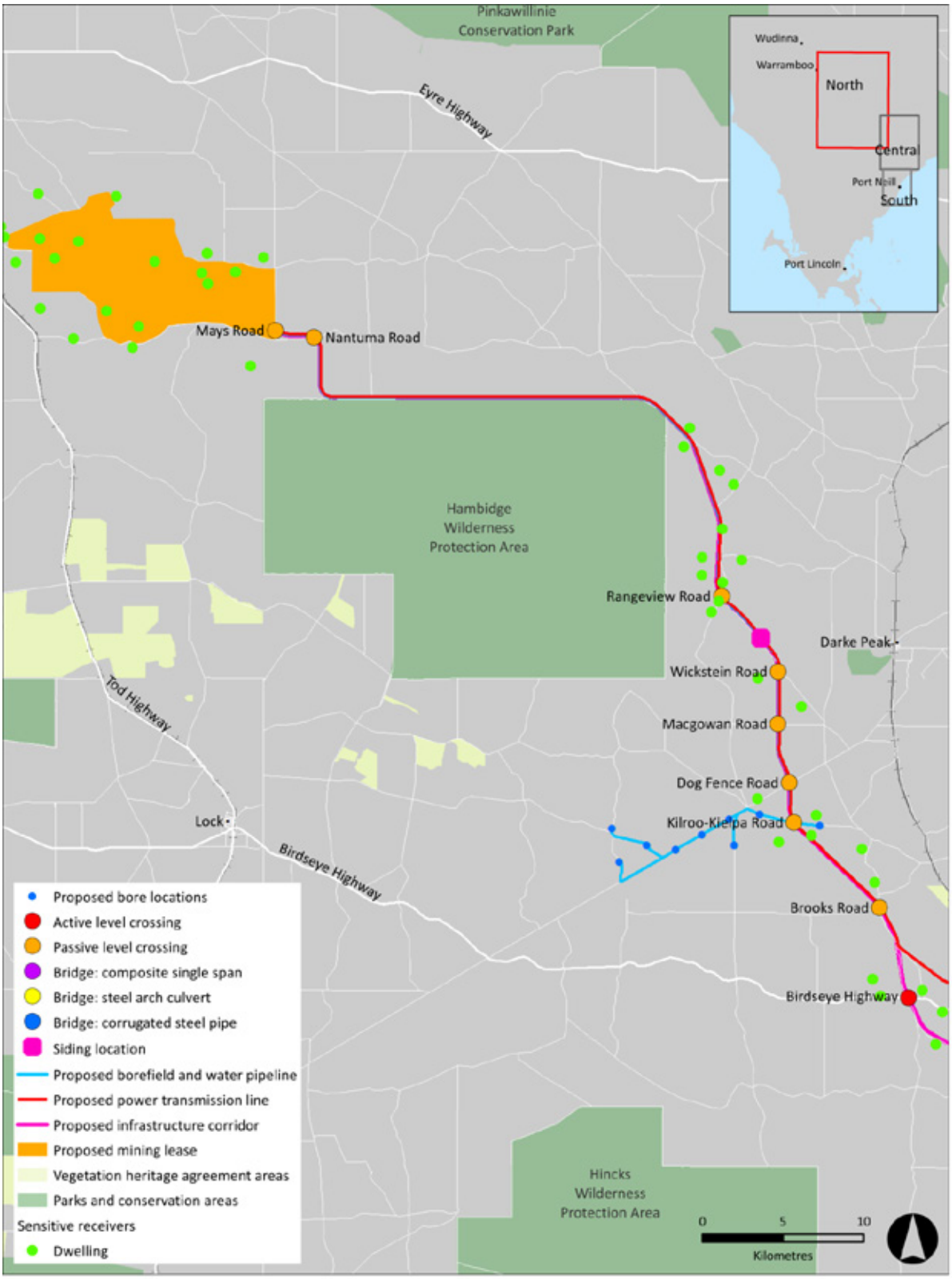


Figure 4-12 Sensitive receivers within 2 km of the infrastructure corridor (north)

Note: The locations of sensitive receivers have been primarily determined by desktop assessment of aerial imagery and are subject to field and community verification.

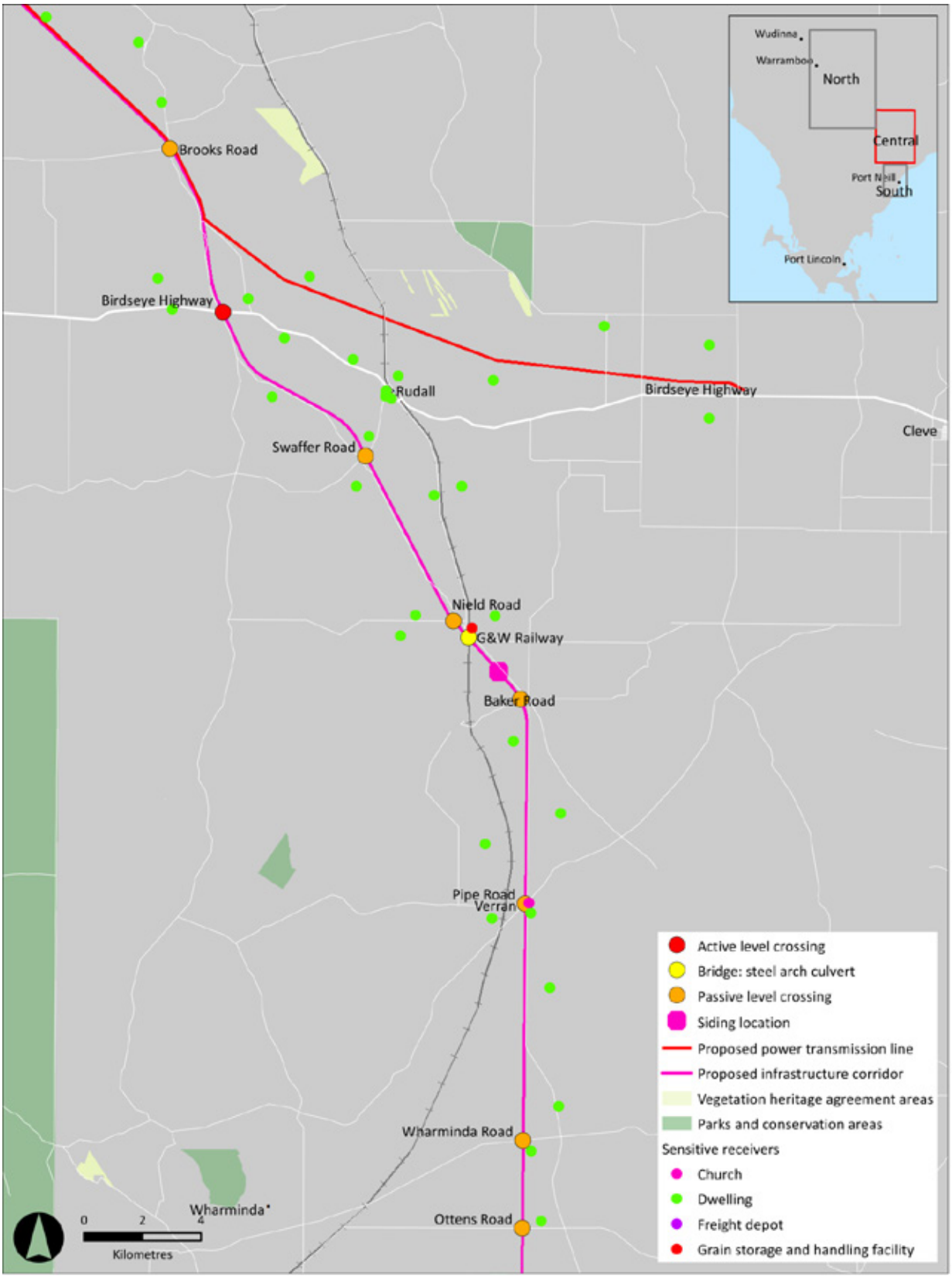


Figure 4-13 Sensitive receivers within 2 km of the infrastructure corridor (central)

Note: The locations of sensitive receivers have been primarily determined by desktop assessment of aerial imagery and are subject to field and community verification.

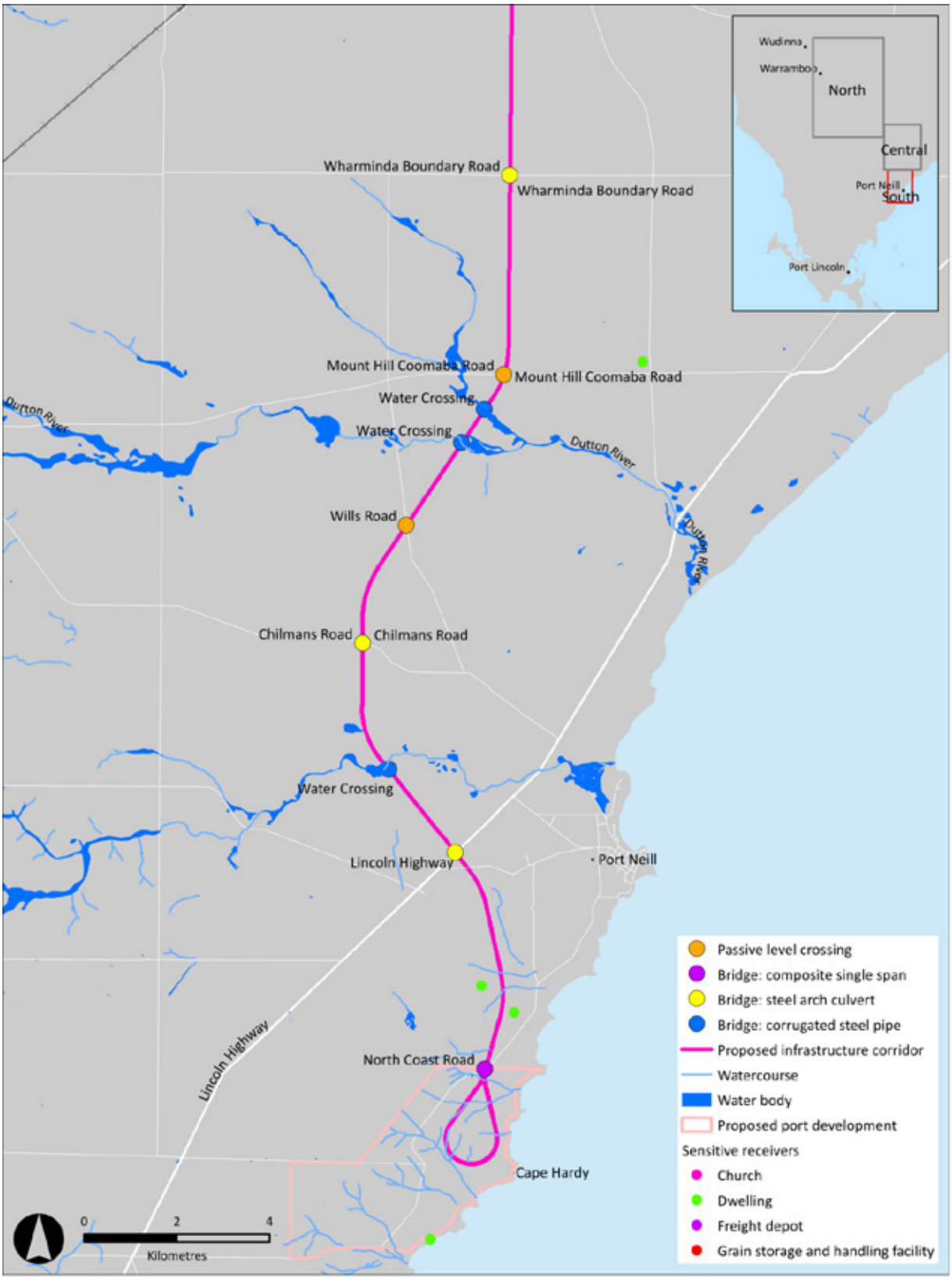


Figure 4-14 Sensitive receivers within 2 km of the infrastructure corridor (south)

Note: The locations of sensitive receivers have been primarily determined by desktop assessment of aerial imagery and are subject to field and community verification.

(i) Land division and public access

Potential social impacts from the construction, operation and maintenance of the infrastructure corridor include the division and loss of agricultural land, access issues, livestock injury and loss, and inconvenience for landholders in constructing, operating and maintaining Iron Road's infrastructure.

As outlined in Section 4.1, a number of design measures have been incorporated into plans for the infrastructure corridor, borefield and power transmission line to reduce potential social impacts by:

- minimising the infrastructure disturbance footprint wherever possible
- locating the railway line, water pipeline and power transmission line within a single infrastructure corridor to minimise access impacts
- locating the infrastructure corridor on property or paddock boundaries to the extent practical to minimise the division of land and separation of farming activities
- locating the power transmission line from Yadnarie substation to the infrastructure corridor parallel to the existing ElectraNet transmission line to minimise the area of clearance required around structures and disruption to farming operations
- locating the borefield and pump stations within road reserves to minimise land disturbance and access issues.

