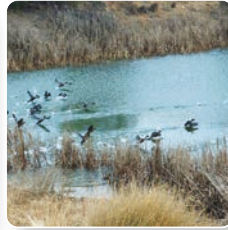


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Social Impact
Assessment



BYLONG COAL PROJECT

SOCIAL IMPACT ASSESSMENT

for
WorleyParsons Services Pty Ltd
July 2015

Hansen Bailey

ENVIRONMENTAL CONSULTANTS

BYLONG COAL PROJECT

SOCIAL IMPACT ASSESSMENT

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2 July 2015

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EXECUTIVE SUMMARY

INTRODUCTION

This Social Impact Assessment (SIA) has been prepared by Hansen Bailey to support the Environmental Impact Statement (EIS) for the Bylong Coal Project (the Project). Social and economic assessments, integrated with a comprehensive stakeholder engagement program, were undertaken for the Project. This has enabled the identification of potential social issues associated with both the construction and operation of the mine. The SIA identifies the potential social impacts and appropriate measures for managing adverse impacts and enhancing potential benefits. These measures have been designed to build on the positive benefits that the Project will bring to the region and to create additional opportunities within the Mid-Western Regional Council Local Government Area (MWRC LGA).

PROJECT DESCRIPTION

Project Overview

The Project is located in the Bylong Valley of the MWRC LGA in New South Wales (NSW). The small village of Bylong is located immediately adjacent and to the west of the Project Boundary. The Project is situated in a geographical area that is relatively remote from major towns. The nearest major towns to the Project are Mudgee and Muswellbrook, both over an hour away based on current road conditions.

The Project involves the construction and operation of a coal mine on a greenfield site. The Project will have a combined maximum extraction rate of up to 6.5 Million tonnes per annum (Mtpa) of Run of Mine (ROM) coal. The mine life is approximately 25 years. Coal will be mined using both open cut and underground mining methods. Coal will be washed and processed on site and product coal will be transported from site by rail.

The construction phase of the open cut operations extends from Project Year (PY) 1 to PY3 with open cut operations undertaken from PY3 to PY12 (including decommissioning). The construction phase for the underground operations extends from PY4 to PY6 with underground operations undertaken from PY7 to PY25. From PY7 to PY10, both open cut and underground mines will operate concurrently. This is referred to as the dual operations phase.

Project Proponent

The Project proponent is KEPCO (Bylong) Australia Pty Ltd (KEPCO) which holds 100% ownership of the Project. WorleyParsons Services Pty Ltd (WorleyParsons) manages the Project on behalf of KEPCO.

Project Workforce

The Project will require the following full-time equivalent (FTE) workforce:

- 800 people at peak construction (PY2) for the development of the open cut mine and associated infrastructure;
- An annual average workforce of approximately 360 people during PY3 and PY12 including 100 people during Construction Phase 2 (PY4 – PY6);
- 470 people during peak operations (PY9); and
- 275 people during underground only operations (PY13-PY25).

The Project workforce will be recruited as a mixture of local hires (i.e. those currently residing within a one hour commute of the Project) and non-local hires (NLHs) (i.e. those that are expected to be sourced from outside the one hour commute zone).

The majority of the workforce associated with both construction phases is expected to be NLHs. Approximately 85% of the Operations Phase workforce is expected to be NLHs. KEPCO is seeking to encourage all NLHs associated with the Operations Phase to relocate permanently to within a one hour commute of the Project Boundary. The majority (95%) of NLHs associated with the Operations Phase are anticipated to relocate to the MWRC LGA, with 85% of these people predicted to relocate to Mudgee.

The upcoming closure of Charbon mine (near Kandos) and the commencement of the construction phase of Moolarben Stage 2 suggest that there may be additional skilled residents available in the Local Area at the time the Project Construction Phase commences. KEPCO will seek to draw on this available local labour for the Project.

Workforce Accommodation Strategy

The Project workforce will be accommodated in a combination of:

- Temporary 650 bed Worker Accommodation Facility (WAF);
- Existing KEPCO owned housing in the Bylong Valley;
- Private housing in the Local Area (i.e. within a one hour commute of the Project); and
- Short-term accommodation options in the Local Area as necessary.

The WAF will operate during the construction phases of the Project (PY1~PY6) providing accommodation for all NLHs associated with the Project Construction Phase. The WAF may also provide short-term accommodation for NLHs associated with the Operations Phase while employees secure longer term accommodation in the Local Area.

SIA METHODOLOGY

Overview

The methodology for the SIA included the following key components:

- Identification of the SIA Study area;
- Profiling the socio-economic environment of the SIA Study Area based on a review of existing information/data and consultation with relevant stakeholders including consultation with Bylong Valley residents;
- Identification and assessment of potential socio-economic impacts; and
- Development of appropriate management commitments to address potential socio-economic impacts and to maximise potential community benefits.

SIA Study Area

The SIA Study Area consists of the:

- Regional Study Area - Defined as the Lithgow - Mudgee Region;
- Sub Regional Study Area - Comprising the MWRC LGA; and
- Project Area - Defined as the Bylong Valley, including the Project Boundary and neighbouring landholders.

The Local Area has been defined as the geographical area within an approximate one hour commute of the Project Boundary.

SOCIO ECONOMIC PROFILE

The SIA provides a detailed socio-economic profile of the Sub Regional Study Area with a focus on the Bylong Valley and Mudgee.

Bylong Valley and Bylong Village

The Bylong Valley consists of a small, rural agricultural community of approximately 100 residents¹. Coal exploration has been occurring in the area for more than 15 years². Bylong Village is the focus of community activity in the Bylong Valley and has a small general store, a community hall and community sporting grounds, St Stephen's Anglican Church and the Bylong Rural Fire Service (RFS).

¹ Calculated based on 2011 ABS Census Mesh Block Counts.

² Austen & Butta Limited was originally granted A287 and A342 in 1982 and 1984, respectively. A287 and A342 were transferred to Shell Company of Australia Limited in 1992, which was subsequently acquired by Anglo Coal (Bylong) Pty Limited in 2000. Since being granted, periodic exploration programs have been undertaken by the various licence holders across each Authorisation in accordance with the requirements of the Mining Act 1992 (Mining Act).

A public primary school, the Bylong Upper Public School (PS), is located on Upper Bylong Road approximately 1 km from Bylong Village³. There are three separate houses in Bylong Village. At January 2015, Bylong Village had a population of seven persons.

Current community identity, values, aspirations and lifestyle were explored with residents of the Bylong Valley through targeted consultation. Bylong Valley residents identified a range of economic, social, physical, natural and cultural heritage values of importance in the Bylong Valley. Residents also expressed a number of key concerns in relation to their existing environment, including:

- Stress and anxiety as a result of uncertainty in relation to coal exploration and the potential for mining into the future in the Bylong Valley and potential impacts;
- Population decline and resulting changes in social networks and sense of community;
- Changes in community structure and social networks with the gradual departure of long-term residents;
- Declining social capital due to community fragmentation;
- Perceived increasing prevalence of property acquisition and corresponding changes in landownership;
- Potential loss of Bylong Upper PS due to lack of enrolments, attributed to historical population decline in the Bylong Valley; and
- Maintaining the economic viability of agricultural holdings and retaining property values.

Sub Regional Study Area

The MWRC LGA includes the regional service centre of Mudgee, the smaller settlements of Gulgong, Kandos and Rylstone and 14 villages and other localities including Bylong, Wollar, Ulan and Lue. The estimated resident population (ERP)⁴ of the MWRC LGA was 23,843 in June 2013 (Australian Bureau of Statistics (ABS) 2014a).

The MWRC LGA is a popular tourist destination attracting more than 496,000 visitors each year (MWRC, 2014b). The MWRC LGA is large enough to provide for the full range of lifestyle conveniences such as shopping, sports, schools and medical facilities. The majority of these services are centred in Mudgee. The MWRC LGA has a strong and diverse economic base supporting job opportunities in a range of industries including agriculture, viticulture, tourism and mining.

³ In 2015 the Department of Education and Communities placed the school in recess due to a lack of enrolments for the 2015 school year.

⁴ The ERP is considered more accurate than a Census count because it includes adjustments for Census undercount, Australian residents who were temporarily overseas on Census night, and adds in an estimate of any people missed by the Census. The ABS releases annual ERP measurements for LGAs.

The mix of economies presents not only unique challenges but also diverse opportunities for the MWRC and the local community (MWRC 2014, pers.comm., 4 December).

There are currently four mining operations located within the MWRC LGA: Moolarben Coal Mine (Yancoal); Ulan Coal Mine (Glencore); Wilpinjong Mine (Peabody Energy); and Charbon (Centennial Coal). The first two mines are located nearby the village of Ulan and Wilpinjong Mine is located nearby the village of Wollar. Charbon mine is located immediately south of Kandos and is scheduled to close in 2015.

Population and Demography

The MWRC LGA exhibits the following key demographic characteristics:

- Population growth rate of 10.5% between 2006 and 2013 (NSW Ministry of Health 2015);
- Indigenous population equivalent to 3.9%, slightly higher than the NSW proportion of 2.5% (ABS 2013a);
- Median age of 41, slightly higher than the NSW median age of 38 (ABS 2013a);
- Household structure similar to NSW and dominated by family households; and
- Higher proportion of couples with children (43%) compared to NSW (37%) (ABS 2012e).

Economic Characteristics

Mudgee is the regional service centre for the MWRC LGA. Agriculture, viticulture, mining and tourism are important driving industries in the MWRC LGA that, together with Mudgee's expanding retail, service and commercial sectors, provide a growing employment base for a diverse economy.

The key economic characteristics of the MWRC LGA include:

- A strong reliance on mining as a key driver of economic growth;
- A high proportion of businesses in the agriculture, forestry and fishing sectors, consistent with the agricultural nature of the LGA;
- Significant growth in the mining, administrative and support services and financial and insurance services sectors between 2011 and 2013;
- Unemployment rate of 6.6% compared to 5.5% in NSW, in December 2014;
- Labour force participation rate in 2011 lower than NSW (56% compared to 60%);
- High unemployment in the 15-19 year age cohort (15% for males and 12% for females) compared to other age cohorts; and
- Median income indicators lower than NSW in 2011.

Consultation with MWRC representatives suggests that the economy of the LGA over the last 12 months has slowed in parallel with the slow-down in the mining industry, highlighting the need to protect existing economic diversity.

Housing and Accommodation

An assessment of the current housing and accommodation market in the Sub Regional Study Area, specifically Mudgee, shows that residential property prices between 2006 and 2014 increased substantially in line with population growth fuelled by expansion in the mining sector. Annual capital growth (medium value) in Mudgee was greatest in 2012 at the height of the mining boom. The slow-down in the mining industry from 2013 onwards and sustained efforts by the MWRC to deliver land to the market for development has resulted in a softening of the housing market in Mudgee in terms of price and availability.

An assessment of the temporary housing market shows that typical 'tourist' accommodation was heavily used by the construction and resources sector during the mining boom in 2012-2013. Demands have since reduced significantly due to a slow-down in the mining sector.

Community Infrastructure

The SIA includes an assessment of the current community facilities and services provided in the Sub Regional Study Area. Infrastructure considered in the assessment includes education facilities, children's services, youth services and facilities, health services, emergency services, recreation, sporting and leisure services, cultural facilities and cultural development, social support services and community groups, commercial and retail services and public transport. The assessment highlighted existing servicing issues in Mudgee in the following areas:

- Children's services, namely child care and early childhood intervention services;
- Medical services and health facilities;
- Youth services;
- Further education opportunities including school based learning and vocational education opportunities;
- Emergency accommodation and crisis housing; and
- Volunteer based organisations including the NSW Rural Fire Service.

Additional child care services will be delivered in Mudgee over the course of the next 12 to 18 months. These services, which will be delivered through a combination of private sector and local government investment, will address existing servicing issues.

POTENTIAL IMPACTS AND MANAGEMENT

Population and Demography

The SIA assesses the impacts of Project induced population growth in the MWRC LGA.

The construction phases of the Project will have little noticeable impact on the population size of the MWRC LGA as the majority of workers are anticipated to be NLHs who reside permanently outside of the MWRC LGA and will be accommodated in the WAF in Bylong Valley while on roster.

Project induced population growth over the life of the Project, is likely to be most significant in PY3 with the commencement of the Operations Phase. In PY3 up to approximately 460 new residents could potentially relocate to MWRC LGA, of which up to approximately 415 residents are anticipated to reside in Mudgee. This is equivalent to a 3.6% increase in the current ERP of Mudgee and a 1.9% increase in the ERP of MWRC LGA.

Between PY3 and PY9 a further and approximate 540 people could potentially relocate to the MWRC LGA, of which up to approximately 490 are predicted to reside in Mudgee. This is equal to a 4.3% increase in the current ERP of Mudgee and a 2.3% increase in the ERP of MWRC LGA.

The majority of the incoming population are predicted to be families⁵ of which 70% are anticipated to bring children. The Project therefore has the potential to result in an increase in the number of children aged 0-18 years in Mudgee and across the broader MWRC LGA.

The Project will also generate flow-on employment and subsequent population growth in the MWRC LGA during Project construction and operations.

Housing and Accommodation

Project induced population growth will have subsequent impacts on housing demand across the MWRC LGA and potential impacts on housing affordability in Mudgee. Direct Project induced population growth is estimated to generate the following demand for housing in the MWRC LGA:

- In PY3, total demand for up to 174 dwellings; and
- In PY9 (peak operations), total demand for up to 380 dwellings.