The total area of the infrastructure corridor, power transmission line and borefield footprint is approximately 829 ha (see Land Use and Tenure for further details) and includes the:

- infrastructure corridor (including the railway line, rail maintenance track, water pipeline and earthworks) approximately 743 ha
- power poles (from Yadnarie substation to the mine site) approximately 43.5 ha
- borefield (including boreholes and the borefield water pipeline to the infrastructure corridor approximately 42.5 ha.

Iron Road recognises that the acquisition of land, either portions or whole sections, is likely to cause anxiety or uncertainty for some of the impacted landowners. Iron Road is committed to negotiating consistently and sensitively with directly affected landholders to achieve agreements with all parties.

The land required for the proposed infrastructure corridor is primarily used for agricultural purposes. This would represent a loss of some productive land but would not affect the viability of agricultural production and is only a small area in the context of the total area of agricultural land on the Eyre Peninsula.

The proposed infrastructure corridor could potentially lead to the division of some agricultural land and result in temporary and permanent changes to property access and affect crossing points for agricultural purposes in some locations due to the proposed railway line and above ground water pipeline.

To ensure continued public road access to land and properties, Iron Road would establish appropriate crossing points along the length of the infrastructure corridor. In consultation with landowners, it would also install appropriate access / crossing points (such as internal roads and culverts) where appropriate and practical to enable vehicle and stock to cross and to ensure continuity of land use on either side of the railway line and water supply pipeline (provided all safety requirements can be met). The location of occupational crossings within private properties is the subject of ongoing consultation and negotiation with affected landholders.

The properties that would be traversed by the proposed power transmission line from the Yadnarie substation to the infrastructure corridor are traversed by the existing ElectraNet transmission line. Minimum safety clearance distances of 5.5 m to 25 m would be required between the power transmission line and structures, including buildings, sheds, dams and haystacks, which may extend into private property. While there may be some disruption to agricultural practices during the construction of the proposed power transmission line, this would be largely unaffected during operations.

Iron Road will continue discussions with directly affected landholders in relation to the construction and operation of infrastructure, including land acquisition and access, crossing points for agricultural activities, fencing and strategies for dealing with potential impacts and opportunities. The aim of these discussions is to negotiate fair agreements with directly affected landholders and to ensure the effective functioning and security of existing farming operations, to the extent practicable.

Residual impact

The infrastructure corridor is predicted to have a low residual impact on public access during its construction with appropriate crossing points established along the length of the infrastructure where required and practical to maintain local road access during operations and to ensure continuity of land use on either side of the railway line and above ground water pipeline. This also assumes that fair agreements and compensation are negotiated with directly affected landholders.

(ii) Amenity

People's experience of the local environment may be impacted by the construction and operation of the infrastructure corridor, borefield and power transmission line. The potential environmental impacts associated with noise and vibration, air quality, traffic and transport and visual amenity are discussed in detail in the CEIP EIS. The main aspects that could potentially affect the amenity of local residents are summarised below.

Construction activities would take place over a period of approximately two and a half years, 7 days per week (including on Sunday and public holidays), and up to 12 hours per day. Occasional night works may be required during the construction phase and these would be managed through the Construction Environmental Management Plan (CEMP) to minimise disturbance to sensitive receivers to acceptable levels. Residents and visitors may experience some loss of amenity, inconvenience and disturbance during the construction of the infrastructure corridor, borefield and power transmission line.

The impact of noise and vibration, dust and visual amenity will be determined largely by the distance between the infrastructure corridor and residences and and climatic conditions. As noted previously, residential areas and townships have been avoided where possible in the selection of the route for the infrastructure corridor. The proposed railway line would pass through Verran, which is located on the existing Cummins-Buckleboo railway line, a major grain transport route.

In total, there are 66 sensitive receivers located within 2 km of the proposed infrastructure corridor. Of these, 26 are located within 1 km and 40 are located between 1 and 2 km of the proposed railway line, borefield, water pipeline or power transmission line.

The sensitive receivers nearest to the infrastructure corridor were identified in the assessment of noise and vibration:

- The nearest sensitive receiver to the proposed railway line is the Driver River Uniting Church at Verran, which is located approximately 140 m from the railway line. All other identified sensitive receivers are believed to be residential houses.
- The nearest habitable residence to the proposed borefield is located approximately 580 m northeast of a bore well and the nearest to the proposed pump station is approximately 1,370 m away.
- The nearest habitable residence to the proposed transmission line route is located approximately 290 m away.

Construction activities may potentially be audible to sensitive receivers near the proposed infrastructure corridor. In addition, amenity impacts from noise and vibration may potentially arise during operations as a result of rail traffic, pump stations and the power transmission line.

The assessment of noise and vibration noted the high level of acoustic amenity enjoyed by rural residents with minimal human induced noise sources. It found that construction works undertaken on a Sunday or a public holiday or during the night time (if required) would require a separation distance of at least 1-1.5 km between the construction work and a sensitive receiver in order to meet the requirements of the *Environment Protection (Noise) Policy 2007* (Noise Policy). However, if the separation distance cannot be achieved, specific environmental management controls would be implemented to ensure Noise Policy criterion are met. These controls would be detailed in a construction environmental management plan, which would establish work procedures and processes to manage construction noise at various distances from sensitive receivers and at different periods of time. As construction work would be performed in sections, it noted that the noise generated at an individual sensitive receiver would be for a relatively short period, as works move along the infrastructure corridor.

The assessment of ground vibration during construction of the infrastructure corridor found that vibration levels at the closest sensitive receivers would be below the preferred day time human response levels for residential properties and well below the structural damage criteria. It therefore predicted a low probability of adverse comment or disturbance to building occupants.

Properties located near to the infrastructure corridor could also be affected by noise and vibration from rail traffic. During operations, this would involve three trains of approximately 1.3km in length running two return trips a day between the port and mine (ie 12 train trips a day). Modelling of the impact of rail traffic indicated that noise and vibration levels would be significantly below criteria presented in the Rail Noise Guidelines for both day time and night time periods. Noise criterion at the nearest sensitive receivers to the borefield would be met, in accordance with the Noise Policy. Similarly, noise generated by the power transmission line is predicted to be insignificant and would have minimal acoustic impact on the existing ambient noise levels at the nearest sensitive receiver.

The assessment of air quality along the infrastructure corridor found that emissions during construction and operations would be minor and would not exceed ambient air quality criteria. During construction, dust emissions could be effectively managed by the use of conventional dust control mitigation practices, such as the use of water carts, which would be detailed in a construction environmental management plan. The use of covered rail wagons and lowered train speeds through towns or residential areas during operations would minimise dust emissions. No air quality impacts are expected from locomotive combustion emissions along the infrastructure corridor.

Specifically, the assessment found that gaseous pollutants were unlikely to exceed relevant air quality standards at distances of 140 m or more from the railway line, with the closest sensitive receptor located 140 m from the proposed railway line.

The visual impact of the infrastructure corridor has been assessed and results are presented in the CEIP EIS. In summary, the assessment found that the CEIP Infrastructure is generally not located within areas commonly regarded as being of significant scenic or aesthetic value. The region is characterised by dryland farming and is largely clear of native vegetation, with the exception of designated conservation areas and isolated patches of vegetation predominately along road reserves and within townships. Visual impacts along the infrastructure corridor were therefore assessed as medium or lower.

Iron Road will continue to consult and negotiate with landholders potentially affected by the infrastructure corridor. Iron Road will also provide regular and timely information to local residents and the community about the CEIP and planned works to assist in reducing disruptions and complaints.

Residual impact

A low residual impact on amenity is predicted for landholders near the infrastructure corridor as a result of some short-term loss of amenity, inconvenience and disturbance during construction.

(iii) Changes to the transport network

The proposed infrastructure corridor would cross 36 public roads, including the Lincoln Highway and the Birdseye Highway, the Cummins-Buckleboo railway, several water courses and numerous private roads.

Iron Road would provide appropriate crossing points along the length of the infrastructure corridor between the port site and the mine site in order to maintain the functionality of the existing transport network (see Figures 4-12, 4-13 and 4-14). Key traffic design measures that are subject to further discussions with relevant authorities include:

- 17 level crossings along the railway alignment including one active level crossing at the intersection of the Birdseye Highway and 16 passive level crossings
- 4 bridges (either road over rail or rail over road) including a road bridge to elevate the Lincoln Highway over the railway line to avoid traffic delays
- the construction of the proposed railway line over the existing Cummins-Buckleboo railway line to allow the existing railway line to maintain efficient operations
- upgrades to the intersections of Lincoln Highway/Balumbah-Kinnard Road, Birdseye Highway/Tod Highway and Tod Highway/Kimba Road.

As detailed in the CEIP Traffic Impact Assessment, the construction and operation of the infrastructure corridor would also require the realignment and upgrade of several local roads which will be reviewed and confirmed in consultation with relevant DCs.

During the construction of the infrastructure corridor, local road users and landholders may experience some temporary nuisance, inconvenience and delays as a result of changes to local access and an increase in road traffic (eg worker vehicles, heavy access vehicles and materials transport). During operations, permanent changes to the existing transport network including new road configurations and level crossings along the railway line could also result in traffic delays, although a reduction in road traffic from the CEIP construction stage is predicted.

The Traffic Impact Assessment found that the increased traffic generated by the CEIP during construction and operations was comfortably within the capacity of the existing road system. While there would be occasional maintenance vehicles travelling along the infrastructure corridor during operations, this would not make any significant impact on the infrastructure corridor or surrounding local roads. In addition, only minor impacts were likely as a result of proposed changes to the public road system, with the net effect on travel time and distance predicted to be negligible.

The Traffic Impact Assessment concluded that the primary transport impact during the operation of the infrastructure corridor would be delays at level crossings. It calculated that the maximum delay caused by a train would be about 60 seconds at a passive crossing and 100 seconds at the active crossing (on the Birdseye Highway) where additional time is required to close the boom gates prior to the train passing through the crossing. It noted that local roads where passive level crossings are proposed are generally only used by farmers for local access and concluded there was a low probability (of less than 1%) of a vehicle being delayed at a passive crossing. At the active level crossing, the probability of a vehicle being delayed was around 1.4%.

A construction traffic management plan would be prepared to minimise potential impacts on the community and the operation of the road network. Iron Road would also work with councils and the community on planning for road upgrades, and would undertake road works in a manner that minimises disruption to traffic movements.

Local residents and road users would also be informed of planned changes to traffic and access conditions as a result of the CEIP through regular community announcements and updates (such as roadside displays, the internet, local newspapers and the radio).

Residual impact

The residual impact is predicted to be medium as a result of permanent changes to the transport system that may result in inconvenience, nuisance and delays for local landholders and other road users.

Effects on landholders in Wudinna

Potential social impacts are associated with the loss of amenity and nuisance for landholders and visitors in Wudinna as a result of construction and operation of the long term employee village.

In the short term, construction activities associated with the long term employee village adjacent to Wudinna could cause some inconvenience and disturbance to residents, business and visitors (for example, as a result of building activity, construction noise, untidiness and increased traffic). The results of other technical assessments concerning the construction and operations of the village and their potential impact on the amenity of residents in Wudinna are summarised below.

The assessment of noise and vibration noted the existing noise generated by residences, small business and services in Wudinna including local traffic, delivery trucks, air conditioners and people. It predicted that the potential impacts on the amenity of nearby residences from noise and vibration at the long term employee village would be low, due to the short term and localised nature of the impacts, with negligible impacts in the longer term when construction is complete. The assessment of air quality also found that the degradation of air quality, including dust emissions, at the long term employee village would be minimal.

The CEIP would generate additional traffic in Wudinna that could result in some inconvenience, nuisance and delays for local residents, visitors and businesses. During construction, workers would be transported by bus from the airport along the Eyre Highway to camp accommodation at the mine site, which would minimise traffic impacts within the township. During operations, the highest volumes of traffic would be on the roads used to transport personnel from the proposed long term employee village to the mine site. The Traffic Impact Assessment concluded that the increased traffic during the construction and operation of the CEIP is within the capacity of the existing road system.

Iron Road would regularly communicate with the community and provide timely information on planned works to minimise any inconvenience or disruptions to residents and visitors in Wudinna. In addition, it would use its already established a complaints management system to receive, document and respond to community concerns and complaints.

As noted in Section 4.2.3, the long term employee village would be a well-planned high quality development. Iron Road would also prepare a landscape mitigation plan to promote native vegetation, preserve biodiversity, protect sensitive environments and reduce visual impacts (see the assessment of Visual Amenity for details). While the long term employee village would result in a permanent change to the landscape in Wudinna, it is not expected to result in a detrimental change to the landscape characteristics or visual amenity of Wudinna because of the quality of the development.

In summary, the operation of the long term employee village is not expected to substantially impact on people's experience or enjoyment of the local area and residents, workers and visitors would be able to continue to live, work and recreate in the township in the same way as they currently do.

Residual impact
Any inconvenience or loss of amenity as a result of the long term employee village is predicted to be low, because of the short term and localised nature of impacts.

Effects on other landholders, residents and visitors around transport corridors
The remaining social issues are associated with the loss of amenity and nuisance for landholders near transport corridors and other visitors and businesses who may be affected by increased road and rail traffic.

The increased traffic and changed traffic conditions as a result of CEIP could potentially involve periodic delays, inconvenience and nuisance for road users including visitors, commercial drivers and landholders living near transport corridors. The potential impacts are discussed in detail in the traffic impact assessment and are associated with:

- increased road traffic associated with the transport of goods and materials during construction and the construction and operation workforces
- the transport of approximately 144 modules on public roads over a three to four month period
- changes to the existing transport network as a result of temporary and permanent road closures, road realignments and new road and rail crossings
- changes to local property access.

Changes to the existing transport network and local property access are discussed elsewhere in this report. As noted previously, with minor upgrades, the new railway line offers the opportunity for third party usage to transport goods to the port site. Such upgrades could provide an efficient pathway to the market and support the convenient export of product from the central Eyre Peninsula with minimal capital expenditure.

The results of the traffic impact assessment as it relates to increased road traffic and the transport of modules are summarised below.

The traffic impact assessment examined the operation of the road network and predicted there would be no change to the level of service from increased traffic during the construction or operation of the CEIP. It noted that the first year of construction would be the peak year of construction traffic, with the greatest traffic generated on the Eyre Highway between Port Augusta and Kyancutta and the Tod Highway between Kyancutta and the proposed mine site turnoff in Warramboo.

This would include the delivery of large modules from the port site to the proposed mining lease. The largest modules would travel along public roads at 1 km per hour and take four to five days to reach the mine (assuming 12 hour driving shifts). During module transport, traffic would be detoured on to surrounding local roads. To further mitigate potential impacts, module deliveries would be scheduled wherever possible to arrive outside of peak hours and to avoid potential conflicts with harvest season. The conclusion of the traffic impact assessment was that delays induced by construction traffic would be small.

Impacts to the transport network were predicted to be less during the operation of the CEIP (except for the proposed railway line) than during the three year construction stage. The roads with the highest volumes of traffic during operations would be used to transport personnel from their accommodation to either the port or the mine. The traffic impact assessment found that even with the additional traffic generated from the CEIP there would be sufficient capacity for all roads to operate effectively.

Iron Road would develop traffic management strategies to minimise potential impacts on the community and road users, which would form part of a construction environmental management plan and an operation environmental management plan. This would incorporate the following management controls:

- notifying local resident and road users about planned changes to traffic and access conditions during construction and operations
- advance notice of the timing of module movements to reduce access issues or delays, with alternative routes clearly sign posted and accredited traffic controllers engaged to manage intersections
- avoiding wherever possible the movement of modules during peak traffic or agricultural periods, such as harvesting and during daytime.

Residual impact

The residual impact is assessed as low as a result of short term and localised inconvenience, nuisance and delays during construction. Potential benefits are also predicted as a result of new rail infrastructure that could support third party usage and enable the convenient export of products from the central Eyre Peninsula with minimal capital expenditure.

4.3 Management

Table 4-7 summarises the potential social effects that could arise from the CEIP, mitigations and management measures committed to by Iron Road, residual impacts and benefits (after the application of management measures) and monitoring requirements. The management measures outlined in Table 4-7 would form part of the Construction Environmental Management Plan, Operation Environmental Management Plan and Program for Environmental Protection and Rehabilitation for the CEIP. This reflects Iron Road's commitment to maintaining and protecting the social character, wellbeing and amenity of potentially affected communities by minimising adverse social impacts and maximising social benefits.

Table 4-7 Proposed management measures and mitigations for potential social effects

Potential social effects (impact and benefit)	Proposed mitigations	Residual effect (impact and benefit)	Monitoring
Labour, employment and business opportunities · Creation of direct and indirect employment and business opportunities at the local, regional and state level · Strengthening the local and regional economy through economic diversification, providing greater resilience to economic down turns in the agricultural sector · Increased competition for workers and resources, attracting them from other sectors of the local and regional economy, including agriculture and fishing	1. Develop employment programs and strategies to increase labour force participation and facilitate the participation of local and regional employment in the CEIP - actively work with local and regional employment services and businesses to enhance opportunities and give preference to suitably qualified local and regional workers - develop flexible work practices to accommodate farm work as best as practicable, including peak agricultural periods such as harvesting, and other seasonal business activities - provide family friendly work environments to facilitate women's entry into the mining workforce - maintain the existing online data base/register of prospective employees 2. Work collaboratively with government, education and training providers, and other relevant organisations to expand the pool of available labour across the Eyre Peninsula, train and up skill local and regional people to work on the project and enhance business capacity among local and regional suppliers - consult with Wudinna TAFE about vocational and pre- vocational training programs to enhance local skills and support local entry to the mining workforce - consider supporting vocational education and training programs at Port Lincoln and Wudinna to address skills requirements of relevance to the project - implement a trainee and apprenticeship program as part of the project - take part in programs targeting skills development and job placement for local Aboriginal people (as per the Indigenous Land Use Agreement) 3. Develop an Australian Industry Participation Plan to maximise opportunities for Australian businesses to participate in the CEIP 4. Work with the Industry Capability Network (ICN) South Australia, Regional Development Australia Whyalla and Eyre Peninsula (RDAWEP) and other regional development organisations to promote the participation of local, regional and South Australian businesses in the project 5. Work with business groups to identify local business opportunities; provide information on the CEIP businesses opportunities, tendering and procurement processes and standards to facilitate the pre-qualification of local and regional businesses 6. Maintain the existing register of businesses with an interest in supplying goods and services to the project 7. Collaborate with the Eyre Peninsula Mining Alliance, the SA Chamber of Mines and Energy and other mining companies to provide information on careers in the Eyre Peninsula mining industry 8. Identify contract packages that could potentially be let locally or regionally	**Medium residual impact** as a result of labour drawdown at the local and regional levels. **High residual benefit** as a result of direct and indirect employment and business opportunities over the long term at state, regional and local levels.	Number of positions filled by local residents, residents of the Eyre Peninsula region and South Australians in the CEIP Local and regional employment by industry, labour force participation and unemployment rates Number and spend value of CEIP contracts awarded to local, regional (Eyre Peninsula) and State businesses

Potential social effects (impact and benefit)	Proposed mitigations	Residual effect (impact and benefit)	Monitoring
	9. Work with other members of the Eyre Peninsula Mining Alliance to create long term business benefits to Eyre Peninsula communities 10. Liaise with the South Australian Government's Resources Infrastructure Taskforce and the Eyre Peninsula Mining, Oil and Gas Community Development Taskforce to provide information on the CEIP, facilitate strategic planning and promote sustainable regional growth		
Population and demography · Population increases and demographic change in Wudinna · Reduction or reversal of population losses in local and regional areas, by attracting and retaining families and young people · Potential population increases bring a critical mass to: - sustain services and businesses in Port Neil - support different lifestyles, opportunities and services in Wudinna · Expanded membership base for volunteer organisations	11. Continue to liaise with local councils and Government agencies as the project develops and provide regular information on expected workforce numbers and arrangements to allow them to plan appropriately 12. Develop policies and/or offer incentives to encourage the mine's operational workforce to reside locally 13. Develop corporate volunteering programs to bolster the membership base of volunteer organisations and to provide opportunities for workers to engage with the local community	**Negligible residual impact** on population or demography or on demand for services from the construction workforce. **Medium residual impact** on the population and demography of Wudinna as a result of the long term localised changes from the mine site operational workforce **Medium residual benefit** by providing a larger population base to support and sustain different lifestyles, opportunities and services in the long term in Wudinna and Port Neill.	Population and demographic change in Wudinna
Social services and infrastructure · Increased demand for, and utilization of social and community infrastructure in Wudinna as a result of the operational LDC workforce and population increases · Potential to leverage infrastructure improvements that would benefit local communities including electricity and airline services	14. Participate in planning initiated by the South Australian Government, Wudinna DC and other service providers to plan for future social services and facilities requirements 15. Collaborate with key agencies, including local government, to support the provision of appropriate and sustainable services and amenities that benefit existing and incoming residents and LDC workers in Wudinna 16. Maintain an on-site mine rescue team and suitably trained medical personnel and equip the mine site with appropriate firefighting and emergency response equipment 17. Liaise with health and emergency services in Wudinna about emergency response procedures	Not assessed as the provision of government and non-government services is largely outside of the control of Iron Road.	
Housing and accommodation · Increased demand for housing in	18. Design the long term employee village adjacent to Wudinna to be aesthetically pleasing, locally appropriate and enhance perceptions of the town	**Negligible residual impact** on housing from:	Housing costs (property sales

Potential social effects (impact and benefit)	Proposed mitigations	Residual effect (impact and benefit)	Monitoring
Wudinna affects local supply and affordability · Increased demand for housing and accommodation in the DC of Tumby Bay affects local supply and affordability	19. Support the preparation of a Structure Plan at Wudinna to integrate the long term employee village within the existing township (process to be led by local Council) 20. Collaborate with the Wudinna DC and South Australian Government in planning for new residential development, including the provision of strategic infrastructure, to ensure housing demand does not out-strip supply 21. Liaise with tourist accommodation providers to manage the potential effect of accommodation demand arising from the operation of the port on the availability of short term accommodation in Tumby Bay and Port Neill	· the construction workforce, given the availability of camp accommodation · the port's operational workforce given the availability of housing in the DC of Tumby Bay and surrounding areas. **Low residual impact** on housing in Wudinna DC from the mine's operational workforce, given proposed management measures, including the availability of workforce accommodation and Iron Road's participation in structure planning with the Wudinna DC, which would reduce adverse impacts.	and rental costs) in Wudinna
Social character and wellbeing · Potential changes to the social character and identity of Wudinna, particularly in the early stages of the project, as a result of increases in the residential and LDC populations · Potential income differentials between existing residents and incoming mine workers and cost of living pressures · Potential impacts on critical population groups who may be more susceptible to adverse impacts, including women, children, older people and people on low incomes	22. Encourage the operational workforce to live locally 23. Work with the Wudinna DC to develop strategies to strengthen social cohesion and social interactions between non-residents, incoming residents and existing residents - The development of these strategies would be informed through regular surveys of workers and residents attitudes and perceptions 24. Continue to provide support to local community groups and community-based activities, including volunteer programs and sponsorships 25. Develop induction procedures and information that includes an orientation into the values and expectations of the local community	**Negligible residual impact** on social character and wellbeing in DC of Tumby Bay from the construction or operational workforce. **Medium residual impact** on social character and well-being in Wudinna DC in terms of changes to the social fabric, reduced community cohesion and income inequality over an extended period. **Medium residual benefit** in Wudinna as a result of families and young people returning to the community, a greater diversity of lifestyles and opportunities in a larger township and local employment and business opportunities leading to	Residents and workers attitudes and perceptions in Wudinna

Potential social effects (impact and benefit)	Proposed mitigations	Residual effect (impact and benefit)	Monitoring
		high household incomes in the long term.	
Safety and security · Heightened concerns about crime among residents	26. Develop and implement visitor management policies and procedures at construction camps 27. Require workers (including contractors) to sign a 'Code of Conduct', linked to their employment contract, outlining behavioural expectations applicable to accommodation and local towns 28. Implement workforce inductions to communicate safety and security expectations 29. Undertake regular drug and alcohol testing of all workers to monitor alcohol and drugs and ensure workplace safety 30. Liaise with police and provide regular updates of workforce schedules to ensure adequate police resources would be available 31. Work with police, local councils, residents and other stakeholders to develop and implement community-based safety awareness programs and strategies to reduce the potential for crime and fear of crime	**Negligible residual impact** in DC Tumby Bay from the construction or operational workforce. **Medium residual impact** in Wudinna DC as a result of residents' concerns about safety and security during construction and in the early stages of the mine's operation. Proposed management measures would reduce adverse impacts.	Crime rates
Amenity, access and disturbance · Potential for some loss of amenity, inconvenience and disturbance during construction and operational activities · Changed road conditions, including temporary and permanent road closures and road realignments resulting in increased travel time for local landholders and the general public around the mine and infrastructure corridor · Minor impacts on recreational, boating or other marine activities during operations at the port · Minor limitations on swimming, diving, mooring or anchoring in the immediate vicinity of the port, and around vessels during berthing, unloading and	32. Continue the program of active engagement and consultation with the local community 33. Provide regular and timely information to local residents and the community about the project and planned works to assist in reducing disruptions and complaints 34. Continue to operate a toll free phone hotline and complaints management system with targets for the time taken to respond to / take action on complaints and grievances 35. Provide advance notice of the movement of modules on the road network, with alternative routes clearly sign posted and accredited traffic controllers engaged to manage intersections 36. Avoid wherever possible the movement of modules during peak traffic or agricultural periods, eg harvesting and during daytime 37. Liaise with local schools to discuss any impacts to bus routes due to road closures or traffic movements 38. Work with councils and the community on planning for road upgrades and undertake road works in a manner that minimises disruption to local traffic movements 39. Provide a daily bus service to transport employees to work at the mine 40. Establish real-time dust monitors at government approved locations 41. Provide real-time information to local landholders and the Warramboo community on dust monitoring at the mine site via the internet 42. Discuss and negotiate land acquisition with those landowners that are adjacent to the mining lease if those landowners wish to move because mining operations are impacting negatively on the use and enjoyment of their land 43. Continue to deliver a community development program to enhance amenity and deliver positive social outcomes in the district	**Medium residual impact** as a result of long term changes to amenity and lifestyle of local residents in Warramboo and permanent road closures resulting in additional travel time for local landholders and road users around the mine site. **Low residual impact** as a result of some inconvenience and disturbance from increased traffic, noise and vibration and air quality during construction of the port, with minimal changes to the amenity, lifestyle or enjoyment of local residents and visitors during operations. **Low residual impact** on public access during construction of the infrastructure corridor, with appropriate crossing points established along the length of the infrastructure during	Number and type of community complaints