⁵ The ABS defines a family type as a couple with children, couple without children, one parent family or other family.

Dwelling demands generated by the project workforce will reduce substantially between PY9 and PY13 as open cut operations cease. During this period the Mudgee housing market may be required to absorb the release of an average of approximately 35 dwellings per year back into the market as open cut mining ceases and employees transition to other projects which may necessitate relocation to areas outside the MWRC LGA.

The MWRC has confirmed that the broad housing demands anticipated to be generated by the Project have been considered in the preparation of the Mudgee-Gulgong Urban Release Strategy (HillPDA 2014). Based on the findings of HillPDA 2014 it appears that the:

- Housing demands generated by the Project can be met without placing additional pressure on the existing housing market; and
- Anticipated release of 35 dwellings per year between PY9 and PY13 can be absorbed without causing sustained impacts to the local housing market. The ability of the Mudgee housing market to absorb the release of houses in PY9-PY13 will require forward planning by the MWRC in relation to land releases.

Economic Vitality

The Project will result in significant economic benefits for the MWRC LGA and NSW. Economic benefits have been calculated based on average workforce numbers rather than peak workforce numbers⁶. The total annual impact of the peak year of construction (PY2) on the economy of the MWRC LGA is estimated at up to:

- \$297 M in annual direct and indirect regional output or business turnover;
- \$104 M in annual direct and indirect regional value added;
- \$55 M in annual direct and indirect household income; and
- 863 direct and indirect jobs.

Flow-on impacts from the construction phases of the Project are likely to affect a number of different sectors of the regional economy. The sectors most impacted are likely to be construction services, wholesale and retail trade, professional, scientific and technical services, residential building, road transport, heavy and civil engineering construction and building cleaning/pest control/administrative and other support services.

⁶ The annual average FTE construction workforce for PY1 and PY2 is estimated at 344 and 466 people respectively.

The total annual impact of an average year⁷ of operations on the economy of the MWRC LGA is estimated at up to:

- \$624 M in annual direct and indirect regional output or business turnover;
- \$378 M in annual direct and indirect regional value added;
- \$72 M in annual direct and indirect household income; and
- 830 direct and indirect jobs.

Labour Market Dynamics

A softening of the labour market has occurred with the slow-down in the mining industry. This is evident in unemployment rates across the MWRC LGA and adjoining LGAs e.g. Muswellbrook LGA. The Project will result in the provision of new direct and indirect employment opportunities for local residents of the MWRC LGA. The labour pool of the MWRC LGA will be able to absorb a proportion of the jobs created by the Project. The capacity of the MWRC LGA labour force to absorb Project employment opportunities will be influenced by the number of major projects occurring in the LGA at the same time. The SIA has assumed a constrained local labour market for the assessment of Project impacts.

Stakeholders consulted for the SIA identified a number of potential labour market benefits associated with the Project including:

- The potential for increased employment and training opportunities for young people in the MWRC LGA;
- The generation of employment opportunities for existing residents of the Bylong Valley; and
- The provision of jobs, scholarships and training for locals.

The Project will increase the size of the labour force available in the MWRC LGA for the non-mining sector through the introduction of new residents associated with Project employees.

Investment in education and skill development in the MWRC LGA will be required to ready the existing labour supply for the Project and to secure a long term supply of labour.

Community Infrastructure

The SIA includes an analysis of the expected impacts of the Project on community facilities and services in the Project Area and the Sub Regional Study Area.

⁷ It is estimated that the Project will have an average annual FTE workforce of 290 during the Operations Phase.

The Project will not impact the operation of key facilities located in Bylong Village including the Bylong General Store, sports ground and St Stephen's Anglican Church. The Project will necessitate the relocation of the existing Bylong Upper PS to outside the Project area of disturbance. KEPCO is in ongoing discussions with the NSW Department of Education and Communities (DEC) in relation to the potential relocation of the Bylong Upper PS. To this end, a Memorandum of Understanding (MoU) has been drafted and provided to DEC for consideration.

The following community infrastructure and services in the MWRC LGA are predicted to experience the most pronounced impacts from the Project:

- Health services and facilities – During Construction Phase 1, the health facilities in Rylstone may experience an increase in demand from the construction workforce. Rylstone is the closest urban centre to the Bylong Valley and the proposed WAF. The Operations Phase workforce will generate demand for a range of health services in Mudgee, including general practitioner services and emergency care;
- Children's Services – Project induced population growth has the potential to increase demand for child care services and youth services in Mudgee;
- Education services - Project induced population growth has the potential to increase enrolments at primary and secondary schools in Mudgee necessitating additional service provision in the form of staffing and infrastructure; and
- Training and skill development – The workforces associated with all phases of the Project will increase demand for skills training in relevant fields of occupation in the MWRC LGA.

Discussions with service providers in Mudgee confirms that the majority of impacts on individual services including health services, children's services, and primary and secondary education services will generally be incremental and able to be absorbed by the 'natural' growth of those services. In the case of child care services the recent approval of a new child care centre and a new preschool centre in Mudgee will ultimately create additional service capacity that can cater for demand generated by future population growth, including Project related population growth. Cooperation in monitoring and planning between the mining and resource companies in the Study Area, MWRC and relevant State government agencies and other stakeholders will be the key to ensuring that services are adequately able to plan for future growth.

Community Liveability

The SIA considers the impact of the Project on community liveability in the Bylong Valley. Bylong Valley residents who participated in SIA interviews raised concerns in relation to the potential impacts of the Project on rural character and amenity, community sustainability and long term cohesion, accessibility due to changed road conditions, and increased traffic.

The Project, particularly the open cut operation will impact on the rural character and amenity of Bylong Village and to a significantly lesser extent the broader Bylong Valley. A number of measures have been integrated into Project design to minimise the visual impact of the Project. Additional off site treatments are also proposed to further reduce the impact of the open cut operations. The most significant visual impact will occur during the open cut operation (PY2-PY12). The underground mining operation will have a significantly smaller impact compared to the open cut mining operation.

Near neighbours expressed concern that the Project is likely to contribute to air quality impacts from dust, reducing residential amenity. Near neighbours perceive that blasting activities associated with the Project will impact on the amenity of properties in proximity to the open cut operation, particularly those properties in Bylong Village. Noise and blasting impacts have been considered in the EIS Noise Report and air quality impacts have been considered in the EIS Air Quality Report.

During EIS consultation, residents of the Bylong Valley reported that the population of the Bylong Valley had experienced a steady decline since the early 1980s. EIS consultation with Bylong Valley residents highlighted a perception that the Project may result in the further decline of the Bylong Valley population and a loss of community members and leaders as a result of property acquisition and relocation. There is a perception that further population decline will result in a loss of social connection within the community. To date Project related property acquisition has resulted in a net loss of ten residents from the Bylong Valley, equal to approximately 10% of the estimated total population of the Bylong Valley. Future property acquisition may result in a further loss of up to six residents.

Some stakeholders were optimistic that the Project would attract new residents to the Bylong Valley, particularly if suitable accommodation was provided. These stakeholders suggested that any project induced population growth in the Bylong Valley would have a positive impact on the local community in terms of enhancing social capital and long-term community sustainability.

Population modelling for the SIA suggests that at peak operations (PY9) up to approximately 20 employees with families could potentially relocate to the Bylong Valley with a resulting increase in population of approximately 50 people. This impact is positive and offsets the loss of population associated with property acquisition activities and the historical population decline experienced in the Bylong Valley.

During SIA interviews, concerns were raised by a number of residents of the Bylong Valley in relation to the decommissioning of the southern section of Upper Bylong Road. The closure of Upper Bylong Road will increase travel times to the north of the Bylong Valley (towards Denman in the Muswellbrook Shire LGA) for all landholders residing within and adjoining the southern and south eastern areas of the Project Boundary.

Two options are being considered in relation to providing access for neighbouring landholders along the southern reaches of Upper Bylong Road. These options are described in the EIS Traffic Report. The impact of the Upper Bylong Road realignment on rural amenity, specifically impacts associated with traffic volumes, noise and dust are considered in the respective EIS technical studies.

MITIGATION AND MANAGEMENT

The SIA includes a wide range of mitigation strategies which have been developed to address the social impacts of the Project. KEPCO is currently in negotiations with the MWRC LGA in relation to the preparation of a Voluntary Planning Agreement (VPA) for the Project. The VPA is the primary mechanism for managing socio-economic impacts associated with the Project and enhancing positive benefits and opportunities. Additional mechanisms include, but are not limited to:

- Corporate Sponsorship and Donations Fund (SD Fund);
- Interim Community Investment Fund;
- Social Impact Management Plan (SIMP);
- Upgrade of Wollar Road by the MWRC; and
- Management strategies described in relevant EIS technical reports.

Voluntary Planning Agreement

KEPCO has made a VPA offer to the total value of \$7.25 M, to the MWRC. The VPA offer to the MWRC includes a:

- \$2.75 M contribution consisting of an initial payment of \$1.5 M upon granting of Development Consent and KEPCO's approval to proceed, and a further \$1.25 M at the commencement of open cut operation; and
- Payment of \$0.05 cents per railed tonne of coal for the life of the Project, toward a Community Investment Fund.

The Community Investment Fund will be designed to provide funding for strategic infrastructure projects and community initiatives that aim to deliver measurable improvements in selected priority focus areas which may include:

- Economic development and diversification;
- Early childhood education and early intervention;
- Education and career pathway development for students;
- Skill development and training for young people;
- Youth services;
- Emergency service provision; and

- Health service provision.

The allocation of funds under the Community Investment Fund will be determined based on the results of a detailed Community Needs Assessment to be conducted as part of the SIMP process if project approval is granted. The preparation of the Community Needs Analysis will include consultation with key community groups and government agencies.

Corporate Sponsorship and Donations Fund

KEPCO has established a Corporate SD Fund for Project. The Corporate SD Fund will support small-scale investment across the MWRC LGA and will operate for the life of the Project. Investments under the Corporate SD Fund will be guided by the key priorities identified through the Community Needs Assessment to be conducted by KEPCO.

Interim Community Investment Fund

KEPCO will also establish an Interim Community Investment Fund which will operate from 2015 to the commencement of Project Construction Phase, at which point in time the VPA will commence. Similar to the Corporate SD Fund, investments under the Interim Community Investment Fund will be guided by the key priorities identified through the Community Needs Assessment.

Social Impact Management Plan

A SIMP will be prepared for the Project if development consent is granted. The SIMP will document the full suite of mitigation strategies proposed for the project including the content and management arrangements for the Community Investment Fund. The SIMP will also include a strategy for monitoring social impacts and the success of management strategies.

Upgrade of Wollar Road

The MWRC also recently received Resources for Regions funding to the value of \$14M for the completion of an upgrade of Wollar Road from Bylong Valley Way to the town of Wollar. The upgrade of this road will significantly improve access for the Project workforce to Mudgee and in doing so increase the attractiveness of Mudgee as a potential permanent residential location for the workforce.

TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	BACKGROUND	1
1.2	THE PROJECT	2
1.2.1	Project Description	2
1.2.2	Proponent	3
1.3	PURPOSE AND SCOPE	3
1.3.1	Purpose of the Document	3
1.3.2	Scope of Work	4
1.4	DOCUMENT STRUCTURE	4
1.5	REGULATORY FRAMEWORK	5
1.5.1	Secretary's Environmental Assessment Requirements	6
2	PROJECT SETTING	7
2.1	OVERVIEW	7
2.2	LOCAL SETTING	8
2.2.1	Bylong Valley	8
2.2.2	Mid-Western Region	9
2.2.3	Lithgow - Mudgee Region	11
2.3	POLICY AND GOVERNANCE CONTEXT	12
2.3.1	Regional Planning Initiatives	12
2.3.2	Local Government	14
3	METHODOLOGY	17
3.1	KEY PHASES	17
3.2	SIA STUDY AREA	17
3.2.1	Other Geographic Areas	18
3.3	BASELINE PROFILING	19
3.3.1	Quantitative Data Sources	20
3.3.2	Qualitative Information	21
3.4	IMPACT IDENTIFICATION AND ASSESSMENT	21
3.4.1	Impact Identification	22
3.4.2	Impact Assessment	23
3.5	IMPACT MANAGEMENT	24
3.6	EIS PROJECT CONSULTATION	24
3.6.1	SIA-Specific Consultation	24
4	PROJECT SOCIO-ECONOMIC CHARACTERISTICS	28
4.1	PROJECT SCHEDULE	28
4.1.1	Construction Phases	28
4.1.2	Operations Phase	29
4.1.3	Decommissioning Phase	29