Potential social effects (impact and benefit)	Proposed mitigations	Residual effect (impact and benefit)	Monitoring
departure		operations. **Low residual impact** as a result of the short-term loss of amenity and disturbance for nearby residences during construction of the infrastructure corridor. **Low residual impact** as a result of short term and localized impacts in constructing the long term employee village in Wudinna.	
Effects on landholders · Permanent displacement of some farming families and loss of productive agricultural land as a result of the mine. · Loss and division of agricultural land and permanent changes to property access in some locations due to the proposed railway line and above ground water pipeline.	44. Maintain effective, regular and transparent communication with affected landholders and provide accurate and comprehensive information about the project and its potential impact on their property 45. Negotiate agreements and provide fair compensation with directly affected landholders - Deal with landholders with respect and in accordance with the law. 46. Work with directly affected landholders to provide practical and appropriate support and assistance where sought 47. Continue discussions with directly affected landholders in relation to construction and operational activities, including land access, crossing points, fencing and strategies for dealing with potential impacts and opportunities during construction and operation stages 48. Establish appropriate crossing points along the length of the infrastructure corridor to ensure continued public road access to land and properties 49. In consultation with landowners, install appropriate access/crossing points, culverts and internal roads where required and practical to enable continuity of land use on either side of the railway line and water supply pipeline 50. Provide support by means of voluntary and confidential professional counselling to directly affected landholders	**Low residual impact** from the loss of agricultural land within the mine footprint, assuming that fair agreements and compensation are negotiated with directly affected landholders. **Medium residual impact** as a result of the emotional stress and uncertainty experienced by some landholders over the long term. **Low residual impact** during construction of the infrastructure corridor with appropriate crossing points established to maintain access to land and property and to ensure continuity of land use on either side of the railway line and above ground water pipeline.	

4.4 Findings and Conclusion

The SIA has identified a range of potential social effects that could arise from the CEIP and has canvassed management measures to minimise potential adverse impacts and maximise potential benefits. The major components of the proposed CEIP are:

- an open pit mine and processing facilities, mine site accommodation for the construction workforce and operational contractors and associated infrastructure on the mine site near Warramboo
- a long term employee village adjacent to the township of Wudinna
- a deep sea port and exporting facility at Cape Hardy, approximately 7 km south of Port Neill
- a 130 km infrastructure corridor between the mine and port sites, including a railway line, access road, power transmission line, borefield, water pipeline and associated utilities.

The CEIP Mine and Infrastructure would be located within and/or abuts five Council areas - the DCs of Wudinna, Kimba, Elliston, Cleve and Tumby Bay, which comprise the local study area. The area is remote and sparsely populated, with agriculture activities and fishing/aquaculture the dominant industry sectors and tourism, mining and renewable energy growing in importance. The Eyre Peninsula is also served by a number of regional centres, including Port Lincoln and Whyalla, which may provide a source of workers, goods or services for the CEIP.

The findings and conclusions from the SIA, including residual impacts, are presented according to the CEIP component and its effect on communities at the local, regional and state level, as follows:

- effects on employment and business from the CEIP at the local, regional and state level
- effects from the construction and operation of the mine and long term employee village
- effects from the construction and operation of the port
- effects from the construction and operation of the infrastructure corridor and borefield.

Employment and business

The CEIP is expected to employ a peak construction workforce of up to 2,490 people for up to three years and an operational workforce of 760 people for the mine, port, rail and associated infrastructure. The expected mine life would be 25 years, with the CEIP Infrastructure (eg port and rail) to continue to be utilised beyond the 25 years.

The assessment of employment and business found the following:

- The CEIP would generate new direct and indirect employment opportunities at the state, regional and local levels, in the short and long term and for particular population groups, including Indigenous people, young people and women. It would lead to greater economic diversification and resilience to economic down turns in the agricultural sector, attract skilled people to the region, and create higher wage jobs locally and regionally.
- Iron Road would seek to maximise opportunities for local and regional employment and would encourage the project's operational workforce to live locally. The limited capacity of the existing labour market in Eyre Peninsula to supply labour for the project would require the use of some LDC workers, although it is anticipated that some workers and their families may choose to relocate and live locally over time.
- The project could draw labour and resources from existing local and regional businesses, including agricultural and fishing ventures, lead to increased competition for skilled workers and higher wage costs and affect the ability of local and regional businesses to attract and retain staff.

- The project would generate new business opportunities in the short and long term at the local, regional and state level through the direct provision of goods and services to Iron Road and its contractors and indirect / flow-on effects in other sectors of the economy as a result of higher incomes levels and increased consumer spending.
- Support would be provided to train and up skill local and regional workers and build the capacity of local and regional business sector to enable them to participate in, and benefit from, these new opportunities.
- The project would result in the permanent loss of a small portion of agricultural land but would also provide an opportunity to strengthen and diversify the economic base on the Eyre Peninsula, making it more resilient to down turns in the agricultural sector.
- The CEIP Infrastructure, including the rail and port, may act as a catalyst for additional development in the region by creating an export facility and rail infrastructure that has capacity for third party usage.
- Iron Road has committed to a range of management measures to maximise the benefits and minimise the impacts on employment and business. This includes adopting flexible work practices as best as practicable to accommodate farm work during peak periods and working collaboratively with education and training providers and other stakeholders to train and up skill local and regional people and develop business capacity among local and regional suppliers.
- The adverse impact from the drawdown of labour and resources at the local and regional level is expected to be medium in the long term. It would also have a high residual benefit as a result of direct and indirect employment and business opportunities over the long term at state, regional and local levels.

Mine and village accommodation within Wudinna DC

A peak construction workforce of up to 1,300 workers would be required for around three years to construct the mine, long term employee village and northern section of the infrastructure corridor. Most of the construction workforce would be contractors engaged on an LDC basis, and would be accommodated in a construction camp located on the proposed mine site, near the small township of Warramboo. At the 2011 Census, Warramboo and the surrounding area was made up of around 47 people and 30 dwellings.

The operations workforce would comprise approximately 600 people, including mine and rail workers. Around 300 operational employees would be accommodated at the long term employee village adjacent to Wudinna, and the remaining operational contractors would be accommodated at the mine site, although over time, some workers may choose to relocate to Wudinna to live and work. The township of Wudinna, located approximately 25 km north of the mine site, is the main service centre for the district and provides a range of social, recreational and emergency services. In 2011, it had a resident population of approximately 560 people (around 45% of the district's population), but unlike the district, its population is older and there are more women than men.

The SIA found the following in relation to the proposed mine and long term employee village:

- The construction workforce would be made up largely of LDC workers, and consequently, no long-term change on the population and demography of nearby townships is anticipated. The on-site mine construction camp would provide for the day-to-day needs of the construction workforce and while some workers may visit nearby townships to purchase goods or for recreation and leisure activities, demands on social services and infrastructure are expected to be limited.
- The development of the village adjacent to the north-east perimeter of Wudinna would provide a logical extension to the township, support its integration within the existing township and facilitate the patronage of local businesses. It would be designed to be of high quality and enhance perceptions of the town.

- The village would be readily accessible to the airport and a bus service would be provided by Iron Road to transport workers to work sites while avoiding the township, in order to minimise traffic impacts. While the construction of the long term employee village could cause some short-term inconvenience and disturbance to residents, workers and visitors, the effects would be short-term and localised. As a result, the residual impact on access and amenity has been assessed as low.
- The CEIP Mine has the potential to attract new residents to live in townships near to the mine, which could influence population dynamics and have flow-on effects in terms of the use and availability of social services and facilities. The presence of a LDC workforce at the long term employee village near Wudinna would also affect demand for social services, facilities and infrastructure.
- Population modelling indicates that the mine's operation could potentially result in growth of between 260 and 960 people, if 20% to 60% of workers and their families chose to relocate to the Wudinna DC. Further population increases of around 290 people could also occur from growth in support industries. This would lead to an increase in the district's population of between 20% and 100% from 2011. This would reverse current population losses in Wudinna, provide a larger membership base for local organisations and potentially bring a critical mass to support different lifestyles, opportunities and services in Wudinna.
- Forward planning would be needed to meet future housing demands arising from population growth in Wudinna. While there is potential for housing demand to outstrip supply in the short term, leading to higher costs, the availability of village accommodation and Iron Road's participation in structure planning with the Wudinna DC would reduce potential housing impacts. Residual impacts have therefore been assessed as low.
- The size, demography and income of the operational workforce in Wudinna, whether arriving as residents or part of a LDC workforce, could affect its social, cultural and economic fabric. The residual impact on social character and well-being has been assessed as medium in terms of reduced community cohesion and income inequality (particularly for more vulnerable population groups) over an extended period. Medium residual benefit are also predicted as a result of families and young people returning to the community, the diversity of opportunities afforded in a larger township and higher household incomes in the long term from new employment and business opportunities.
- Residents of Wudinna and Warramboo have expressed concerns about safety and security from the construction and operational workforce. Iron Road has committed to a range of management measures to reduce potential adverse impacts. Nonetheless, residents may feel heightened levels of concern during construction and in the early stages of the mine's operation and as a consequence, the residual impact has been categorised as medium.
- The mine would result in the loss of approximately 8,496 ha of agricultural land, which is held by 6 separate landholders. Iron Road is continuing its discussions with landholders and will negotiate an agreement and compensation for the loss of land for directly affected landholders. The residual impact from the loss of agricultural land is predicted to be low in the short term, assuming that fair agreements and compensation are negotiated with directly affected landholders.
- For some landholders, negotiations about the acquisition of properties are viewed positively while other landholders are concerned about the loss of land and/or property, a lack of choice and the impact of proposed changes on their families and the community. To assist landowners deal with these challenges, Iron Road has already provided support for voluntary and confidential professional counselling. Nonetheless, these negotiations may result in emotional stress and uncertainty for some landholders over the long term, and as a consequence, the residual impact is predicted to be medium.
- Four public roads are situated within the proposed mine footprint, and would be permanently closed as part of the project. This would result in additional travel time and inconvenience for local landholders and residents and is predicted to have a medium residual impact.

- While Iron Road would comply with legislative air quality limits, dust deposition from the mine poses potential amenity and nuisance impacts for residences around the mine and in Warramboo. To reduce potential amenity impacts, Iron Road has committed to a range of management measures, including real-time monitoring, a toll free hotline and complaints management system and public information, education and engagement on air quality issues. It would also continue to deliver a community development program to enhance amenity and deliver positive outcomes across the district.
  The residual impacts on amenity have been assessed as having a medium long term localised residual impact.

Port facility at Cape Hardy within the DC of Tumby Bay

A peak construction workforce of up to 650 workers would be required for around two and a half years to construct the port and southern section of the infrastructure corridor. Most of the construction workforce would be contractors engaged on an LDC basis, and would be accommodated in a construction camp located on the proposed port site at Cape Hardy. A workforce of approximately 100 people would be required during the operations. It is anticipated that the majority of the operational workforce would live locally in nearby towns, including Port Neill and Tumby Bay.

The small coastal holiday town of Port Neill is located approximately 5 km north of the port site entrance and 3 km east of the infrastructure corridor. At the 2011 Census, it had a population of 136 residents, a median age of 60 years, and comprised a majority of women. The township of Tumby Bay is located approximately 30 km south of the proposed port, and as the district's main service centre, it offers a range of retail, recreational and social services, as well as visitor accommodation. In 2011, it had a resident population of approximately 1,470, the majority of whom were women, and like Port Neill, comprises a large retirement population.

The SIA found the following in relation to the proposed port at Cape Hardy:

- Local townships would be unlikely to experience a detectable change in the population or demography, with limited impacts on demand for services and housing or changes in the social fabric as a result of the construction or operation of the proposed port. It may also offer some benefits by reversing population declines, sustaining or improving levels of service provision (particularly in Port Neill) and increasing household income through new employment and business opportunities.
- In order to meet maritime security requirements and to ensure its secure use by Iron Road, public access to, and use of, the port facility would not be permitted. Access around the port and adjacent infrastructure corridor would remain largely unchanged, except for a small area along the coast that would form part of the jetty, wharf, customs and security area for the proposed port. The coastal exclusion area would be limited to approximately 2 ha, with the remainder of the coastal area accessible for public use. Access to nearby Cowleys Beach would not be impacted and recreational vehicles and campers would still be able to access the camping ground and beach.
- During construction activities, appropriate exclusion zones would be established to ensure public safety and to protect marine life. During operations, there would also be some restrictions on boating, swimming, diving, skiing, mooring or anchoring in the vicinity of the wharf and jetty, and during loading and unloading of vessels. These restrictions would be determined by the South Australia Department of Planning, Transport and Infrastructure but are not expected to impact on people's experience or enjoyment of the local area in the long term.

- A suitable port boundary (the port operating limits (marine waters)) would be designated as the limit of jurisdiction of the port operator, which would cover approximately 147 ha of water in the immediate area of the port site. The port operator would ensure that vessels bound for Port Neill, Tumby Bay or other destinations could freely pass the port site. The proposed port operating limits (marine waters) as well as approach route and anchorage area lie outside the active aquaculture zone, so no interference with existing or future aquaculture enterprises from the port's operation is anticipated.
- Some minor impacts on amenity may be experienced by local residents and visitors as a result of inconvenience and disturbance from increased traffic, noise and vibration and air quality during the construction of the port, with limited changes predicted to the amenity, lifestyle or enjoyment of local residents and visitors to the area during operations. The residual impact is therefore assessed as low.

Infrastructure corridor

The infrastructure corridor would connect the mine site to the port site and extend approximately 145 km through the DCs of Tumby Bay, Kimba, Cleve and Wudinna. It would comprise:

- a railway line to transport iron concentrate to the port site for export
- a water pipeline to supply water from a borefield to the mine, approximately 60 km away
- a 275 kV transmission line to connect the mine site to South Australia's electricity network via the Yadnarie substation
- an access road and other utilities.

During operations, three trains, approximately 1.3 km in length, would run two return trips per day (ie 6 loaded trains per day) between the mine and port.

A construction workforce of approximately 500 people would be required to construct the infrastructure corridor. These workers would be accommodated in construction camps on the proposed port and mine sites and transported daily by bus to work sites. An operational workforce of 40 people would be required during rail operations, who would be accommodated at the long term employee village in Wudinna or reside locally.

A number of design measures have been incorporated into the planning for the infrastructure corridor to reduce amenity and minimise access impacts, including:

- locating the infrastructure corridor, including the railway line, away from townships to reduce amenity impacts associated with 24 hour operations
- locating the railway line, water pipeline and power transmission line within a single infrastructure corridor to minimize access impacts
- locating the power transmission line from Yadnarie substation to the infrastructure corridor parallel to the existing ElectraNet transmission line to minimise the area of clearance required around structures and disruptions to farming operations
- locating the infrastructure corridor on property or paddock boundaries wherever practical to minimise the division of land and separation of farming activities.
- locating the borefield and pump stations within road reserves to minimise land disturbance and access issues.

The SIA found the following in relation to the proposed infrastructure corridor:

- There are 66 sensitive receivers located within 2 km of the proposed infrastructure corridor and 26 located within 1 km of the infrastructure corridor. All but one of the sensitive receivers is believed to be a residential house. The proposed railway line would pass through Verran, which is also traversed by the existing Cummins-Buckleboo railway line, a major grain transport route.
- The infrastructure corridor would result in the loss and division of agricultural land and permanent changes to property access in some locations due to the proposed railway line and above ground water pipeline. In consultation with landowners, Iron Road would establish appropriate crossing points along the length of the infrastructure corridor where appropriate and practical to ensure continued public road access to land and properties. The acquisition of land, location of crossings points within private property, fencing and other access issues are the subject of ongoing discussion and negotiation with affected landholders. As a result, the residual impacts have been assessed as low.
- Landholders near the infrastructure corridor may experience a loss of amenity, inconvenience and disturbance during construction and operational activities. Most amenity impacts would be short-term and localised during construction. The residual impact has therefore been assessed as low.
- A number of modifications would be required to existing transport routes during construction of the infrastructure corridor and the ongoing operation of the railway line. This includes the introduction of new road and rail crossings and road realignments that would result in some localised inconvenience, nuisance and delays for local landholders and the general public. As a result, the residual impact has been assessed as medium.

Attachment 1: Population Scenario Modelling

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1. Introduction

This report seeks to model the potential effects of the CEIP on the population of Wudinna based on a number of population scenarios that assume a portion of the mine's operational workforce would relocate to the Wudinna District Council (DC) to live and work. It also models the potential indirect population effects from the CEIP as a result of flow-on employment in Wudinna DC.

It then seeks to assess the implications of these potential population increases on infrastructure and services based on service ratios obtained from the Productivity Commissions Report on Government Services (2014) and discussions with local service providers about their capacity to meet increased demand. It also briefly discusses the potential service implications associated with a non-residential workforce; that is, the CEIP construction and operational workforce who would be employed on a long distance commute (LDC) basis, either as fly-in fly-out (FIFO) or drive-in drive out (DIDO), to work at the mine.

Iron Road anticipates an operational workforce of approximately 600 people (including rail workers) would be required at the mine for at least 25 years. While it is Iron Road's preference to employ locally-based residential workers at the mine, there is unlikely to be sufficient capacity in the local labour market to meet workforce requirements. Consequently, at least initially, the majority of the operational workforce would comprise LDC workers, who would be accommodated in a long term employee village on the outskirts of the township of Wudinna and a contractors camp on the proposed mine site near Warramboo, located around 25 km from the township and district centre of Wudinna. Over time, and with the encouragement of Iron Road, it is anticipated that some of the LDC workforce, and their families, could choose to live in Wudinna.

In addition to the direct operational workforce, the Economic Impact Assessment of the CEIP undertaken by EconSearch estimated that approximately 200 flow-on jobs may be created in the Wudinna DC. This includes production-induced jobs (eg suppliers and support services to the CEIP) and consumption-induced jobs (eg spending arising from the presence of the CEIP workers, suppliers and other support services and their families).

Iron Road also expects a LDC construction workforce of approximately 1,300 workers would be required for approximately three years during construction of the CEIP mine, long term employee village and northern section of the infrastructure corridor. These workers would be accommodated in a camp on the mine site. The construction workforce is not expected to impact on the population or demography of the Wudinna DC, as the workforce would be largely FIFO or DIDO, with limited implications for services in Wudinna.

An additional 650 LDC construction workers would be required to construct the proposed port facility at Cape Hardy and the southern section of the infrastructure corridor who would be accommodated at a construction camp on the port site. Around 100 workers would also be required for the operation of the port, who would reside locally. The construction and operations workforce for the proposed port are unlikely to impact on the population or demography of the DC of Tumby Bay, and are not considered as part of this report.

This works recognises the potential effects that changing population dynamics can have on housing and services and the flow on effects for individuals, families and communities in areas affected by change. It forms part of the SIA of the CEIP, and may be used to guide future planning by government, Wudinna DC, Iron Road and other service providers.

2. Limitations

The population modelling is based on a number of assumptions which are detailed in Section 5. The modelling has been undertaken to provide a prediction of the future population, and while it is as accurate as possible, there is also a degree of uncertainty. It is important to note that population change can be influenced by a number of factors beyond the control of the project, or that are difficult to accurately predict in advance. As such, this information should be interpreted as indicative only.

3. Demographic profiling

Table 1 presents information on selected socio-demographic characteristics of existing residents in Wudinna (including the township of Wudinna and the DC as a whole) in comparison to the population of Roxby Downs LGA and people employed in mining Australia-wide (No separate information is provided on the township of Roxby Downs, as this comprises the whole of the LGA.) This analysis is based on data from the 2011 Census, Place of Usual Residence (Australian Bureau of Statistics (ABS) 2012a *Basic Community Profile*, 2012c 'Quickstats' and ABS 2013f 'Tablebuilder').

The SA Centre for Economic Studies (2013) has suggested that the population and workforce profile of people engaged in mining activities on the Eyre Peninsula is likely to be similar to Roxby Downs therefore data on Roxby Downs will be used to inform the population modelling, while data on people employed in mining Australia-wide is provided for comparative purposes.

In regard to the workforce profile of Roxby Downs, it should be noted that, at the 2011 Census, around 50% of the working population of Roxby Downs were employed in mining and 50% were employed in other industries including construction, accommodation and food services, retail, education and training, public administration and safety, and health.

The demographic snapshot presented in Table 1 suggests there are substantial differences in the demography of existing residents in Wudinna and Roxby Downs (ie potential incoming residents) in terms of gender and age (particularly in the township), level of schooling, cultural diversity, income, occupation and employment status.

4. Background research on long distance commuting

A literature review and secondary research was undertaken to identify the extent of LDC in mining operations in Australia, and the factors that may influence a mining worker's decision to live locally or to commute on a LDC basis to work in order to inform the population modelling.

4.1 Extent of LDC in mining communities

Around 16 mining communities were examined to ascertain the proportion of residents employed in mining as a percentage of all people employed in mining in that area, with the remainder assumed to be LDC workers. This analysis used data from the 2011 Census, Basic Community Profile and Working Population Profile (ABS 2012a and 2012h) and included communities in Queensland, Western Australia, New South Wales and Victoria. Other factors that were examined included population size, remoteness (ie inner regional, outer regional, remote and very remote), and employment in agriculture and mining. This analysis highlighted the variability in levels of LDC across mining communities.

A review of the Olympic Dam operation in South Australia revealed that, in 2013, around 80% of the workforce were employees and 20% were contractors; 61% were local residents (of Roxby Downs and neighbouring townships of Andamooka and Woomera) and 39% were LDC workers (including around 35% who were DIDO via a scheduled bus service) (BHP Billiton 2013).

Table 1: Socio-demographic characteristics of existing residents in Wudinna, Roxby Downs and people employed in mining Australia-wide, 2011

Socio-demographic characteristic	Wudinna township (UCL)	Wudinna DC (LGA)	Roxby Downs LGA	People employed in mining
Resident population (number of people)	*557*	*1,253*	*4,702*	*na*
Male: female ratio	48:52[1]	51:49[1]	59:41[1]	80:20
Completed Year 12 (as %)	27.9	27.1	44.1	50.9
Indigenous (as %)	1.4	1.5	1.61	0.1
Speaks English only (as %)	94.6[1]	95.8[1]	82.6[1]	91.9
Median age (years)	41[1]	38[1]	29[1]	35[2]
Children 14 years or less (as %)	19.7	22.6	22.9	na
Average personal weekly income	$551[1]	$544[1]	$1,464[1]	$2,000 or more
Employment characteristics				
Labour force participation (%)[3]	70.6	72.0	77.9	na
Occupation (as %)				
- Managers	18.0	33.7	7.9	9.4
- Professionals	15.7	13.9	16.2	17.4
- Technicians and trade workers	20.6	12.7	26.7	23.8
- Machinery operators and drivers	7.7	7.4	17.2	33.4
- Labourers	13.2	13.1	9.3	4.9
- Other	24.8	19.2	22.7	11.2
Employed in mining (as %)	1.93	1.23	49.43	100
Employment status (as %)[4]				
- Employed full-time	63.3	65.9	79.83	85.3
- Employed part-time	30.5	26.2	13.53	6.4
Unemployment rate (%)[3]	1.9	1.0	1.9	na
Household characteristics				
Average household size	2.2	2.4	2.9	na
Household structure (as %)				
- Family households	62.2	66.9	78.3	na
- Single-person	34.7	31.2	16.7	na
- Group households	3.1	1.9	5.0	na
Average children per family	1.8	2.0	1.9	na

Source: ABS 2011 Census of Population and Housing. Unless otherwise indicated, resident characteristics are based on ABS Table builder (2013f), including not stated, and household characteristics are based on ABS Quickstats (2012c).

[1] Based on ABS Quickstats (2012c).

[2] Between 30-39 years, based on ABS Tablebuilder (2013f).

[3] Based on ABS Basic Community Profile (2012a). Labour force participation is the number of persons in the labour force expressed as a percentage of persons aged 15 years and over. Unemployment is based on the number of unemployed people (aged 15 years or more) who actively looking for and available to start work as a percentage of the total labour force.

[4] As a percentage of total employed, including people who are employed and away from work.

As might be expected, LDC rates were higher among contractors, with information from 2009 indicating that around 65% of Olympic Dam employees were locally based and 35% were LDC, while 55% of contractors were locally based and 45% were LDC (Arup/ENSR 2009).