4.2	WORKFORCE DEMAND	29
4.2.1	Construction Phases	30
4.2.2	Operations Phase.....	31
4.3	WORKFORCE RECRUITMENT	31
4.3.1	Workforce Hiring Scenario	32
4.4	WORKFORCE OCCUPATION	32
4.5	WORKFORCE ROSTER ASSUMPTIONS	33
4.6	WORKFORCE ACCOMMODATION.....	34
4.6.1	Workforce Accommodation Options.....	34
4.6.2	EIS Workforce Accommodation Strategy	36
4.6.3	Assumptions - Workforce Residential Locations	37
4.7	WORKFORCE TRANSPORT AND LOGISTICS	38
4.7.1	Construction Phase	38
4.7.2	Operations Phase.....	38
5	COMMUNITY ISSUES, VALUES AND ASPIRATIONS	39
5.1	INTRODUCTION.....	39
5.2	BYLONG VALLEY VALUES, ASPIRATIONS AND ISSUES	39
5.2.1	Bylong Valley Values and Aspirations.....	39
5.2.2	Bylong Valley Issues	41
5.3	REGIONAL ISSUES, VALUES AND OPPORTUNITIES	43
5.3.1	Regional Issues.....	43
5.3.2	Regional Values and Aspirations	44
6	POPULATION AND DEMOGRAPHICS	47
6.1	INTRODUCTION.....	47
6.2	SETTING.....	47
6.2.1	Census Population	47
6.2.2	Estimated Resident Population	48
6.2.3	Historical Population Growth	49
6.2.4	Future Population Growth	51
6.2.5	Indigenous Population.....	54
6.2.6	Age Structure	56
6.2.7	Household Composition	59
6.2.8	Family Structure	59
6.3	IMPACT ASSESSMENT AND MANAGEMENT.....	60
6.3.1	Overview	60
6.3.2	Construction Phase Population Impacts	61
6.3.3	Operations Phases Population Impacts	64
6.3.4	Population as a result of Flow-On Employment	65
6.3.5	Population Changes associated with Property Acquisition.....	67
6.3.6	Population Changes associated with Mine Closure	68
6.3.7	Population Demography Impacts	68
6.3.8	Cumulative Population Impacts.....	71

6.3.9	Summary of Impacts and Management	73
7	ECONOMIC VITALITY	75
7.1	INTRODUCTION	75
7.2	SETTING	75
7.2.1	Economic Governance	75
7.2.2	Gross Regional Product	76
7.2.3	Business Activity	77
7.2.4	Economic Activity	79
7.2.5	Income	82
7.3	IMPACT ASSESSMENT AND MANAGEMENT	83
7.3.1	Direct and Indirect Economic Impacts	83
7.3.2	Impacts on Economic Diversity	84
7.3.3	Mine Closure Impacts	85
7.3.4	Increased Revenue for Local Government	86
7.3.5	Impacts on Other Sectors of the Economy	86
7.3.6	Impacts to Agricultural Production	87
7.3.7	Impacts to Critical Industry Clusters in the Bylong Valley	89
7.3.8	Impacts to Tourism	90
7.3.9	Income Impacts	90
7.3.10	Summary of Impacts and Management	91
8	LABOUR MARKET DYNAMICS	94
8.1	INTRODUCTION	94
8.1.1	Relevant Background Studies	94
8.2	SETTING	94
8.2.1	Current Employment and Unemployment	94
8.2.2	Census Unemployment and Labour Force	95
8.2.3	Unemployment by Age and Gender	98
8.2.4	Labour Supply-Demand Balance	98
8.2.5	Labour Force Characteristics	99
8.2.6	Issues Impacting Workforce Capacity in RDA Orana	105
8.3	IMPACT ASSESSMENT AND MANAGEMENT	107
8.3.1	Employment Generation	108
8.3.2	Growth in Labour Force	108
8.3.3	Available Labour Supply	109
8.3.4	Labour Draw	111
8.3.5	Youth Employment	112
8.3.6	Labour Force Qualifications	113
8.3.7	Summary of Impacts and Management	113
9	HOUSING AND ACCOMMODATION	116
9.1	INTRODUCTION	116

9.2	SETTING	116
9.2.1	Overview of Local Housing Setting	116
9.2.2	Housing Stock and Tenure	117
9.2.3	Housing Costs	121
9.2.4	Affordable Housing	126
9.2.5	Short-Term Accommodation	129
9.2.6	Development Approvals	131
9.2.7	Available Residential Lots	132
9.2.8	Future Dwelling Structure Demands	132
9.2.9	Residential Land Supply and Demand	133
9.3	IMPACT ASSESSMENT AND MANAGEMENT	134
9.3.1	Construction Phase Housing Demand	135
9.3.2	Operations Phase Housing Demand	137
9.3.3	Housing Demand as a Result of Flow-on Employment	141
9.3.4	Impacts on Land Supply in MWRC LGA	142
9.3.5	Housing and Accommodation Impacts	145
9.3.6	Cumulative Impacts on Housing and Residential Land	147
9.3.7	Summary of Impacts and Management	148
10	COMMUNITY LIVEABILITY	150
10.1	INTRODUCTION	150
10.2	SETTING	150
10.2.1	Accessibility	150
10.2.2	Character and Amenity	152
10.2.3	Community Cohesion	153
10.2.4	Crime and Community Safety	156
10.2.5	Community Health and Wellbeing	157
10.3	IMPACT ASSESSMENT AND MANAGEMENT	158
10.3.1	Changes in Character and Rural Amenity	158
10.3.2	Community Sustainability and Cohesion	162
10.3.3	Loss of Connection to Land	167
10.3.4	Road Safety and Accessibility	168
10.3.5	Community Health and Wellbeing	171
10.3.6	Summary of Impacts and Management	173
11	COMMUNITY INFRASTRUCTURE ACCESSIBILITY	178
11.1	INTRODUCTION	178
11.1.1	Relevant Background Studies	178
11.2	SETTING	179
11.2.1	Education Facilities and Services	179
11.2.2	Children's Services	185
11.2.3	Youth Services	188
11.2.4	Health Services	188

11.2.5	Emergency Services	195
11.2.6	Recreation, Leisure and Sporting Facilities	197
11.2.7	Religious and Cultural Facilities	199
11.2.8	Social Support Services and Community Groups	200
11.2.9	Commercial and Retail Facilities	200
11.3	IMPACT ASSESSMENT AND MANAGEMENT	201
11.3.1	Health Services and Facilities	202
11.3.2	Primary and Secondary Education	205
11.3.3	Tertiary and Further Education	207
11.3.4	Increased Demand for Children’s Services	208
11.3.5	Youth Services	211
11.3.6	Emergency Services	211
11.3.7	Social Support Services and Community Organisations	213
11.3.8	Summary of Impacts and Management	214
12	MANAGEMENT MONITORING AND REPORTING	218
12.1	INTRODUCTION	218
12.2	KEY MANAGEMENT COMMITMENTS	218
12.2.1	Voluntary Planning Agreement	218
12.2.2	Corporate Sponsorship and Donations Fund	218
12.2.3	Interim Community Investment Fund	219
12.2.4	Local Content Plan	219
12.2.5	Social Impact Management Plan	220
12.2.6	Closure Planning	220
12.2.7	Stakeholder Engagement Plan	220
12.3	SUMMARY OF MANAGEMENT MEASURES	220
12.4	MONITORING AND REPORTING	226
13	CONCLUSIONS	227
14	REFERENCES	231

LIST OF TABLES

Table 1 Distance and Commuting Time from Bylong	7
Table 2 Existing Mining Operations in the MWRC LGA.....	10
Table 3 Proposed Timing of Mining Projects in the MWRC LGA.....	10
Table 4 Other Relevant MWRC LGA Policies and Strategies.....	15
Table 5 SIA Study Area Definition	18
Table 6 Geographical Areas Referenced in the SIA	21
Table 7 SIA Consultation conducted with Service and Facility Providers.....	27
Table 8 Indicative Project Schedule.....	28
Table 9 Total Local Hires and NLHs by Project Year - Construction Phases	32
Table 10 Total Local Hires and NLHs by Project Year - Operations Phase	32
Table 11 Predicted Project Workforce Vocational Characteristics.....	33
Table 12 Assumptions Regarding Likely Final Residential Location of NLHs - Operations...38	
Table 13 Summary of Bylong Community Values, 2014	39
Table 14 Issues, Values, Expectations and Opportunities, MWRC LGA.....	45
Table 15 Census Populations - Sub Regional and Regional Study Area	47
Table 16 Census Populations - Other Geographic Areas.....	48
Table 17 SIA Study Area ERP, 2013	48
Table 18 Population Change 2001-2011	49
Table 19 NSW DP&E Population Projections for MWRC LGA, 2011 - 2031	52
Table 20 MWRC Forecast Employment in New Mines in MWRC LGA	53
Table 21 MWRC Forecast Additional Population, 2011 – 2031.....	53
Table 22 Population Projection Comparisons, 2011-2031.....	54
Table 23 Annual Population Growth Rate Comparison, 2011-2031	54
Table 24 Indigenous Persons, 2006-2011	55
Table 25 Age Distribution 2011 – Proportion of Indigenous Persons (%).....	56
Table 26 Median Age 2006 and 2011	57
Table 27 Age Distribution 2011 – Proportion of Total Persons (%)	57
Table 28 Age Trends, 2001-2011, MWRC LGA	58
Table 29 Household Structure, 2011 - Percentage.....	59
Table 30 Families by Type, 2011	60
Table 31 Population Change - Peak Construction Phase Workforce	62
Table 32 Population Change - Annual Average Workforce PY2 - Construction Phase 1	62
Table 33 Predicted Population as a Result of Operations Phase Workforce.....	64
Table 34 Direct Project Impact on Local and Regional DP&E Population Projections	65
Table 35 Population as a Result of Flow-On Employment in the Sub Regional Area	66
Table 36 Estimate of Families in Project Induced Population (PY9 and PY13).....	69
Table 37 Estimate of People Under 19 Years in the NLH Population, by Project Year	70
Table 38 Cumulative Population in the SIA Study Area, 2015-2024	72
Table 39 Summary of Population Change and Management Commitments	74
Table 40 Gross Regional Product MWRC LGA 2012/13	76
Table 41 Businesses in Mudgee and MWRC LGA 2013	77
Table 42 Business Growth by Turnover MWRC LGA, 2009-2013.....	79
Table 43 Value-Added by Industry Sector MWRC LGA, 2012/13	80
Table 44 Net Imports and Exports MWRC LGA, 2012/13	80
Table 45 Top Four Sectors for Tourism Spend MWRC LGA and NSW, 2013.....	81
Table 46 Income Indicators, 2011.....	82
Table 47 Income Indicators - Percentage Change 2006-2011	82
Table 48 Summary of Project Impacts and Management – Economics	92
Table 49 Unemployment Rates and Labour Force, 2010– 2014	94
Table 50 Labour Force Status, 2006 and 2011 Census	96
Table 51 Labour Force Status of Indigenous People - 2011 Census	96

Table 52 Labour Force Status, 2006 and 2011	97
Table 53 Employment in Mining, MWRC LGA, 2006 and 2011	100
Table 54 Occupation, 2011	101
Table 55 Skill Shortages, NSW and National, 2014	107
Table 56 Summary of Project Impacts and Management – Labour Market.....	114
Table 57 Dwelling Type, Occupied Private Dwellings, 2011.....	117
Table 58 Average Household Size (Occupancy Rate), 2006 and 2011	118
Table 59 Median House Prices, 2006-2015.....	122
Table 60 Median Rent, 2006 and 2011 Census	123
Table 61 Rental Price, High and Low, April 2015	125
Table 62 Median Mortgage Repayment and Rent, 2011	126
Table 63 SEIFA Ratings, 2011 - IRSAD	129
Table 64 Tourism Accommodation Statistics, June Quarter - MWRC LGA.....	129
Table 65 Lots and Dwelling Approvals, Mudgee (2009/10 to 2013/14)	131
Table 66 Value of Building Approvals MWRC LGA, 2001-2014	132
Table 67 Types of Lots/Dwellings Likely to Be in Demand in Mudgee	133
Table 68 Lots / Dwellings Required, Mudgee, 2015-2035	134
Table 69 Recommended Lot Releases.....	134
Table 70 Construction Phase 2 Housing Impacts by Accommodation Scenario	136
Table 71 Predicted Dwelling Demand by Location - Operations Phase	138
Table 72 Dwelling Demand between PY3 and PY13 - Operations Phase.....	139
Table 73 Predicted Flow-On Employment Induced Dwelling Demand - Operations Phase	142
Table 74 Project Related Housing Demand Considered in the Mudgee-Gulgong URS	143
Table 75 Summary of Project Impacts and Management – Housing/Accommodation.....	149
Table 76 Stability of Residency, 2011.....	155
Table 77 Summary of Project Impacts and Management – Community Liveability	174
Table 78 School Enrolments, Selected Schools in MWRC LGA, 2011 and 2015.....	179
Table 79 Children’s Services – Mudgee, Rylstone and Kandos	186
Table 80 Number of Young People in Project Induced Population.....	206
Table 81 Number of Children Aged 0-4 Years in the Project Induced Population	209
Table 82 Summary of Project Impacts and Management – Community Infrastructure.....	216
Table 83 Summary of Management Commitments	221

LIST OF GRAPHS

Graph 1 Anticipated Peak Workforce, by Project Phase ¹	30
Graph 2 Anticipated Peak Workforce – Construction Phase 1 and 2	30
Graph 3 Output by Industry, MWRC LGA, 2013	77
Graph 4 Highest Year of Schooling, 2011	102
Graph 5 Post-School Qualifications, 2011	104
Graph 6 Tenure Type of Occupied Private Dwellings, 2011	119
Graph 7 Annual Capital Growth (Medium Value) % - Mudgee	123
Graph 8 Median Weekly Rent (\$) - Mudgee	124
Graph 9 Estimated Annual Dwelling Demand in Mudgee - Operations Phase	140
Graph 10 Estimated Annual Change in Dwelling Demand in Mudgee - Operations Phase	140
Graph 11 Annual Enrolment of Regional NSW Schools with Low Student Numbers	180