The Federal House of Representative Standing Committee on Regional Australia *Inquiry into FIFO and DIDO Workforce Practices in Regional Australia* (2013) noted that FIFO and DIDO has become increasingly widespread in Australia, particularly in the resources industry. They pointed to the absence of authoritative national data on the use of FIFO / DIDO workforce arrangements, but highlighted research from the Chamber of Commerce and Industry Western Australia (2005). This research found that in the resource industry in Western Australia:

- 76.5% of all personnel were employed directly by mining companies and 23.5% were employed by contractors
- 53% of all mining employees (contractors and direct employees) were employed on a residential basis and 47% were employed on a FIFO basis, including 4.7% utilising DIDO arrangements
- 62.5% of directly employed personnel were residential and 37.5% are FIFO
- 22.3% of contractor personnel were residential and 77.7% are FIFO.

A number of factors have contributed to the growth in LDC workforce, including workers' preferences for living in larger metropolitan areas, a tight labour market and skilled labour shortages. A 1999 study by Hogan and Barry (2000) found around two-thirds of non-energy mines were located in remote regions of Australia, and of these, over 90% were based on LDC.

Researchers including Hogan and Barry (2000), Rolfe and Ivanova (2007a), Rolfe et al (2007b) and Haslam McKenzie et al (2009) have noted a trend towards coastal living among mining employees, who commute to their workplace and stay in temporary accommodation when completing a work shift. Rolfe and Ivanova (2007a) and Rolfe et al (2007b) suggest that the development of block shifts (with extended shift breaks) and DIDO work patterns has created opportunities for mining developments to be serviced by a labour force based in coastal and regional centres. A study by AHURI (Haslam McKenzie et al 2009) cited a Queensland Resources Council survey, which found that 61% of the mining workforce in the Isaac region of the northern Bowen Basin (in Queensland) was FIFO / DIDO in 2007. Given the limited air services into the region, AHURI assumed that a large proportion of these were likely to be self-drive, or be bussed, from nearby towns on the coast - mainly the large coastal towns of Mackay and Rockhampton / Yeppoon; commute times were typically 2–3 hours, although some workers may drive for 4 or more hours.

4.2 Factors influencing workers' residential and LDC preferences

A number of researchers have looked at the underlying factors that affect LDC patterns and workers' locational choices. Studies by Rolfe and Ivanova (2007a) and Rolfe et al (2007b) identified a number of factors that can influence the 'attractiveness' of a region to potential employees and their families, including employment opportunities, the level of education, health and recreational services, availability and cost of housing and other quality of lifestyle / lifestyle factors.

The study by Rolfe and Ivanova (2007a) focused on the issues that need to be addressed in order to attract skilled workers to mining towns and asked residents of Mackay about the factors they would consider in relocating to a small mining community (1,000-3,000 people) or a medium sized mining community (10,000-15,000 people) in comparison to similar sized coastal communities. The dominant preference of respondents was to stay in their own community. Coastal communities were also preferred over mining towns, and medium sized towns preferred over smaller ones.

The study by Rolfe et al (2007b) surveyed the non-resident mining workforce in Moranbah (a medium sized mining town in the Bowen Basin of over 7,000 people) about relocating, and similarly found a majority (over 80%) of respondents did not want to live permanently in Moranbah. Key reasons related to partner and family commitments and a preference for living in a larger centre. Non-residents who were interested in moving were asked about the barriers to moving, with the key factors being the lack of housing, job opportunities for their partner, and families not wishing to relocate.

These studies were conducted during a period of strong growth in the resources sector and a tight labour market, which could influence study findings. Results from these studies were that a salary premium of $55,500 would be needed to attract the average respondent to a mining town compared to a coastal town, and a higher premium (of almost $90,000) would be required to attract people to live in a smaller community. The researchers concluded that while it might be possible to attract some residents to smaller and medium sized mining towns for relatively low salary premiums, it will be more difficult (and expensive) to attract larger numbers.

Research by the Western Australian Chamber of Minerals and Energy (2005, 2008) that was presented to the Federal House of Representatives Standing Committee on Regional Australia (2013) similarly suggest that a FIFO work style is a matter of lifestyle choice and the reasons why workers prefer to commute include:

- their partner's career or job in another locality
- family does not want to move
- access to family and friends and other social networks, other social supports and services
- consideration of education facilities for their children
- greater availability of recreational/entertainment and leisure facilities for their families
- the work hours and rosters, which offer a better work-life balance for some employees and their families
- a preference for living in larger centres and/or coastal communities
- other financial and logistical advantages.

5. Population scenario modelling

5.1 Scenarios

In order to understand the potential population and demographic effects of the proposed mine's operational workforce, four population scenarios have been modelled. These were:

1. initially, 5% of the workforce would be drawn from existing local residents (approximately 30 people) who would commute daily to the mine site and 95% would be LDC workers (whether FIFO or DIDO); this is the baseline for modelling
2. 20% of the workforce would be local residents and 80% would be LDC workers
3. 40% of the workforce would be local residents and 60% would be LDC workers
4. 60% of the workforce would be local residents and 40% would be LDC workers.

These scenarios were modelled to reflect low, moderate and high population growth. The 60% residential workforce scenario is based on the existing residential / LDC workforce ratio at Olympic Dam; the 40% residential workforce scenario reflects the situation in the relatively remote northern Bowen Basin mining region; and the 20% residential workforce reflects a likely scenario in the early developmental stages of the project.

In addition, the potential population and demographic effect from flow-on employment in Wudinna DC as a result of the CEIP has been modelled. This scenario is based on 50% of flow-on jobs from the CEIP (eg suppliers to the mine, retailers and service providers) being filled by existing local residents (of Wudinna DC and surrounding areas) and 50% being filled by incoming residents. This is likely to represent a high growth population scenario as jobs may also be taken up by people who live or relocate to areas outside of Wudinna and commute to work.

5.2 Assumptions

The following assumptions have been made in undertaking the population scenario modelling:

- The CEIP mine site and railway line operational workforce would comprise 600 people.
- No distinction is drawn between employees of Iron Road or contractors in terms of their likelihood of relocating to live and work in Wudinna. This reflects the findings of the background research that suggests a proportion of operational contractors are also likely to reside locally.
- 5% of the initial workforce (30 people) would be drawn from existing local residents (who live within daily commuting distance of the proposed mine). This assumes there have been no losses in the working population of Wudinna DC since the 2011 Census.
- Approximately 200 flow-on jobs would be created in the Wudinna DC from the CEIP, irrespective of the proportion of residential/LDC workers employed at the CEIP Mine. This is based on data from the CEIP Economic Impact Assessment and includes production-induced (or indirect) jobs (eg suppliers to the CEIP) and consumption-induced jobs (eg as a result of consumption by CEIP workers and suppliers).
- 50% of flow-on jobs (100 jobs) would be filled by existing local residents (of Wudinna or surrounding areas) and 50% (100 jobs) would be filled by incoming residents. This assumes that:
  - Approximately 25% of production-induced jobs (or 20% of estimated flow-on jobs) could be filled by existing local residents. This is consistent with assumptions for the initial CEIP workforce and is based on an analysis of ABS 2011 census data (place of usual residence and place of work) which suggests there are a number of Wudinna residents employed in occupations or industries of relevance to potential mine suppliers (eg technicians and trade workers, machinery operators and drivers, and labourers, or in construction and transport industries) who work outside of the DC.
  - The majority of consumption-induced jobs would be filled by existing local residents, as the nature of these jobs is unlikely to attract new residents to live in Wudinna. These jobs could be taken up by people who are unemployed, not in the labour force, working part-time, or are family members of incoming residential mine workers and suppliers. In total, this equates to approximately 30% of estimated flow-on jobs.
- The facilities and services in the township of Wudinna serve both the township and surrounding district.
- The existing resident population of Wudinna DC is 1,253 people (ABS 2012a), with no population losses since the 2011 Census. This figure will be used to calculate the percentage change in the resident population in Wudinna DC.
- The characteristics of incoming residents and households will be the same as the Roxby Downs LGA at the 2011 Census (ABS 2012a), as suggested by the SA Centre for Economic Studies (2013). These characteristics will be used to calculate potential population increases as a result of workers and their families choosing to relocating to Wudinna, and the age and household composition of the incoming population:
  - average household size will be 2.9 people
  - 22.9% of the population will be 14 years of age or under
  - 14.3% of the population will be 15-24 years of age
  - 43.3% of the population will be 25-44 years of age

- 19.0% of the population will be 45-64 years of age
- 0.5% of the population will be 65 years of age or over
- 78.3% of households will be family households
- 16.7% will be single / lone person households
- 5.0% will be group households.

5.3 Results of scenario modelling

Table 2 presents the results of the population scenario modelling. This includes potential population growth in Wudinna DC as a direct result of the CEIP and flow-on effects.

The results of the population modelling suggest there could be potential population increases in Wudinna of between 260 and 960 people, if 20% to 60% of the operational workforce and their families were to relocate to Wudinna as a result of the CEIP. Further population increases of around 290 people could also occur in Wudinna as a result of flow-on jobs. Potentially, this could result in an increase in the resident population in Wudinna DC of between 25% and 100% from the 2011 Census.

Table 2: Potential population increases in Wudinna DC based on population scenario modelling[1]

Components of population growth in Wudinna DC	CEIP residential workforce scenarios			
	5% local residents	20% local residents	40% local residents	60% local residents
CEIP				
Existing residential workers for CEIP	30	30	30	30
Incoming residential workers for CEIP	0	90	210	330
Total residential workers for CEIP	30	120	240	360
Total LDC workers for CEIP	570	480	360	240
Population increase from incoming residential workers for CEIP[1]	0	261	609	957
Flow-on jobs				
Incoming residential workers for flow-on jobs	100	100	100	100
Population increase from incoming residential workers for flow-on jobs[1]	290	290	290	290
Total CEIP and flow-on jobs				
Incoming residential workers for CEIP and flow-on jobs	100	190	310	430
Population increase from CEIP and flow-on jobs	290	551	899	1,247
Total resident population of Wudinna DC[2]	1,543	1,804	2,152	2,500
Change in resident population[2] (as a %)	23	44	72	100

[1] Based on the number of incoming resident workers for the CEIP and flow-on jobs and assuming the average household size will be the same as the Roxby Downs LGA at the 2011 Census (ABS 2012a).
[2] Based on the existing residential population in Wudinna DC at the 2011 Census (ABS 2012a).

Figure 1 illustrates the potential residential population of Wudinna under different population modelling scenarios and compares this to the population of Wudinna DC (previously the DC of Le Hunte) over time. This highlights the population losses that have occurred in Wudinna DC over the last three decades, with the LGA having a larger population in 1981 than modelled under the 20% residential workforce scenario.

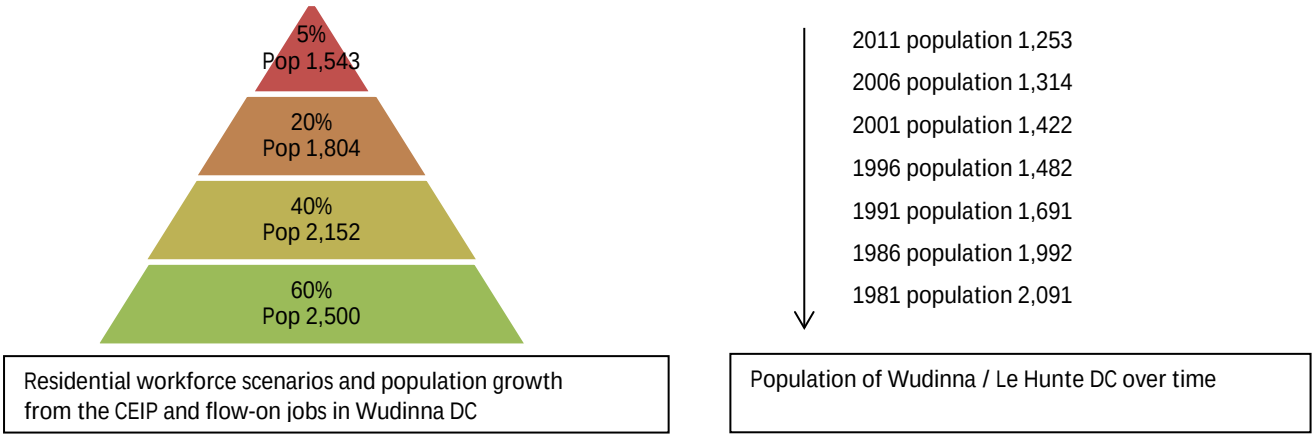

Figure 1 Potential changes in the resident population of Wudinna DC based on population scenario modelling

Table 3 show the potential increases in residents by age in Wudinna DC based on different population modelling scenarios and assuming the age profile of incoming residents is the same as Roxby Downs LGA at the 2011 Census. This shows the greatest population increases would occur among people of working age (25-64 years), particularly in the 25-44 year age bracket, followed by children aged 0-14 years, with little increase in the older population (aged 65 years or more). Figure 2 shows the total resident population by age in Wudinna DC based on the different population modelling scenarios.