LIST OF FIGURES

Figure 1	Locality Plan
Figure 2	Regional Locality
Figure 3	Conceptual Project Layout
Figure 4	Bylong Valley
Figure 5	Bylong Village and Upper Bylong
Figure 6	Sub Regional Study Area
Figure 7	Regional Study Area
Figure 8	Other Geographical Areas
Figure 9	Local Area
Figure 10	2011 ABS Census Boundaries

LIST OF APPENDICES

Appendix A	Secretary's Environmental Assessment Requirements
Appendix B	Supporting Data Tables

LIST OF ABBREVIATIONS

ABS	Australian Bureau of Statistics
ADHC	Ageing, Disability and Home Care
CHPP	Coal Handling and Preparation Plant
CIC	Critical Industry Cluster
CSU	Charles Sturt University
DE	Department of Employment
DEC	Department of Education and Communities
DEEWR	Department of Education, Employment and Workplace Relations
DPC	NSW Department of Premier and Cabinet
DP&E	NSW Department of Planning & Environment
DP&I	NSW Department of Planning & Infrastructure (former)
ELC	Imaginations Early Learning Centre
EP&A Act	Environmental Planning and Assessment Act 1979
ERP	Estimated Resident Population
FTE	Full-Time Equivalent
GRP	Gross Regional Product
HS	High School
IRSAD	Index of Relative Socio-economic Advantage and Disadvantage
KEPCO	KEPCO Bylong Australia Pty Ltd
LEC	NSW Land and Environment Court
LGA	Local Government Area
LHD	Local Health District
M	Million
MHC	Mudgee Health Council
MHDA Services	Mental Health and Drug and Alcohol Services
MOU	Memorandum of Understanding
MPS	Multipurpose Service
MSC	Mudgee College Skills Centre
MWRC	Mid-Western Regional Council
NLHs	Non-Local Hires
NSW	New South Wales
OEA	Overburden Emplacement Area
PCYC	Police and Community Youth Club
PS	Public School
PY	Project Year
QLD	Queensland
RFS	Rural Fire Service
ROM	Run of Mine
RPData	RPData Pty Ltd
SA2	Statistical Area Level 2

*Bylong Coal Project
Social Impact Assessment
for WorleyParsons Services Pty Ltd*

*2 July 2015
Page x*

SA3	Statistical Area Level 3
SA4	Statistical Area Level 4
SEARs	Secretary's Environmental Assessment Requirements
SEIFA	Socio-Economic Index for Areas
SES	NSW State Emergency Service
SIA	Socio-Economic Impact Assessment
SIMP	Social Impact Management Plan
SS	State Suburb
STS	State Training Services
The Plan	Central West Regional Action Plan
The Project	Bylong Coal Project
TTC	Trade Training Centre
TWA	Temporary Workers Accommodation Facilities
UCL	Urban Centre / Locality
URS	Urban Release Strategy
VET	Vocational; Education and Training
VPA	Voluntary Planning Agreement
WAF	Worker Accommodation Facility
WorleyParsons	WorleyParsons Services Pty Ltd

BYLONG COAL PROJECT SOCIAL IMPACT ASSESSMENT

for WorleyParsons Services Pty Ltd

1 INTRODUCTION

This section provides an introduction to the Social Impact Assessment (SIA) for the Bylong Coal Project (the Project). It describes the background and context of the Project, introduces the proponent and outlines the purpose and structure of the SIA.

1.1 BACKGROUND

In December 2010 KEPCO (Bylong) Australia Pty Ltd (KEPCO) acquired Authorisations (A) A287 and A342. Since this time, extensive exploration and mine planning work has been undertaken to determine the most socially responsible and economically viable mine plan to recover the known coal resources within the two Authorisations.

In August 2014 KEPCO commissioned WorleyParsons Services Pty Ltd (WorleyParsons) to manage the Project exploration activities, mine feasibility study planning, environmental approvals and ongoing environmental monitoring for the Project.

The Project is located wholly within A287 and A342 which are located within the Mid-Western Regional Council (MWRC) Local Government Area (LGA). The closest regional centre is Mudgee, located approximately 55 km south-west of the Project Boundary. The Project is approximately 230 km by rail from the Port of Newcastle. **Figure 1** illustrates the locality of the Project within New South Wales (NSW). **Figure 2** shows the regional locality of the Project in relation to the neighbouring town centres, mining authorities, major transport routes and reserves.

KEPCO is seeking State Significant Development Consent under Division 4.1 of Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the development and operation of the Project. The State Significant Development Application will be supported by an Environmental Impact Statement (EIS) which is being prepared by Hansen Bailey.

1.2 THE PROJECT

1.2.1 Project Description

The Project life is anticipated to be approximately 25 years, comprising a two year construction period and a 23 year operational period, with underground mining operations commencing in Year 7. Various rehabilitation and decommissioning activities will be undertaken during both the course of, and following the 25 years of the Project. It is noted that further mineable coal resources exist within both A287 and A342.

The Project is to be developed on land within the Project Boundary as illustrated on **Figure 3**. Key features of the Project are conceptually shown on **Figure 3** and include:

- The initial development of two open cut mining areas with associated haul roads and Overburden Emplacement Areas (OEAs), utilising a mining fleet of excavators and trucks and supporting ancillary equipment;
- The two open cut mining areas will be developed and operated 24 hours a day, 7 days a week over an approximate 10 year period and will ultimately provide for the storage of coal processing reject materials from the longer term underground mining activities;
- Construction and operation of administration, workshop, bathhouse, explosives magazine and other open cut mining related facilities;
- Construction and operation of an underground coal mine operating 24 hours a day, 7 days a week for a 20 year period, commencing mining in around year 7 of the Project;
- A combined maximum extraction rate of up to 6.5 Million tonnes per annum (Mtpa) Run of Mine (ROM) coal;
- A workforce of up to approximately 800 during the initial construction phase and a peak of 470 full-time equivalent operations employees at full production;
- Underground mining operations utilising longwall mining techniques with primary access provided via drifts constructed adjacent to the rail loop and Coal Handling and Preparation Plant (CHPP);
- The construction and operation of facilities to support underground mining operations including personnel and materials access to the underground mining area, ventilation shafts, workshop, offices and employee amenities, fuel and gas management facilities;
- Construction and operation of a CHPP with a designed throughput of approximately 6 Mtpa of ROM coal, with capacity for peak fluctuations beyond this;
- The dewatering of fine reject materials through belt press filters within the CHPP and the co-disposal of dewatered fine and coarse reject materials within OEAs and final open cut voids (avoiding the need for a tailings dam);

- Construction and operation of a rail loop and associated rail load out facility and connection to the Sandy Hollow to Gulgong Railway Line to facilitate the transport of product coal;
- The construction and operation of surface and groundwater management and water reticulation infrastructure including diversion drains, dams (clean, dirty and raw water), pipelines and pumping stations;
- The installation of communications and electricity reticulation infrastructure;
- Construction and operation of a Workforce Accommodation Facility (WAF) and associated access road from the Bylong Valley Way;
- The upgrade of Upper Bylong Road and the construction and operation of a Mine Access Road to provide access to the site facilities;
- Relocation of sections of some existing public roads to enable alternate access routes for private landholders surrounding the Project; and
- Infilling of mining voids, progressive rehabilitation of disturbed areas, decommissioning of Project infrastructure and rehabilitation of the land progressively following mining operations.

1.2.2 Proponent

The Project proponent is KEPCO which holds 100% ownership of the Project. WorleyParsons manages the Project on behalf of KEPCO.

1.3 PURPOSE AND SCOPE

1.3.1 Purpose of the Document

Hansen Bailey has prepared this SIA for the Project. The SIA contributes to an EIS being prepared to support an application for development consent under Part 4, Division 4.1 of the EP&A Act for the Project.

This SIA documents the socio-economic impacts associated with the Project. The report outlines the scope of the SIA, describes the methodology used, provides a baseline of the existing setting, summarises the results of the impact assessment and describes the proponent's commitments to manage adverse social impacts as a result of the Project. In doing so, the SIA demonstrates compliance with the relevant regulatory requirements relating to the content and methodology for SIAs in NSW.

1.3.2 Scope of Work

The scope of this SIA is to provide:

- A description of the socio-economic profile of the communities of the SIA Study Area (defined in **Section 3.2**);
- A description of the regulatory requirements and associated corporate governance relating to local and regional socio-economic planning in the SIA Study Area;
- A description of the range of social infrastructure present in the SIA Study Area with a particular focus on Mudgee within the MWRC LGA;
- An assessment of housing market dynamics in the SIA Study Area, with a particular focus on the areas in which the Project workforce is likely to reside;
- A description and analysis of key Project details relevant to socio-economic considerations for the construction, operations and decommissioning phases;
- Prediction and analysis of the potential socio-economic impacts associated with the Project including:
 - An assessment of the likely incremental magnitude of the additional Project workforce and associated population growth;
 - Consideration of the impacts of estimated Project and cumulative employment and population change on community infrastructure; and
 - Acknowledgement of the cumulative impacts of current and expected mining and resource Projects in the MWRC LGA.
- Nomination of management and enhancement strategies to address identified potential socio-economic impacts.

1.4 DOCUMENT STRUCTURE

This SIA is structured as follows:

- **Section 1** - Introduction (this section), provides an overview of the Project, describes the SIA scope of work and outlines the regulatory framework;
- **Section 2** - Project Setting - provides an overview of the geographic setting and governance mechanisms relevant to the Project;
- **Section 3** - Methodology - defines the SIA Study Area and provides a detailed explanation of the methodology adopted for the SIA;
- **Section 4** - Project Socio-Economic Characteristics - presents the workforce and other characteristics of the Project relevant to the assessment of socio-economic impacts;
- **Section 5** - Community Issues, Values and Aspirations - describes the issues, values and aspirations of the Bylong Valley Community and the broader MWRC LGA. This section provides context to many of the issues discussed in later sections of the SIA;

- **Section 6** - Population and Demographics - summarises the key demographic characteristics of the SIA Study Area, describes the population and demographic impacts anticipated to arise from the Project and where relevant identifies suitable management strategies;
- **Section 7** - Economic Vitality - uses several key economic indicators to present a summary of the economies of the SIA Study Area. The potential economic impacts anticipated to arise from the Project are described and where relevant suitable management strategies are identified;
- **Section 8** - Labour Market Dynamics - presents the key employment characteristics of the SIA Study Area labour markets and describes the key characteristics of the labour force. The potential impacts of the Project on labour supply and demand are described and where necessary suitable management strategies are identified;
- **Section 9** - Housing and Accommodation - summarises the key housing market characteristics in the SIA Study Area, as well as recent trends in housing demand and supply. The potential impacts of the Project on the housing market of the SIA Study Area are described and where necessary suitable management strategies are identified;
- **Section 10** - Community Liveability - summarises the current state of and trends in the environmental and social quality of Bylong and the Bylong Valley as perceived by residents, employees and visitors. The potential impacts of the Project on community liveability in the Bylong Valley are described and where necessary suitable management strategies are identified;
- **Section 11** - Community Infrastructure Accessibility - provides a summary of the social infrastructure present across the SIA Study Area and a discussion of the emerging issues in social infrastructure provision at a local and regional level. The potential impacts of the Project on social infrastructure and services are described and where necessary suitable management strategies are identified;
- **Section 12** - Management, Monitoring and Reporting - provides a summary of the management measures identified in the SIA and outlines the approach to social impact monitoring and reporting;
- **Section 13** - Conclusions;
- **Section 14** - References;
- **Appendix A** - Secretary's Environmental Assessment Requirements; and
- **Appendix B** - Supporting Data Tables.

1.5 REGULATORY FRAMEWORK

There are no specific legislative requirements for the preparation of SIAs in NSW. However Section 79C of the EP&A Act requires the consent authority to take into consideration the “*likely impact of the development, including social impacts in the locality*” when determining a development application made under Part 4 of the Act.

The content of this SIA has been guided by the Secretary's Environmental Assessment Requirements (SEARs) for the Project (**Section 1.5.1**) and by the regulatory SIA requirements in other states such as Queensland (QLD).

1.5.1 Secretary's Environmental Assessment Requirements

The SEARs for the Project were issued on 23 June 2014. An amendment to the SEARs was issued on 11 November 2014 in light of some minor amendments to the Project. **Table A-1** of **Appendix A** lists each requirement in the SEARs relevant to this SIA and where within this report each aspect is addressed.

2 PROJECT SETTING

This section provides an overview of the socio-economic context of the Project. The purpose of this section is to assist the reader in understanding the context in which the Project has been assessed.

2.1 OVERVIEW

The Project is located in the Bylong Valley of the MWRC LGA in NSW (**Figure 4**). The small village of Bylong is located immediately adjacent and to the west of the Project Boundary (**Figure 4**).

The Project is situated in a geographical area that is relatively remote from major towns. The nearest major towns to the Project are Mudgee and Muswellbrook, both over an hour away (**Figure 2**) based on current road conditions. The distance and commuting times from the settlement of Bylong to surrounding communities is detailed in **Table 1**.