Table 3 Potential increases in residents by age in Wudinna DC based on population scenario modelling[1]

Residential workforce scenarios CEIP and flow-on jobs	**Potential population increase**					
	Total	**0-14 years**	**15-24 years**	**25-44 years**	**45-64 years**	**65+ years**
5% local residents (flow-on effects only)	290	66	41	126	55	1
20% local residents	551	126	79	239	105	3
40% local residents	899	206	129	389	171	4
60% local residents	1,247	286	178	540	237	6

[1] Based on the number of incoming resident workers for the CEIP and flow-on jobs and assuming the age profile of the incoming population will be the same as the existing residential population of Roxby Downs LGA at the 2011 Census (ABS 2012a).

Table 4 shows the potential increase in the number of households in Wudinna DC based on the different population modelling scenarios and assuming the household composition of incoming residents is the same as Roxby Downs LGA at the 2011 Census. This provides an indication of the number and type of dwellings that could potentially be required under the various population modelling scenarios.

Table 4 Potential increase in households in Wudinna DC based on population scenario modelling[1]

Residential workforce scenarios CEIP and flow-on jobs	**Incoming resident workers**			**Incoming households**		
	For CEIP	**For flow-on jobs**	**Total**	**Family households**	**Single person**	**Group households**
5% local residents (flow-on effects only)	0	100	100	78	17	5
20% local residents	90	100	190	149	32	10
40% local residents	210	100	310	243	52	16
60% local residents	330	100	430	337	72	22

[1] Based on the number of incoming resident workers for the CEIP and flow-on jobs and assuming the household composition of the incoming population will be the same as the residential population of Roxby Downs LGA at the 2011 Census (ABS 2012a).

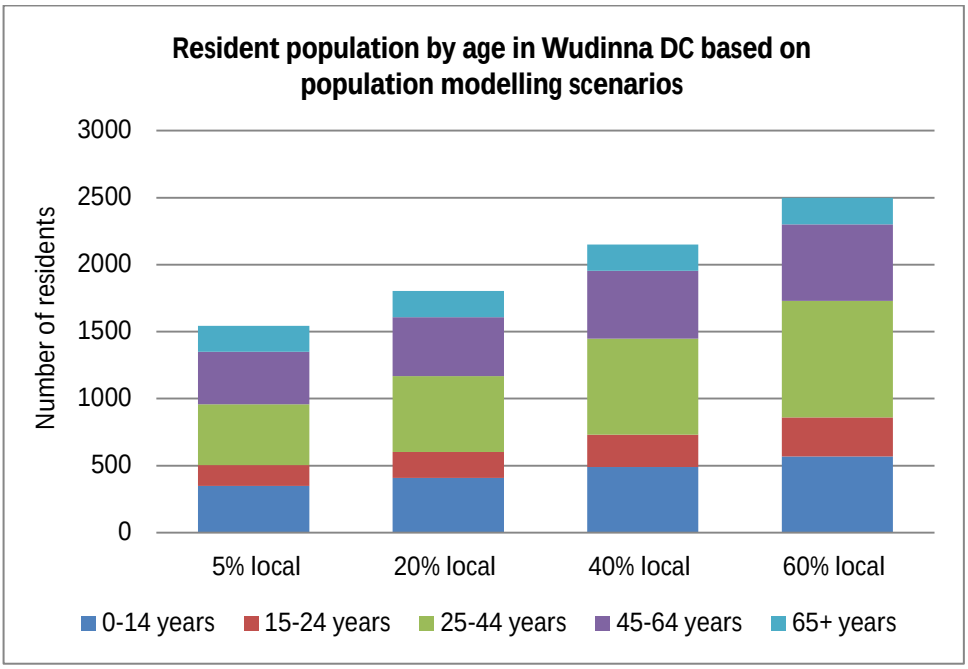

Figure 2 Residents population by age in Wudinna DC based on population scenario modelling

6. Implications of population growth on social services

A change in the size and characteristics of the population has the potential to affect service delivery, with flow-on effects for individuals, families and communities.

According to Burdge (2004), if a population increase or decrease is greater than 5% percent (where the existing population is less than 10,000 people), then the area is likely to experience detectable changes that may require active management. Jacquet (2009) has also argued that a community's ability to absorb a population influx is relative to the community's base population and that larger populations are better able to absorb large worker influxes, and impacts on communities and governments are therefore smaller.

6.1 Modelling service implications of population growth

The type and level of services required in Wudinna as a result of the CEIP would depend on the size, characteristics and timing of the incoming population.

Table 5 seeks to model the potential increases in services that may be required in Wudinna as a result of population increases from the CEIP and flow-on jobs, based on the outcomes of the population scenario modelling (This does not include the service implications from the LDC population). This reflects work undertaken by the SA Centre for Economic Studies (2013), which used ratios from the Productivity Commission report on Government Services to estimate potential service requirements as a result of mining projects proceeding across the Eyre region. The following ratios have been obtained from the 2014 Productivity Commission report for South Australia and provide the basis for modelling service implications from the CEIP. Unless otherwise stated, staffing is based on full time equivalent (FTEs):

- 14.2 students per teacher, 32.7 students per non-teaching staff and 9.9 students per total staff in South Australian government schools in 2012[1]

[1] Table 4A.22. As noted by the Productivity Commission, the student-to-staff ratio is affected by a range of factors, including population dispersion, the proportion of special needs students, the degree to which administrative work is undertaken by teachers, and the level of other inputs to school education (eg non-teaching staff, computers, books and laboratory equipment).

- 316 operational police per 100,000 people in South Australia in 2012-2013[2]
- 85.8 General Practitioners (GPs) per 100,000 people in South Australian remote areas in 2012-2013[3]
- 1.7 salaried medical officers, 6.5 nurses, 4.6 other staff (allied health, administrative, domestic, personal care, other) and 12.7 total staff in South Australian public hospitals per 1,000 people in 2011-2012[4].

Information has also been sourced about South Australia educator to child standards for centre-based services, including preschools (Australian Children's Education and Care Quality Authority (ACECQA) (2014) that require:

- 1 educator to 4 children from birth to 24 months of age
- 1 educator to 5 children aged over 24 months and less than 36 months of age
- 1 educator to 11 children aged 36 months up to and including children who are preschool age (ie four)
- 1 educator to 10 pre-school children[5].

The analysis of service implications for child care educators also uses information from the 2014 Productivity Commission report on Government Services, which suggests that in 2012-2013, approximately 41.5% of children aged 0-5 years attended government approved child care for an average of 24.8 hours a week (at centre based long day care) in South Australia[6]. The analysis is consistent with the child care standards and requirements for child care educators for children aged 0-4 years old, but excludes children who attend other types of child care (eg family day care and occasional care) and older children who may attend vacation care and outside school hours care.

When considering the findings outlined in Table 5, it should be noted that certain factors are unable to be predicted with high certainty and could affect the actual numbers in the future, for example, government policies, funding arrangements or the changing nature of surrounding communities and businesses. In addition, the assessment does not predict the capacity of existing service to meet future or increased demand, or the infrastructure requirements associated with an expansion of services.

Further planning would therefore be required to more accurately assess the service implications of population growth in Wudinna as a result of the CEIP.

Responsibility for the provision of social services and facilities rests largely with government agencies (federal, state and local), although some services (eg Centacare) are also provided by the non-government sector. In order to plan for potential population increases in Wudinna, Iron Road will provide further information on the workforce and timing as detailed planning progresses, and participate in planning initiated by the South Australian Government, Wudinna District Council and other service providers as appropriate.

[2] Operational police are staff actively engaged in the delivery of police-related services.
[3] Table 11A.22.
[4] Table 10A.12.
[5] All Australian Governments have agreed that by 2013, all four year old children will have access to 15 hours per week of preschool. In 2012, around 93.1% of 4 year old children were enrolled in a preschool program, and 25.6% of 3 year olds and 2.2% of 5 year olds in South Australia (Productivity Commission Table 3A.16). From 2014, the minimum age for starting preschool will be three years and eight months in South Australia and an educator to child ratio of 1:10 for preschool aged children will apply from 2016.
[6] Table 3A.10 Children attending Australia Government approved and State and Territory funded and/or provided child care, 2012-2013; 41.5% of children 0-5 years old and 22.5% of children aged 6 to 12 years attend government approved child care services. Table 3A.11 Children aged 0-12 years, average attendance at a Australia Government approved child care services; average attendance in 2013 was 24.8 hours at centre-based long day care, 23.4 hours at family day care, 25.9 hours at vacation care, 6.2 hours at outside school hours care, 8.8 hours at occasional care and 20.7 hours at other care of children, such as multifunctional children's services, mobile and toy library services and Aboriginal playgroups and enrichment programs.

Table 5 Population scenarios and implications for services, based on Productivity Commission ratios[1]

Residential workforce scenarios CEIP and flow-on jobs	**5%** (flow-on effects only)	**20%**	**40%**	**60%**
Potential population increases				
Increase in total population	290	551	899	1,247
Increase in children aged:				
- 0-2 years	17	33	53	74
- 3 years	5	10	16	22
- 4 years	5	9	14	20
- 5-17 years	47	89	145	201
Education and children's services				
Increase in child care educators (for children 0-4 years)[2]	1.6	3.2	5.1	7.1
Increase in pre-school staff[3]	0.2	0.4	0.7	1.0
Increase in teachers	3.3	6.3	10.2	14.2
Increase in school staff members (including teachers)	4.7	9.0	14.6	20.3
Health				
Increase in GPs	0.2	0.5	0.8	1.1
Public hospital staff	3.7	7.0	11.4	15.8
- Medical	0.5	0.9	1.5	2.1
- Nurses	1.9	3.6	5.8	8.1
- Other	1.3	2.5	4.1	5.7
Police				
Increase in police	0.9	1.7	2.8	3.9

[1] Based on ratios obtained from the Productivity Commission Report on Government Services (2014) and ACECQA (2014) standards.
[2] Only includes child care educators in centre-based long day care and excludes other forms of child care (eg family day care, vacation care, occasional care, before and after school care and other care). Assumes 40.1% of children aged 0-4 years attend child care for an average of 24.9 hours and a 35 hour working week per child care educator.
[3] Assumes all four year old children attend pre-school for 15 hours per week and an average of 30 child contact hours per week per pre-school staff.

6.2 Discussions with key service providers

In order to understand the implications for social services and infrastructure as a result of the CEIP Mine, discussions were held with service providers in Wudinna in December 2013 and January and February 2014, on:

- current services and existing needs
- capacity constraints and ability to deal with increased demand
- service thresholds and planning timeframes
- possible issues and service implications arising from population increases in Wudinna as a direct result of the CEIP[7]

[7] Discussions with service providers did not consider the service implications arising from indirect population growth. Estimates of the size of the CEIP Mine workforce were also revised upwards subsequent to discussions with service providers, but are considered relatively modest in scale (ie 1,175 construction workers up to 1,300 and 550 operations workers up to 600).

- other issues associated with the presence of an LDC construction workforce on the mine site near Warramboo and an LDC operational workforce in Wudinna[8].

A summary of the potential impacts of the CEIP operational workforce on social services in Wudinna, and the issues and constraints raised by service providers is outlined in Table 6. Further discussions would be needed with service providers to consider the population effects associated with flow-on employment.

This suggests that the greatest effects on services would come from population growth, although some impacts may also be felt on police and emergency services, health services and recreation and sporting facilities as a result of the LDC workforce. Most agencies indicated they had the physical capacity to deal with some increase in demand within existing facilities (with the exception of the police, kindergarten and childcare) but would require additional staff and/or volunteers to support a larger population.

Table 6 Agency discussions on potential impact of the CEIP operational workforce on social services in Wudinna

Key:	View of the agency / stakeholder
ü	Expected to have some impact
X	Expected to have no or minimal impact

Service	LDC construction workforce	LDC operations workforce	Residential workforce and families	Agency / stakeholder comments
Childcare	X	X	✓	Limited childcare options available to meet current community needs; options are being explored
Pre-school / kindergarten	X	X	✓	Kindergarten is at capacity Staffing requirements assessed each term Expansion of the kindergarten would require new facilities or would impact on other services at the kindergarten (eg occasional and rural care and playgroup)
School	X	X	✓	Good facilities, with two new classrooms constructed in 2009, and relatively small classroom sizes Could take on some primary and secondary students with current staffing Has the physical capacity to take around 25 children in Reception to Year 4, 45 children in middle to upper primary and 30 to 40 secondary students, with additional staffing Staffing is based on enrolments at the commencement of the school year and is re-assessed half yearly Need to consider transition stage of the CEIP, eg a social worker to assist new and existing students to changes, needs of children from non-English speaking backgrounds and children with learning/speech difficulties and psychological and behavioural problems
TAFE	X	Limited	✓	Good facilities Good network of lecturers to deliver courses (eg mining) Could potentially make use of the school trade centre facilities to deliver technical course

[8] Accommodation arrangements for the mine's operational workforce have also changed, with the potential for approximately 300 employees to be accommodated at a village on the outskirts of Wudinna and 300 contractors to be accommodated in a self-contained camp at the mine site near Warramboo. Previously, all 550 operational workers were to be accommodated in Wudinna, with a smaller LDC workforce in Wudinna likely to reduce demand on services in the township.