Table 1
Distance and Commuting Time from Bylong

Urban Settlement	km	Commute Time	Route
Rylstone	52	38 mins	Bylong Valley Way
Sandy Hollow	63	43 mins	Bylong Valley Way and Golden Highway
Kandos	59	44 mins	Bylong Valley Way and Ilford Rd
Denman	71	49 mins	Bylong Valley Way and Golden Highway
Lue	67	56 mins	Bylong Valley Way
Martindale	78	58 mins	Bylong Valley Way
Wollar	27	50 mins	Bylong Valley Way and Wollar Rd
Ilford	79	1 hour 2 mins	Bylong Valley Way and Castlereagh Highway
Mudgee	95	1 hour 23 mins	Bylong Valley Way and Lue Rd
	75	1 hour 27 mins	Bylong Valley Way and Wollar Rd
Merriwa	97	1 hour 9 mins	Bylong Valley Way and Golden Highway
	60	1 hour 42 mins	Bylong to Wollar Rd (16.9 km and 38 mins) plus Wollar Rd to Merriwa via Ringwood Road (43.5 km 1 hour 4 mins)
Ulan	55	1 hour 23 mins	Wollar Rd and Ulan Rd
Muswellbrook	98	1 hour 16 mins	Bylong Valley Way and Golden Highway
Gulgong	124	1 hour 42 mins	Bylong Valley Way, Wollar Road, Ulan-Wollar Road, Cope Road

Source: Google Maps, accessed April 2015, distances taken from Bylong General Store

2.2 LOCAL SETTING

2.2.1 Bylong Valley

The Bylong Valley consists of a small, rural agricultural community of approximately 100 residents⁸. **Figure 4** illustrates the area referred herein as the Bylong Valley. The geographical boundaries of the Bylong Valley have been defined by the findings of SIA consultation conducted with residents of the Bylong Valley (**Section 3.6.1**).

The village of Bylong is the focus of community activity in the Bylong Valley and has a small general store, a community hall and community sporting grounds, St Stephen's Anglican Church and Cemetery and the Bylong Rural Fire Service (RFS) (**Figure 5**). There are three separate houses in Bylong Village. At January 2015, Bylong Village had a population of seven people. A public primary school, the Bylong Upper Public School (PS), is located on Upper Bylong Road approximately 1 km from Bylong Village (**Figure 5**). In 2015 the school was placed in recess by the NSW Department of Education and Communities (DEC). The former Our Lady of the Sacred Heart Catholic Church is also located near Bylong Upper PS.

The Bylong Valley Way runs through the Bylong Valley, and connects the Golden Highway near Sandy Hollow to the Castlereagh Highway near Ilford (**Figure 2**). Following the completion of upgrades along the Bylong Valley Way in 2009, the road has been promoted by the Muswellbrook Visitor Information Centre as a tourist route.

Whilst coal mining is new to the Bylong Valley, coal exploration has been occurring in the area for more than 15 years⁹. Several years ago the Mt Penny Project, an open cut coal mine, was proposed in the neighbouring Coggan Valley to the north west of the Bylong Valley. The Mt Penny Project extended into the Bylong Valley at its north western end however the project has since been withdrawn.

⁸ Calculated based on 2011 ABS Census Mesh Block Counts.

⁹ Austen & Butta Limited was originally granted A287 and A342 in 1982 and 1984, respectively. A287 and A342 were transferred to Shell Company of Australia Limited in 1992, which was subsequently acquired by Anglo Coal (Bylong) Pty Limited in 2000. Since being granted, periodic exploration programs have been undertaken by the various licence holders across each Authorisation in accordance with the requirements of the Mining Act 1992 (Mining Act).

2.2.2 Mid-Western Region

The MWRC LGA covers an area of approximately 9,000 km² and includes the regional service centre of Mudgee, the smaller settlements of Gulgong, Kandos and Rylstone and 14 villages and other localities including Bylong, Wollar, Ulan and Lue (**Figure 6**). The estimated resident population (ERP)¹⁰ of the MWRC LGA was 23,843 in June 2013 (Australian Bureau of Statistics (ABS), 2014).

The MWRC LGA is a popular tourist destination and attracts more than 496,000 visitors each year to experience the local wine, food, sporting and cultural events (MWRC, 2014a). The MWRC LGA is large enough to provide for the full range of lifestyle conveniences such as shopping, sports, schools and medical facilities.

The MWRC LGA has a strong and diverse economic base supporting job opportunities in a range of industries including agriculture, viticulture, tourism and mining. The mix of economies presents not only unique challenges but also diverse opportunities for MWRC and the local community.

There are currently four mining operations located within the MWRC LGA (**Table 2**) (**Figure 2**): Moolarben Coal Mine (Yancoal); Ulan Coal Mine (Glencore); Wilpinjong Mine (Peabody Energy); and Charbon (Centennial Coal). The first two mines are located nearby the village of Ulan and Wilpinjong Mine is located nearby the village of Wollar. Charbon mine is located immediately south of Kandos and is scheduled to close in 2015. In addition, Airly mine operates just outside the MWRC LGA near the LGA's border, within the Lithgow LGA.

The most recent mine development in the MWRC LGA is Moolarben Coal Mine which commenced operations in 2010. Moolarben Stage 2 received State approval in early 2015 and construction is due to commence in 2015. The Moolarben Coal Mine together with the Ulan and Wilpinjong mines form the largest coal mining complex in the MWRC LGA. The existing mining operations within the MWRC LGA and their proximity to the Project are presented in **Table 2**.

¹⁰ The ERP is considered more accurate than a Census count because it includes adjustments for Census undercount, Australian residents who were temporarily overseas on Census night, and adds in an estimate of any people missed by the Census.

Table 2
Existing Mining Operations in the MWRC LGA

Mine	Development Type	Nearest Residential Area	Distance From Project Site	Peak Operations Workforce
Ulan Mine Complex	Existing open cut and underground coal mine	Ulan	53 km	965 ¹
Charbon	Existing open cut and underground coal mine (due for closure in 2015)	Kandos	62 km	40 ²
Moolarben	Existing open cut and underground coal mine	Ulan	53 km	275 ³
Wilpinjong	Existing open cut coal mine	Wollar	38 km	550 ⁴

Notes:

1. Glencore 2014
2. MWRC 2014, pers.comm., 4 December
3. Moolarben Coal Operations Pty Ltd 2015 (December 2014 Employee Statistics)
4. Resource Strategies, 2014

There are also a number of new mines and expansions proposed in the MWRC LGA. The anticipated timing and personnel requirements for projects approved and projects in the advanced approval stages within the MWRC LGA is presented in **Table 3**.

Table 3
Proposed Timing of Mining Projects in the MWRC LGA

Mine	Development Type	Status	Estimated Start Date	Nearest Centre	Distance From Project	Peak Operations Workforce
Moolarben	Mine expansion ¹	Approved	2015	Ulan	53 km	450 ²
Wilpinjong	Coal mine expansion ³	SEAR's issued	2016+	Wollar	38 km	625 ²
Bowdens Silver Mine	New silver mine	Director General's Requirements Issued	2016+	Lue	67 km	200
Cobbora ⁴	New coal mine	Approved	NA	Cobbora	70 km	400
Mt Penny	New coal mine	Withdrawn	NA	Bylong	NA	NA

Source: HillPDA 2014, NSW Department of Planning and Infrastructure (DP&I) 2014

Notes:

1. Moolarben Stage 2 which received State approval in February 2015.
2. Total of mine workforce (existing and additional)
3. Wilpinjong Extension Project.
4. The NSW Government has placed the project on hold (December 2014) and is now considering options for the mine.

The MWRC LGA has undergone strong population growth over the past five years, primarily as a result of the expansion of the local coal mining industry (**Section 6.2.3**). Average household incomes have risen substantially as has the number of families living in Mudgee (HillPDA 2014) (**Section 7.2.5**). The development of the mining industry in the MWRC LGA has provided the LGA with income, investment, employment and infrastructure opportunities. However, mining expansion and growth over the past five years has impacted (directly and indirectly) on the provision of infrastructure and services in the region (Manidis Roberts 2012 and MWRC 2014, pers.comm., 4 December). Significant difficulties have been experienced by the private and public sector in the timely delivery of social infrastructure and services e.g. children's services and health related services (**Section 10**). This can be attributed in part to the rapid speed at which population increase occurred between 2010-2012 in the MWRC LGA, particularly Mudgee (MWRC 2014, pers.comm., 4 December).

Mudgee Township

The closest regional centre to the Project is Mudgee. The town of Mudgee is a key population base in the MWRC LGA servicing the existing agricultural, viticulture and tourism industry, and more recently the mining industry. The town's role as a regional centre and the broad range of amenities and social infrastructure located in the town has resulted in Mudgee attracting most of the LGA's new residents (HillPDA 2014). In 2011 the ERP of Mudgee was 11,421 persons (ABS 2012a). The town centre retains the feeling of a traditional regional rural township. Currently, no mining activity is undertaken within immediate proximity of Mudgee.

Over the past five years Mudgee has experienced strong population growth and significant demand for housing as a result of growth in the mining sector. This has in turn impacted housing availability and affordability across the MWRC LGA, in particular Mudgee. The rate of population growth experienced in Mudgee during this period was unanticipated and the MWRC acknowledges it was unprepared for the flow-on impacts (MWRC 2014, pers. comm., 4 December). However, over the past three years the MWRC has identified a number of strategies and actions which are aimed at ensuring the LGA can respond to the demands of any future population growth. These strategies and actions are described in **Section 2.3.2**.

2.2.3 Lithgow - Mudgee Region

The Project is located in the Lithgow-Mudgee Region within the NSW Central West Region. The Lithgow-Mudgee Region includes the Lithgow LGA, MWRC LGA and parts of the Warrumbungle, Wellington and Singleton LGAs. The Lithgow-Mudgee Region borders the Upper and Lower Hunter Regions, which have both experienced significant growth over the past 10 years due to the expansion in the mining industry.

The Lithgow-Mudgee Region, particularly the Lithgow LGA, has a strong history of mining. The Lithgow LGA lies in the centre of the Western Coalfields area. There are currently more than 15 operating mines in the Lithgow-Mudgee Region and more than 30 in the adjoining Upper and Lower Hunter Regions combined (NSW Mining, 2013).

The Lithgow Mudgee Region and the NSW Central West Region are defined in ABS statistical geography as the Lithgow-Mudgee Statistical Area 3 (SA3) and the Central West SA4. The geographical boundary of each Region is illustrated in **Figure 7** and **Figure 8**.

2.3 POLICY AND GOVERNANCE CONTEXT

This section provides an outline of the regional governance issues relevant to understanding the regional context of the Project. It briefly describes the key policies and plans (statutory and non-statutory) relevant to the identification and management of Project socio-economic impacts.

2.3.1 Regional Planning Initiatives

Upper Hunter Strategic Regional Land Use Plan

The Project Boundary falls within the area covered under the Upper Hunter Region Strategic Regional Land Use Plan (SRLUP) (DP&I 2012). The Upper Hunter SRLUP constitutes a state based planning document that recognises the regional impacts of specific social issues as a result of mining and resource development. Further, the SRLUP recommends specific policy responses to these issues.

The SRLUP does not include the MWRC LGA, however it does include part of the LGA known as the Bylong-Wollar-Ulan Corridor which is the subject of significant mining activity. These areas have been included in the SRLUP for the purposes of mapping of strategic agricultural land and identifying the application of the NSW Government Gateway Process only. The Bylong-Wollar-Ulan Corridor will ultimately be incorporated into the Central West SRLUP, which will address broader land use issues relating to mining in the corridor. The relevant requirements of the Upper Hunter SRLUP have been addressed in the *Bylong Coal Project Rehabilitation Strategy and BSAL Reinstatement Strategy* (SLR Consulting, 2015a) (EIS Rehabilitation Strategy) and in the *Bylong Coal Project Agricultural Impact Statement* (Scott Barnett & Associates, 2015) (EIS Agricultural Impact Statement).

Central West Regional Action Plan

The *Central West Regional Action Plan* (the Plan) (Department of Premier and Cabinet (DPC) 2012) presents the regional priorities and actions through to 2021 for the Central West Region. The Plan aligns with the NSW Government's 10 year plan to strengthen the State.

The following planning priorities were identified for the region:

- Priority 1 - Support economic growth within the region;
- Priority 2 - Improve regional infrastructure;
- Priority 3 - Support Aboriginal people and communities to develop and implement effective governance structures;
- Priority 4 - Improve education and training opportunities for young people; and
- Priority 5 - Provide integrated and coordinated health and human services and improve community safety.

The Plan addresses the expanding mining sector in the Central West Region and its contribution to the region's economy. Furthermore, the Plan identifies as a Priority Action the need to leverage opportunities for the Central West Region from growth within the mining sector (DPC, 2012). Key actions include:

- Convening a regional taskforce of leaders to report to Government on actions that could maximise the net social and employment benefits from mining growth;
- Building a strong and skilled local workforce and developing a Central West Regional Skills and Education Plan which considers projects from the Central West, Skills and Industry forum; and
- Developing and implementing a SRLUP for the Central West.

Other Regional Planning Initiatives

RDA Orana Regional Plan

The MWRC LGA is located within the Regional Development Australia (RDA) – Orana Region (RDA Orana) (**Figure 8**). The *RDA Orana NSW Regional Plan 2013-2016* (RDA Orana Regional Plan) (RDA Orana 2013) sets out the economic, environmental and social visions for the RDA Orana, identifies key goals and priorities, outlines the strategic direction and describes the actions that will be taken to capitalise on opportunities and address the barriers to economic growth in the RDA.