Service	LDC construction workforce	LDC operations workforce	Residential workforce and families	Agency / stakeholder comments
				Capacity to increase enrolments (ideally 8-10 people per course), subject to demand and funding A larger residential base could provide a wider skills base (for lecturers) and increase enrolments to support the range and viability of TAFE courses delivered locally
Hospital and health centre	Limited emergency only	Limited	✓	Good facilities Capacity and equipment to deal with proposed mining workforce and associated population increases within existing facilities and greater utilisation of part-time staff
GP	Limited emergency only	Limited	✓	Mining workforce is likely to be younger, fitter and FIFO, so less frequent users of medical services Medical practice has capacity to expand (ie currently using three of four consulting rooms) with another doctor General rural service standard is one doctor per 1,000 people Easier to attract doctors to a group practice Need to ensure continuity of care between mine emergency staff and local medical care (eg GP, hospital and ambulance) in an emergency
Ambulance	Emergency only	Limited Emergency only	✓	Mine could place extra demands on local emergency staff and volunteers Capacity to deal with a mine emergency but would require training and support Larger residential base could increase the pool of volunteers depending on work rosters/shifts
Welfare and support	X	Limited	✓	Centacare is at capacity; service could expand subject to additional funding The CEIP may increase demand for services (eg personal and relationship counselling, domestic violence services)
Police	✓	✓	✓	Policing of the construction workforce would be provided from Wudinna, with no licensed premises in Warramboo Would require the construction of a new police station or a combined emergency service building in Wudinna (ie no capacity to expand services at the existing police station)
SES and CFS	Limited emergency only	Limited emergency only	✓	Larger residential base could increase the potential pool of volunteers depending on work rosters/shifts
Telecentre	X	✓	✓	Larger residential base could increase the viability of delivering Service SA services
Sport and recreation	X	✓	✓	Arrangements would need to be considered for the use of recreational and sports by LDC workers, including school facilities and other community recreation and sports facilities Larger population could lead to more/expanded services (eg swimming pool open all year)

6.3 Other effects

Discussions with service providers and other stakeholders have raised a number of issues associated with the capacity of the local housing market to support an increase in the residential population of Wudinna and potential flow-on effects on housing affordability. Some stakeholders have also suggested speculative house purchasing is already occurring in anticipation of the CEIP proceeding. In addition, housing requirements associated with staffing essential services would need to be considered.

Data from the ABS suggests:

- there is minimal capacity in the township of Wudinna to accommodate a large increase in demand, with 24 unoccupied dwellings (9.8%) in the Wudinna (UCL) in 2011, but greater capacity within the Wudinna DC, with 134 unoccupied dwellings (21.7%) (ABS 2012a)
- there have been few building approvals in the Wudinna DC over the last five years (ABS *Building Approvals* 2012e, 2013b and 2014)
- weekly rents were relatively low in Wudinna DC ($84) and the township of Wudinna (UCL) ($ 110) compared to the Eyre Peninsula and South West region ($130) in 2011 (ABS 2012a)

Data on house sales suggests the median price of houses in Wudinna has been relatively stable from 2009 to 2013 (RP Data 2013) and in 2012 was around $220,000 (State Valuation Office 2013).

Forward planning would need to be undertaken to meet future housing demands arising from population growth, taking account of the immediate housing needs of the community as well as the longer-term scenarios for the town and district. This would also need to recognize the associated physical infrastructure, including power, water and waste, required to support residential development.

An increase in the LDC workforce and population of Wudinna is also likely to increase the usage of recreation and sports facilities. These facilities include the gymnasium, basketball, netball and tennis courts and school oval, which are located on Crown Land and are the property of the Wudinna Area School. Arrangements are in place for the community to use these facilities (eg after school hours and lunchtime). Facilities are hired by the school to sports clubs, who also contribute to maintenance (eg to keep the court surfaces in good condition). Appropriate arrangements and contributions for the use of recreational and sports by LDC workers, including school facilities and other community facilities, would also need to be considered.

7. Summary of findings

This report models the potential effects of the operation of the CEIP Mine on the population and services in Wudinna DC, based on a number of population scenarios that assume a portion of the mine's operational workforce and support workers would relocate to the Wudinna DC to live and work.

The characteristics of incoming residents and households are assumed to be similar to Roxby Downs LGA at the 2011 Census. The demography of that population (and people employed in mining generally) is substantially different from the profile of existing residents within Wudinna in terms of gender, age, level of schooling, cultural diversity, income, occupation and employment status.

A summary of the results of the population scenario and service modelling is shown in Tables 7 and 8. This suggests there could be potential population increases in Wudinna DC of between 260 and 960 people, if 20% to 60% of the CEIP operational workforce and their families were to relocate to the area. In addition to the mining workforce and their families, a further 290 people may live in Wudinna to take up jobs in support industries (eg suppliers to the mine, retailers or service providers).

Potentially, this could result in an increase in the resident population of the Wudinna DC of between 20% and 100% from the 2011 Census. The greatest increase would be among people of working age (25-64 years), particularly the 25-44 year age bracket, followed by children aged 0-14 years, with little increase in the older population (aged 65 years or more).

Changes in the size and characteristics of the population are likely to affect service delivery, with flow-on effects for individuals, families and communities.

According to Burdge (2004), if a population increase or decrease is greater than 5% (where the existing population is less than 10,000 people), then the area is likely to experience detectable changes that may require active management. The modelling has shown that population growth under the 5%, 20%, 40% and 60% population scenario are all greater than 5% and would therefore require active management.

Table 7 Summary of population effects from the scenario modelling

CEIP and flow-on jobs	**Population effects**			
Residential workforce scenarios	Incoming resident workers	Population increase	Resident population of Wudinna DC	Change in resident population (as a %)
5% local residents (flow-on effects only)	100	290	1,543	23
20% local residents	90	551	1,804	44
40% local residents	210	899	2,152	72
60% local residents	330	1,247	2,500	100

Table 8 Summary of service implications from the scenario modelling

CEIP and flow-on jobs	**Theoretical increase in staffing to meet population growth**						
Residential workforce scenarios	Population increase	Childcare educators	Pre-school staff	Teachers	Operational police	GPs	Nurses
5% local residents (flow-on effects only)	290	1.6	0.2	3.3	0.9	0.2	1.9
20% local residents	551	3.2	0.4	6.3	1.7	0.5	3.6
40% local residents	899	5.1	0.7	10.2	2.8	0.8	5.8
60% local residents	1,247	7.1	1.0	14.2	3.9	1.1	8.1

Discussions with service providers and key stakeholders in Wudinna suggest that the greatest effects on services would occur as a result of population growth, although some effects may also be felt on police and emergency services, health services and recreation and sporting facilities as a result of the LDC workforce. Most agencies indicated they had the physical capacity to deal with some increased demand within existing facilities (with the exception of the police, kindergarten and childcare) but would require additional staff and/or volunteers to support service delivery to a larger population.

Service implications of population growth was modelled based on population to staffing ratios obtained from the 2014 Productivity Commission report on Government Services in South Australia and the ACECQA. In considering these findings, it should be noted that a variety of factors can affect population change and service delivery, which cannot be accurately predict in advance or with high certainty.

Further planning would be required to assess the service implications in Wudinna as a result of the CEIP, taking account of these factors, and the size and characteristics of the incoming population.

Responsibility for the provision of social services and facilities rests largely with government agencies (federal, state and local), although some services (eg Centacare) are also provided by the non-government sector. In order to plan for potential population increases in Wudinna, Iron Road would provide further information on the workforce and timing as detailed planning progresses, and would be willing to participate in planning initiated by the South Australian Government, Wudinna District Council and other relevant service providers as appropriate.

Abbreviations and acronyms

ABS	Australian Bureau of Statistics
ACARA	Australian Curriculum Assessment and Reporting Authority
ACECQA	Australian Children's Education and Care Quality Authority
ASGC	Australian Standard Geographical Classification
ASGS	Australian Statistical Geography Standard
Cat no	Catalogue number
CEIP	Central Eyre Iron Project
CFS	Country Fire Service
DC	District Council
DEEWR	Department of Education, Employment and Workplace Relations (Commonwealth Government)
DIDO	drive-in drive-out
DMITRE (now DSD)	Department for Manufacturing, Innovation, Trade, Resources and Energy (Department for State Development)
eg	for example
EIS	Environmental Impact Statement
et al	and others
FIFO	fly-in fly-out
FTE	full time equivalent
GP	General Practitioner
ha	hectares
hr	hour
ICN	Industry Capability Network
ICSEA	Index of Community Socio-educational Advantage
ie	in order words, that is
Iron Road	Iron Road Limited
km	kilometre
km^2	square kilometre(s)
LDC	long distance commute
LGA	Local Government Area
Ltd	Limited
m	metres
min	minute
MP	Mining Proposal
Mtpa	million tonnes per annum
na	not available or not applicable
nd	not dated
Pty	Proprietary
RDAWEP	Regional Development Australia Whyalla and Eyre Peninsula
REISA	Real Estate Institute of Australia
RFDS	Royal Flying Doctor Service
SA	South Australia
SA3	Statistical Area Level 3
SEIFA	Socio-Economic Indexes for Areas
SES	State Emergency Service
SSC	State suburb

tbc	to be confirmed
UCL	urban centre/locality
unpub	unpublished
vol no	Volume number

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Glossary

Australian Statistical Geography Standard (ASGS) is the new geographical standard developed by the ABS for collecting and disseminating geographic statistics, including 2011 Census data.

Central Eyre Iron Project (CEIP) refers to the entire project (the proposed mine, long term employee village, infrastructure corridor and port).

CEIP Infrastructure refers to the proposed port development, railway line, water pipeline, power transmission line, borefield and the long term employee village.

CEIP Mine refers to the development and operation of the proposed mine on the proposed mining lease, including the open pit excavation, ore processing facility, stockpile and construction camp / contractor village.

Contractor village after construction is complete the mine site construction camp would be converted to a mine site operations village for mining contractors.

Flow-on employment, also referred to as indirect employment, includes production-induced jobs (generated by local suppliers) and consumption-induced jobs (generated by spending wages).

Long term employee village refers to the long term accommodation located adjacent to the township of Wudinna for Iron Road's permanent mine site workforce.

Mesh Blocks are the smallest geographic region in the ASGS, and the smallest geographical unit for which Census data are available. They broadly identify land use such as residential, commercial, agricultural and parks. Most residential Mesh Blocks contain approximately 30 to 60 dwellings. Mesh Block counts are available for total usual resident population and total dwelling counts from the 2011 Census.

State Suburb (SSC) is a geographic area used by the ABS for the statistical purposes (including the release of 2011 Census data). The SSC is not defined by the ABS.

Statistical Area Level 1 (SA1) is the smallest geographic unit used by the ABS for statistical purposes. It is based on the ASGS developed by the ABS for collecting and disseminating geographic statistics, including 2011 Census data.

Statistical Area Level 2 (SA2) is a geographic area defined by the ABS for statistical purposes, and is based on the ASGS. Wherever possible, SA2s are based on State suburbs and localities and, in rural areas, comprise functional zones of social and economic links.

Statistical Area Level 3 (SA3) is a geographic area defined by the ABS for statistical purposes and is based on the ASGS. A SA3 comprises a region of between approximately 30,000 and 130,000 people; the boundaries of SA3s reflect a combination of widely recognized informal boundaries and existing administrative regions, such as State Government regions in rural areas and local government boundaries in urban areas.

Statistical Division is a geographic area that is based on the Australian Standard Geographical Classification (AGSC), which was developed by the ABS and used in reporting 2006 Census data. A Statistical Division represents a large, general purpose, regional type geographic area; they are generally homogeneous regions characterised by identifiable social and economic links. While the AGSC geography is no longer used by the ABS, it is possible to reconstruct data for statistical divisions from SA2 data released under the ASGS.

Socio-Economic Indexes for Areas (SEIFA) is a product developed by the ABS to provide a measure of the socio-economic conditions in geographic areas. It includes four indexes that allow ranking of regions and areas in terms of relative socio-economic disadvantage, relative socio-economic advantage and disadvantage, education and occupation, and economic resources.

Urban centre/locality (UCL) is a geographic area defined by the ABS as part of the ASGS.
'Urban centres' comprise population clusters of 1,000 people or more and are classified as urban for statistical purposes. 'Bounded localities' comprise population clusters of between 200 and 999 people and are classified as rural for statistical purposes.