RDA Orana initiatives fall under the following five key priorities:

- Economic diversification and sustainability;
- Workforce planning and development;
- Business investment;
- Infrastructure; and
- Whole-of-government planning (RDA Orana, 2013);

To date RDA Orana has lead the majority of work around workforce planning and development in the Orana region. Key programs currently being undertaken by RDA Orana to address employment and skill development in the region, relevant to the MWRC LGA include:

- Regional Workforce Planning and Development Strategy (Regional Workforce Strategy), to ensure the region has the skills to meet the demands of the future;
- Establishment of the Orana Workforce Planning and Development Stakeholder Reference Group, to guide the development of the Regional Workforce Strategy; and
- Regional Relocation Project, to drive economic growth in the region by addressing existing and future skills gaps.

2.3.2 Local Government

The MWRC has prepared a number of policies and documents relating to land use, social planning and economic development over the previous 10 years, some in response to legislative requirements (e.g. Community and Strategic Plans and Section 94 Plans) and some as strategic policies to inform and guide the future development of the LGA. These documents:

- Form a significant 'body of knowledge' about the SIA Study Area;
- Contain information sourced from recent consultations with the community;
- Provide a clear picture of the intended future of the MWRC LGA; and
- Outline the responses of the MWRC to the cumulative impacts of growth in the mining and resource sectors.

The policies, strategies and environmental planning instruments prepared by the MWRC that are relevant to this SIA are summarised in **Table 4**. The plans, policies and strategies of the MWRC do not have regulatory application to the Project as the Project is a State Significant Project. The identification, assessment and management of Project socio-economic impacts acknowledges and supports, where relevant, the goals of the various policies, plans and strategies.

**Table 4
Other Relevant MWRC LGA Policies and Strategies**

Policy/Plan	Purpose and Relevance to Project
Mid-Western Regional Local Environmental Plan 2012 (MWRC, 2012a) (MWRC LEP 2012)	The MWRC LEP 2012 describes the land use planning provisions for the MWRC LGA.
Mid-Western Regional Comprehensive Land Use Strategy 2010 (Parsons Brinckerhoff, 2010) (Land Use Strategy)	The Land Use Strategy provides clear direction on future land use changes in the MWRC LGA for the 15 to 20 year period from 2010. The Land Use Strategy underpins the existing MWRC LEP 2012.
Mid-Western Regional Development Control Plan 2013 (MWRC, 2013a) (DCP 2013)	<p>DCP 2013 guides land use development in the MWRC LGA, complementing and providing further detail to the provisions of the MWRC LEP 2012. The aims of the DCP 2013 are to:</p> <ul style="list-style-type: none"> • Define development standards that deliver the outcomes desired by the community and Council; • Provide clear and concise development guidelines for various forms of development; • Encourage innovation in design and development by not over-specifying development controls; • Expedite development approvals by providing clear direction of Council's intent and criteria; and • Provide certainty of development outcomes for developers and the community. <p>Of particular relevance to the Project is Section 6.2 which gives provisions for temporary workers accommodation developments.</p>
Mudgee and Gulgong Urban Release Strategy (URS) December 2014 (HiIPDA, 2014) (Mudgee-Gulgong URS)	<p>The Mudgee-Gulgong URS presents a strategy for urban land releases for the next 20 years in the urban centres of Mudgee and Gulgong.</p> <p>The MWRC LGA has experienced significant pressure from strong population growth mainly as a result of the local coal mining industry. In 2014 the MWRC identified a need to prepare an urban release strategy for Mudgee and Gulgong to guide future decisions about the timing, location and type of future residential development over the next 20 years to ensure the housing pressures experienced during the mining boom of 2010-2012 were not repeated.</p> <p>The recommendations contained in the Mudgee-Gulgong URS pertaining to future housing development in Mudgee and Gulgong will supersede those contained in the Land Use Strategy. The findings of the Mudgee-Gulgong URS, particularly the estimates of residential population growth have been utilised in the prediction of Project housing related impacts.</p>

Bylong Coal Project
Social Impact Assessment
for WorleyParsons Services Pty Ltd

2 July 2015
Page 16

Policy/Plan	Purpose and Relevance to Project
MWRC Towards 2030 Community Plan (MWRC, 2013b) (Community Plan)	The Community Plan is MWRC's highest level strategic plan. The Community Plan determines the services and projects that the MWRC will focus on in the next 15 years by setting goals, strategies, and actions (within the next 1-4 years) under various themes. The practical implementation of the directions within the Community Plan are realised through a Resourcing Strategy including Long Term Financial Plan, Workforce Strategy and Asset Management Planning. A Delivery Program, Operation Plan and Annual Report complete MWRC's reporting framework.
MWRC Section 94a Development Contributions Plan (DCP) 2005 – 2021 (Andrews Neil Pty Ltd 2007) Section 94 DCP 2005 - 2021 (Andrews Neil Pty Ltd 2014).	These DCPs document the future provision of a range of facilities that are expected to be required as a result of future residential, commercial, retail, industrial and tourist development. The geographic catchments that they relate to, and for which development contribution rates are documented, are Mudgee Town Centre, Mudgee Residential, Gulgong and 'All other areas' (which would include the Project site and the nearby towns of Rylstone and Kandos).
Development Servicing Plans(DSPs) for Mid-Western Regional Council Water Supply and Sewerage 2008	The DSPs set out the future provision of water supply and sewerage facilities to the MWRC LGA and detail the contribution rates that will be charged to developers for those facilities.
Economic Development Strategy – Mid-Western Region - A 10 Year Plan (MWRC, 2010) (Economic Development Strategy)	The Economic Development Strategy for the MWRC LGA was prepared by MWRC for all of the region's stakeholders including businesses, business and industry associations and government agencies.
Mid-Western Region Local Services Assessment (Manidis Roberts 2012) (Local Services Assessment)	The Local Services Assessment was completed in 2012 and identifies future servicing needs of the MWRC LGA up to the year 2030. It provides a plan to guide decisions around infrastructure investment to 2017.

3 METHODOLOGY

This section outlines the methodology used in this SIA, and describes its relationship to the other technical assessments prepared as part of the Bylong Coal Project EIS.

3.1 KEY PHASES

The methodology for the SIA involved the following key phases:

- Phase 1 - Identification of the SIA Study Area;
- Phase 2 - Baseline profiling;
- Phase 3 - Impact identification and assessment; and
- Phase 4 - Development of management strategies.

A comprehensive stakeholder consultation program was undertaken as an integral part of the EIS process for the Project. The consultation program included consultation with neighbouring landholders, local, state, and Australian government, industry bodies, community groups and other interested parties.

Each key phase of the SIA is discussed in the following sub sections. A brief overview of the EIS consultation process including targeted consultation to inform the SIA is also provided. Further detailed information relating to the EIS consultation process is included in the Volume 1 of the EIS.

3.2 SIA STUDY AREA

The Study Area for the SIA incorporates the 'Project Area', the 'Sub Regional Area' and the 'Regional Area'. These components are defined in **Table 5** and illustrated in **Figures 4, 6 and 7**.

Table 5
SIA Study Area Definition

SIA Study Area Components	Description
Project Area	Defined as the Bylong Valley (Figure 4) including stakeholders who reside within and adjoining the Project Boundary. ¹¹
Sub Regional Area	The Sub Regional Area is defined as the MWRC LGA (Figure 6). The main communities of interest within the MWRC LGA are Bylong, Mudgee, Rylstone and Kandos. Outside of the Project Area, the primary area of influence of the Project is likely to be the town of Mudgee.
Regional Area	Defined as the Lithgow - Mudgee Region (Figure 7) which comprises the entirety of the MWRC and Lithgow LGAs, and portions of the Singleton, Upper Hunter, Wellington and Warrumbungle LGAs ¹² .

The SIA has focussed on the Project Area and Sub Regional Area (MWRC LGA) as these areas are most likely to be impacted by the Project.

3.2.1 Other Geographic Areas

Central West Region

The Lithgow-Mudgee Region forms part of the Central West Region of NSW (**Figure 8**). Statistical data for the SIA Study Area is compared to Central West Region SA4 (Central West Region), which comprises the following LGAs:

- Bland (part of);
- Blayney;
- Bathurst;
- Cabonne;
- Cowra;
- Forbes;
- Lachlan;
- Lithgow;
- MWRC;
- Oberon;
- Orange;
- Parkes;

¹¹ The Breakfast Creek State Suburb (SS) (Breakfast Creek), which includes the Bylong Valley is the smallest ABS geographical area for which statistical data is available. The ABS does not define a geographical area that aligns with the Bylong Valley.

¹² The Lithgow Mudgee is defined in ABS statistical geography as the Lithgow-Mudgee Statistical Area 3 (SA3).

- Singleton (part of);
- Warrumbungle (part of);
- Wellington; and
- Weddin.

Regional Development Australia – Orana NSW

The MWRC LGA is also located within RDA Orana (**Figure 8**). RDA Orana encompasses 13 LGAs, with the major regional towns including Dubbo, Mudgee and Cobar. RDA Orana is primarily referred to in **Section 8** in relation to regional labour market characteristics and regional workforce planning and development.

Local Area

The Local Area is defined as the geographical area within an approximate one hour commute of the Project Boundary. For health and safety reasons the maximum permissible daily commute from the Project to a workers place of residence is one hour. The Local Area is illustrated in **Figure 9** and includes the settlements of Mudgee, Kandos and Rylstone in the MWRC LGA and Sandy Hollow and Denman in the Muswellbrook LGA.

MWRC recently secured Resources for Regions funding to upgrade Wollar Road between the Bylong Valley Way and the township of Wollar (**Section 4.7**). Once this section of road is upgraded the commute time between Mudgee and the Project via Wollar will be less than one hour.

3.3 BASELINE PROFILING

Understanding the local and regional socio-economic setting of the Project was critical to the identification and analysis of potential Project impacts. Baseline profiling was undertaken for the Sub Regional and Regional Study Areas and included the collection and analysis of a comprehensive set of quantitative and qualitative data for a range of social and economic indicators. Furthermore, consultation was undertaken to contextualise the information already collected in order to gain a better understanding of the issues requiring analysis in the SIA. Sub Regional level information was further contextualised by analysing information from the broader regional and state levels. The outcomes of the baseline profiling of the Sub Regional and Regional Study Areas is presented in **Sections 5 to 11**.

A description of the quantitative and qualitative information sources used in this SIA is provided in the following sections.

3.3.1 Quantitative Data Sources

Key sources of quantitative data include:

- ABS data, including (but not limited to) 2006 and 2011 Census data;
- Federal Department of Employment (DE), regional labour market information (DE, 2015a and 2015b);
- Department of Planning and Environment (DP&E) state and regional population projections and household and dwelling projections (DP&E 2014a, 2014b);
- RESIDEX Regional Housing Market Data (RESIDEX, 2015a, 2015b and 2015c);
- DEC school enrolment data; and
- Other quantitative data from the above sources and elsewhere, as referenced in the range of documents published by MWRC.

ABS Census Data

A key source of data for this SIA is the Census data published by the ABS. Data from the 2011 Census is the primary source of data used, while some data from the 2001 and 2006 Census is used where 2011 data was unavailable and/or to demonstrate a trend. In the presentation of any data in this SIA, all care has been taken to ensure that data figures are correct, but in some cases totals may not equal 100% or the appropriate total number due to rounding.

In 2012, the ABS changed the boundaries of data from the Australian Standard Geographical Classification to the Australian Statistical Geography Standard. This has resulted in both terminology changes and boundary changes. These changes have made it difficult to compare 2006 data to 2011 data for some geographical areas particularly areas smaller than LGA. **Table 6** presents a summary of the ABS Census boundaries used in this SIA, and the associated terminology changes between 2006 and 2011 data. Where possible, every effort has been made to use comparable data. In some cases it is not possible to compare data across years. The term “not available” (NA) has been used in relevant tables to denote where 2006 data is not comparable.

Table 6
Geographical Areas Referenced in the SIA

SIA Report Terminology	Corresponding ABS Statistical Boundary		
	2006	Compared to	2011
Breakfast Creek	State Suburb (SS)	Is smaller than	SS
Denman	Urban Centre Locality (UCL)	Is slightly larger than	UCL
Gulgong	UCL	Is larger than	UCL
Kandos	UCL	Is larger than	UCL
Mudgee	UCL	Is significantly smaller than	SA2
Mudgee	UCL	Is much smaller than	UCL
Rylstone	UCL	Is smaller than	UCL
Wollar	SS	Is larger than	SS
Sandy Hollow	SS	Is much larger than	SS
Mid-Western	LGA	Is the same as	LGA
Lithgow-Mudgee Region	Lithgow Statistical Local Area	Is much smaller than	SA3
Central West Region	Statistical Division (SD)	Is equal to	SA4
NSW	NSW	Is equal to	NSW

Figure 10 illustrates the 2011 ABS census boundaries relevant to this SIA.

3.3.2 Qualitative Information

A range of local policies and documents published by the MWRC applicable to the social, economic and land use planning issues analysed in this SIA were reviewed. A range of regional social, economic and land use planning documents prepared, or drafted, by various State government agencies that relate to issues raised in this SIA were also reviewed.

These local and regional planning documents provided a significant amount of information that was sourced from recent community consultation activities. The information presented in these documents was directly relevant to the issues analysed in the SIA. Subsequently, these planning documents are referenced throughout this SIA and are included in **Section 14**.

3.4 IMPACT IDENTIFICATION AND ASSESSMENT

The purpose of impact identification and assessment is to predict and evaluate the significance of any potential impacts of the Project on the communities of the Study Area. These impacts are presented in **Sections 6 to 11**.

3.4.1 Impact Identification

Potential social impacts were identified based on the information collected during baseline profiling and the results of stakeholder consultation, and with consideration of the cumulative impacts from other developments taking place in the SIA Study Area. In identifying the range of impacts the SIA team has also drawn upon experience from similar projects as well as other NSW and QLD case studies/experiences to make assumptions about potential social impacts.

Project layout plans and Project information such as workforce numbers and workforce arrangements were also reviewed in detail and considered in the context of the social setting, in order to assist in identifying key areas of potential impacts. The findings of the following additional EIS technical studies were considered in identifying key areas of socio-economic impact:

- *Historic Heritage Impact Assessment* (AECOM 2015a) (EIS Historic Heritage Report);
- *Aboriginal Archaeology and Cultural Heritage Impact Assessment* (AECOM, 2015) (EIS Aboriginal Archaeology Report);
- *Archaeological Assessment for Historical Burials* (Edward Higginbotham & Associates Pty Ltd 2015) (EIS Archaeological Report);
- *Economic Impact Assessment* (EIS EclA) (Gillespie Economics, 2015) (EIS EclA);
- *Noise and Blasting Impact Assessment* (Pacific Environment Limited, 2015a) (EIS Noise and Blasting Report);
- *Air Quality and Greenhouse Gas Impact Assessment* (Pacific Environment Limited, 2015b) (EIS Air Quality Report);
- *Ecological Impact Assessment* (Cumberland Ecology, 2015) (EIS Ecological Report);
- *Surface Water Impact Assessment* (WRM Water and Environment, 2015) (EIS Surface Water Report);
- *Groundwater Impact Assessment* (Australasian Groundwater and Environmental Consultants Pty Ltd (AGE), 2015) (EIS Groundwater Report);
- EIS Agricultural Impact Statement;
- *Soil, Land Capability and Strategic Agricultural Land Assessment* (SLR Consulting, 2015b) (EIS Soil and Land Capability Report);
- EIS Rehabilitation Strategy;
- *Traffic and Transport Impact Assessment* (Parsons Brinkerhoff, 2015) (EIS Traffic Report); and
- *Visual Impact Assessment* (JVP Visual Planning & Design 2015) (EIS Visual Report).

Potential social impacts of both the construction and operations phase of the Project were identified with a focus on the impacts expected in the Project Area and Sub Regional Study Area.

3.4.2 Impact Assessment

The characteristics of each potential social impact were analysed with reference to the following:

- Desirability – whether the impact is positive, negative or neutral;
- Project or Cumulative – whether the impact is likely to be caused by the Project and/or as a result of cumulative mining resources in the SIA Study Area;
- Project phase – whether the impact is likely to be as a result of the construction and/or operations phase of the Project;
- Geographic extent – the geographical area(s) which the impact will affect (it is noted previously that this SIA focuses on the impacts expected in the Project Area and Sub Regional Study Area);
- Timing and duration – whether the impact is likely to be immediate (either at the beginning of the Project construction or operations phase) or delayed (at certain years of the Project, which has a 25 year horizon); and
- Acceptance - the extent to which the impact is consistent or inconsistent with stakeholder aspirations. This indicator is primarily informed by the findings of SIA consultation.

Sensitivity Analysis

The SIA assesses the potential social impacts of the Project under the following three workforce accommodation scenarios, in which varying proportions of the workforce are accommodated in the WAF and in the Local Area:

- Scenario 1 (base case scenario) – The WAF operates from PY1 to the end of underground construction in approximately PY6.
- Scenario 2 – The WAF operates for Construction Phase 1 (PYs 1 and 2) only.
- Scenario 3 – The WAF operates for the life of the Project and accommodates all non-local hires (NLHs).

This sensitivity analysis is conducted in order to ensure that impacts on either side of the base case scenario are assessed.

A single hiring scenario has been assessed in the SIA and is described in **Section 4.3**. The hiring scenario is considered worst case as it reflects a constrained labour market.

The proportion of local hires in each Project phase is not considered an upper limit and will be varied by KEPCO according to labour market conditions at the respective point in time.

3.5 IMPACT MANAGEMENT

Management measures are presented in **Sections 6 to 11** following the discussion of impacts. A summary of management measures is presented in **Section 12**. The potential impacts identified in the SIA are both positive and negative in nature. Potential positive impacts of the Project may result in positive social changes (for example increased employment, induced economic growth and resident population). In contrast, negative potential impacts of the Project may result in negative social changes (for example increased demand for social services and changes in community identity). Some impacts may be either positive or negative, depending on the impacted communities' differing points of view.

The opportunity therefore exists for the proponent to manage predicted impacts in order to minimise negative impacts and enhance positive impacts.

3.6 EIS PROJECT CONSULTATION

Extensive stakeholder consultation for the Project was undertaken as an integral part of the EIS process and is described in full in the EIS Stakeholder Consultation Section. Stakeholder consultation included:

- Ongoing stakeholder engagement activities undertaken by WorleyParsons and KEPCO, as outlined in the EIS Stakeholder Consultation Section;
- Project consultation, which has been conducted through the development of the EIS, as outlined in the EIS Stakeholder Consultation Section; and
- SIA specific consultation, which has been conducted throughout the development of the EIS.

3.6.1 SIA-Specific Consultation

Overview of Approach

The purpose of the SIA consultation was to:

- Inform the preparation of the socio-economic profile;
- Validate existing socio-economic data relevant to the Study Area;
- Identify local community issues to assist in the prediction of potential socio-economic impacts;
- Identify stakeholder perceived impacts and opportunities of the Project; and
- Identify potential measures to manage impacts specific to Bylong Valley.

A number of different but complementary approaches were used to consult with stakeholders during the SIA consultation stage. These included:

- Individual face-to-face interviews with residents of the Project Area;
- Face-to-face and telephone meetings with MWRC LGA representatives; and
- Telephone discussions with State government agencies and key service providers.

Stakeholder issues and perceived impacts have been considered and assessed in the technical assessments supporting the EIS, including this SIA.

The findings of the consultation process are discussed in the EIS Stakeholder Consultation Section.

Consultation with Stakeholders in the Project Area

Face-to-face interviews were conducted with 29 landholders, property managers and farmhands from 14 properties located in the Bylong Valley during the week commencing 4 August, 2014. All participants in these interviews were current residents of the Bylong Valley. KEPCO owns the majority of land within the Project Boundary. The majority of SIA consultation was conducted with landholders or tenants of properties located outside or immediately adjoining the Project Boundary¹³. SIA consultation was also conducted with past landholders of KEPCO owned land located within the Project Boundary.

The SIA also draws on the findings of the oral histories conducted to inform the EIS Historical Heritage Report completed for the Project. AECOM (2015a) conducted interviews with the following four families from the Bylong Valley:

- Ann and Stuart Andrews (Tarwyn Park property);
- John Mead (Meadsville property);
- Peter Grieve (Arabadoo and Taloooby property); and
- Tony Dunn (Coggan property).

Given the limited quantitative data available for the Bylong Valley, the SIA Consultation and the interviews conducted by AECOM enabled not only a qualitative understanding of the Bylong Valley context, but also provided information and evidence in relation to the declining population in the area and potential causal factors.

¹³ Bylong Valley interview participants represented the vast majority of private landholders located between three and five km's of the Project Boundary.

It is notable that SIA consultation was conducted with the two original and primary landholder families within the Project Boundary. Both families have an established and long-term connection to the Bylong Valley and remain as tenants on KEPCO owned land within the Project Boundary.

All SIA interviews were voluntary, facilitated by Hansen Bailey representatives and were conducted without a proponent representative in attendance.

The findings of the SIA interviews were integral to the prediction and assessment of Project related socio-economic impacts. SIA interviews provided the Project team with a detailed understanding of stakeholder perceptions and concerns. These perceptions were then considered in a range of EIS technical studies not limited to this SIA and the EIS EclA.

Local Government

The MWRC has been engaged in ongoing discussions and consultation throughout the preparation of the EIS. Key issues of ongoing discussion with the MWRC, relevant to the conduct of the SIA have included:

- Content of the Voluntary Planning Agreement (VPA);
- Workforce size;
- Project local hire policy;
- Proposed workforce accommodation strategy; and
- Project workforce transport and logistics.

State Government and Service Providers

Telephone interviews were held with relevant staff from the following NSW Government departments and services:

- NSW Rural Fire Service (RFS);
- NSW Police Service;
- DEC;
- NSW Health;
- NSW Ambulance Service; and
- Mudgee Health Council.

Ongoing discussions have also been conducted with the DEC in relation to the potential relocation of Bylong Upper PS and the management of Project related impacts. Additional information was also received via email from key NSW Government agency staff following the phone interviews.

Table 7 details the service and facility providers consulted for the SIA. Interviews were conducted by phone with these stakeholders to obtain relevant information regarding the status of servicing and available capacity for growth.

Table 7
SIA Consultation conducted with Service and Facility Providers

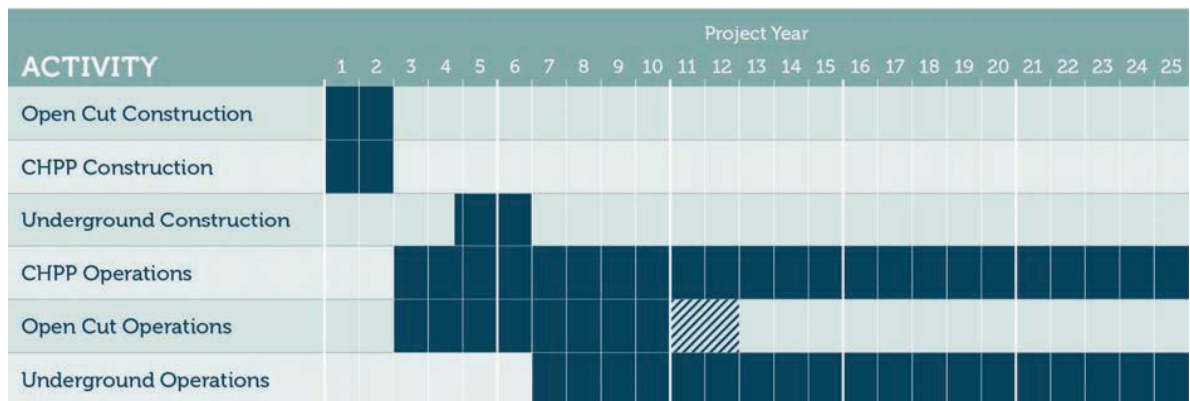
Service and Facility Provider	Discussion Themes
Mudgee Health Council	Health service provision
Medicare Local Western NSW	Health service provision
Various GPs across Kandos, Rylstone and Mudgee	Health service provision
Barnardos – Mudgee	Social housing provision and youth services
Housing Plus NSW	Social housing provision
Mudgee Police Citizens Youth Club (PCYC)	Child and youth services
Rylstone-Kandos Preschool	Children's services
TAFE Western NSW – Mudgee College	Training and skilling programs
Kandos High School (HS)	Education services
Mudgee HS	Education services
St Mathews College Mudgee	Education services
Imaginations Early Learning Centre	Children's services
MWRC Family Day Care	Children's services
Mudgee Preschool	Children's services
State Emergency Service – Dubbo	Emergency service delivery
Cudgong Rural Fire Service	Emergency service delivery
NSW Police – Mudgee and Kandos	Emergency service delivery
Mudgee Tourism Information Centre	Tourist events and short-term accommodation

4 PROJECT SOCIO-ECONOMIC CHARACTERISTICS

4.1 PROJECT SCHEDULE

An indicative schedule for the construction, operations and decommissioning phases of the Project is presented in **Table 8**. The EIS refers to Project Years (PYs), rather than calendar years, with PY1 being the first year of construction. It should be noted that mining schedules are subject to continual revision based on changing mining conditions and timing could vary accordingly. The overall schedule is also subject to the necessary regulatory approvals being obtained by 2016.

Table 8
Indicative Project Schedule



Note: Shading in PYs 11 and 12 denotes decommissioning of open cut operations

4.1.1 Construction Phases

As noted in the above schedule, there are two construction phases for the Project:

- Construction Phase 1 – consisting of construction of surface facilities including the CHPP, rail loop and open cut mining areas. Construction Phase 1 is scheduled to commence in PY1 and continue through to the end of PY2 for a total duration of approximately 24 months; and
- Construction Phase 2 – a second and smaller construction phase involving the construction of the underground mine. Construction Phase 2 will commence at the end of PY4 and continue until PY6 for a total duration of approximately 24 months.

4.1.2 Operations Phase

The operations phase includes open cut and underground operations. The proposed phasing is described below:

- Open cut operations will commence in PY3 and continue until PY12 and will include decommissioning activities during PY11 and PY12, inclusive.
- Underground operations will commence in PY7 and continue until PY25, inclusive.

From PY7 to PY10, both open cut and underground mines will operate concurrently. This is referred to as the dual operations phase.

4.1.3 Decommissioning Phase

Progressive rehabilitation of the open cut will be undertaken, with a final phase of open cut decommissioning occurring in PY11 and PY12.

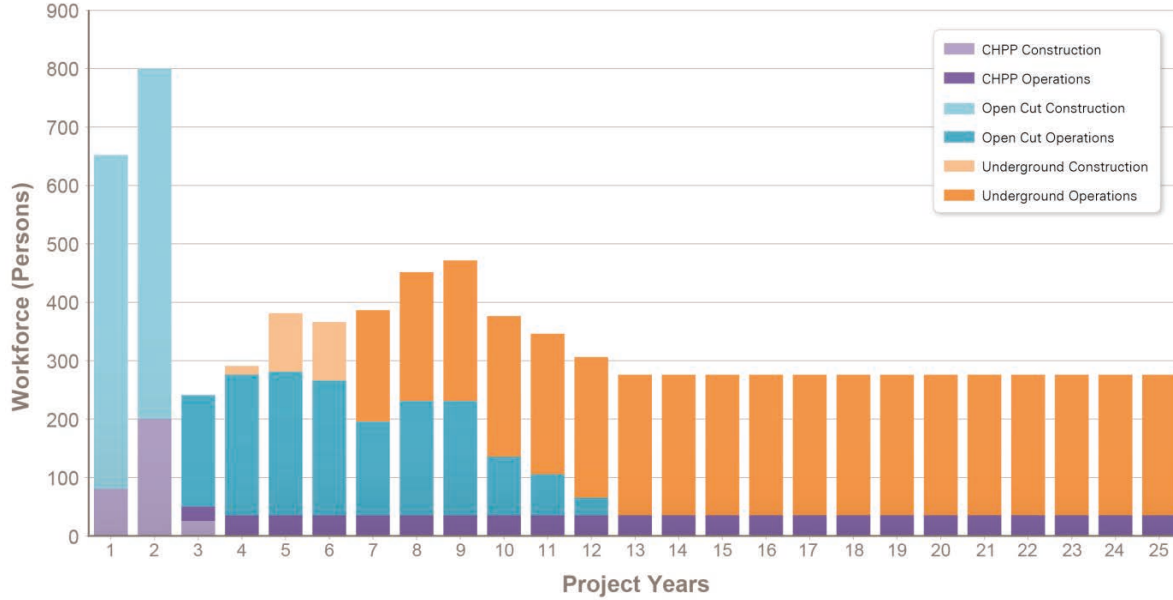
Decommissioning of underground operations will occur from PY25 with the cessation of underground mining activities.

4.2 WORKFORCE DEMAND

Workforce numbers will vary across the different stages of the Project according to need. Figures presented in this section are based on initial Project workforce planning and are subject to change. All workforce numbers referenced are full-time equivalent (FTE) positions.

Graph 1 illustrates the anticipated Project workforce by Project phase. Further detailed information is provided in the following sections.

**Graph 1
Anticipated Peak Workforce, by Project Phase¹**



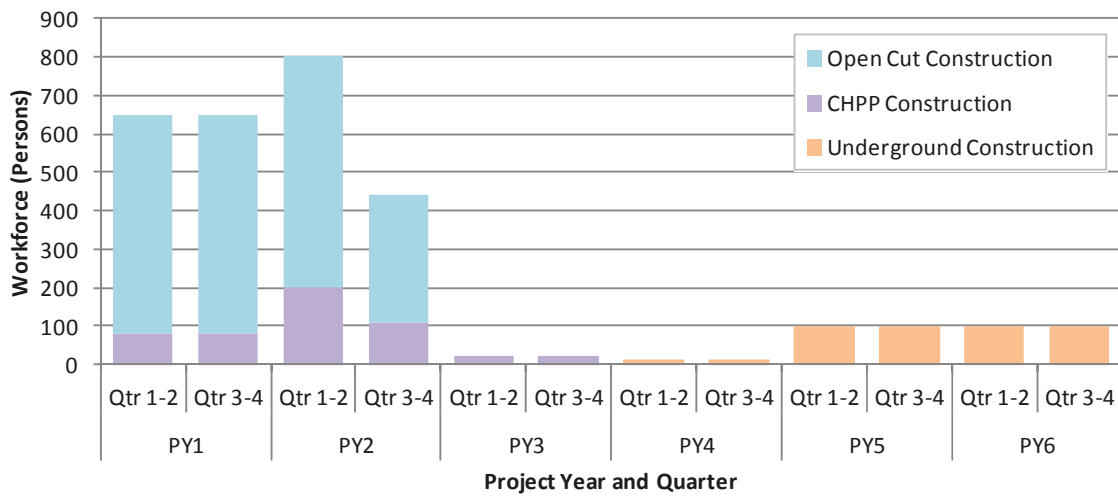
Notes:

1. Annual underground operations workforce data was compiled and averaged PY9-PY25.

4.2.1 Construction Phases

During each construction phase the size of the workforce will rise and fall to adjust to the requirements of the Project. **Graph 2** presents the construction workforce for the Project.

**Graph 2
Anticipated Peak Workforce – Construction Phase 1 and 2**



Construction Phase 1

The peak construction workforce during Construction Phase 1 will be approximately 800 FTE occurring during PY2. However, this peak is anticipated to last for only the first six months of PY2, as the construction phase of the open cut and CHPP winds down and initial development coal is produced.

Construction Phase 2

During Construction Phase 2, the construction workforce is estimated at 100 FTE persons in PY5 and PY6.

The majority of the construction workforce will be contractors. The source of the construction workforce will largely depend on the construction companies selected to complete the work.

4.2.2 Operations Phase

The projected operations workforce will fluctuate over time, reflecting the changes in the mining activities described in **Section 4.1**.

The operations workforce is anticipated to ramp up in parallel with the completion of Construction Phase 1. The peak operations workforce of 470 FTE persons will occur in PY9 and is associated with the dual operations phase. The SIA assesses the socio-economic impacts of the peak operations workforce associated with the dual operations phase.

Following the completion of open cut operations (including decommissioning activities) in approximately PY12, underground only operations will continue until PY25. During this underground-only phase, the average annual operations workforce will be approximately 275 FTE persons consisting of 35 CHPP operators and 240 underground operation workers. The underground workforce of 275 persons is stable for approximately 17 years (PY9-PY25). This figure of 275 FTE persons is used as the basis for predicting the impacts of the underground-only operations throughout the SIA.

The Operations Phase workforce will consist almost entirely of direct employees, supplemented by contract personnel as required.

4.3 WORKFORCE RECRUITMENT

The required workforce will be sourced through a range of recruitment processes, including local and national recruitment, apprentice, trainee and graduate programs and contract labour. A definitive strategy for recruitment of the workforce will be developed once an assessment of potential contractor capabilities has been undertaken. A Local Content Plan, which will include an assessment of local contractor capabilities, is currently under preparation for the Project.

4.3.1 Workforce Hiring Scenario

A local hire is defined as any person who resides within a one hour commute of the Project, which is here-in defined as the ‘Local Area’ (Figure 9).

The Construction Phase 1 workforce is predicted to comprise of approximately 10% local hires and 90% NLHs due to the size of the available labour force in the ‘Local Area’.

The Construction Phase 2 workforce is predicted to be 100% NLHs due to the specialist and short-term nature of underground mine construction activities. Labour market dynamics in the SIA Study Area are described in Section 8.

The Operations Phase workforce is predicted to be comprised of 15% local hires and 85% NLHs. The lead time available in the period prior to underground operations commencing coupled with a commitment from KEPCO to support key stakeholders in the provision of local education, training and skill development opportunities will potentially increase the number of local hires over time as underground mining progresses.

Table 9 and Table 10 show the total number of local hires and NLHs for key Project years by Project phase.

**Table 9
Total Local Hires and NLHs by Project Year - Construction Phases**

	PY1	PY2	PY5	PY6
Local Hire	65	80	0	0
NLHs	585	720	100	100
Total Workforce	650	800	100	100

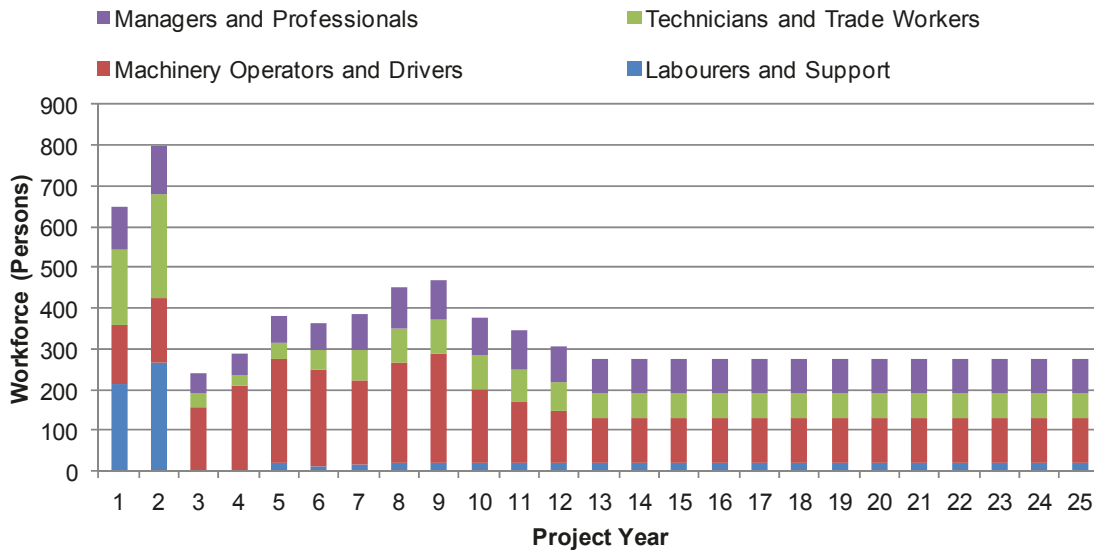
**Table 10
Total Local Hires and NLHs by Project Year - Operations Phase**

	PY3	PY9	PY13
Local Hire	32	70	41
NLHs	183	400	234
Total Workforce	215	470	275

4.4 WORKFORCE OCCUPATION

The occupational requirements of the Project workforce will vary according to the phases of mine development and operations. The vocational characteristics of the workforce across the Project life are presented in Table 11.

Table 11
Predicted Project Workforce Vocational Characteristics



During open cut construction the majority of the workforce (61%) will be employed as ‘Labourers and Support’ and ‘Technicians and Trade Workers’. During the open cut mining operations phase more than 50% of the workforce will be employed as ‘Machinery Operators and Drivers’. The demand for ‘Machinery Operators and Drivers’ will reduce following the cessation of open cut mining operations.

4.5 WORKFORCE ROSTER ASSUMPTIONS

Construction activities will be undertaken 24 hours per day, seven days a week for the duration of the construction phase. The final shift rosters for Construction Phases 1 and 2 will be at the discretion of the appointed lead contractor. However, it is anticipated that the construction workforce will operate on a seven day rotating roster for the duration of the construction phases.

A number of different shift patterns will operate during the Operations Phase. The proponent is yet to confirm the dominant roster pattern for the shift production workforce. However the preferred roster will reflect the commute time from Mudgee to the Project, and will be sensitive to Mudgee community values. Managerial, technical and support staff will operate largely on a Monday to Friday roster. As with other mines, the scheduling and determination of rosters and rotations for operations workers will be based on the requirements of the position.

4.6 WORKFORCE ACCOMMODATION

4.6.1 Workforce Accommodation Options

The Project workforce will be accommodated in a combination of:

- Temporary on site 650 bed WAF;
- Existing KEPCO owned housing in the Bylong Valley;
- Private housing in the Local Area (i.e. within a one hour commute of the Project); and
- Short-term accommodation options in the Local Area as necessary.

The following sections describe the accommodation strategy for each phase of the Project.

Worker Accommodation Facility

The WAF will operate from the commencement of Construction Phase 1 (PY1) to the completion of Construction Phase 2 (~PY6). The operation of the WAF is required from the commencement of open cut construction in PY1 for the following reasons:

- The short-term nature of the construction phase combined with the size of the construction workforce has the potential to adversely impact the Mudgee housing market in the absence of a WAF;
- To provide the appropriate risk management strategy for ensuring suitable accommodation is available for its workers throughout this critical phase of the Project; and
- To manage the potential risk of the upgrade to Wollar Road not being completed in the timeframe anticipated due to unforeseen delays. The commute time from the Project to Mudgee in the absence of an upgraded Wollar Road is longer than the Project's health and safety requirements. A maximum one hour daily commute time in each direction is considered acceptable from a health and safety (fatigue) perspective.

The WAF is described in detail in the EIS Project Description Section and briefly described here-in. The WAF will consist of 650 rooms, all of which will be constructed in the initial months of Construction Phase 1 (PY1). Following the completion of Construction Phase 1, 350 rooms in the WAF will be dismantled leaving a 300 room WAF. The 300 room WAF will remain available for use by the Project workforce until the completion of Construction Phase 2 (~PY6).

The base case workforce accommodation scenario assessed in the SIA assumes that the WAF will be used to accommodate the following Project related workforces:

- Majority of NLHs associated with Construction Phase 1;
- A small number of NLHs associated with open cut operations as they transition to permanent housing in the Local Area; and
- All NLHs associated with Construction Phase 2.

Construction of the WAF will occur in the initial months of Construction Phase 1. The WAF has been designed to address social amenity considerations and blend in with Bylong Village.

The WAF is intended to be self-sufficient with regard to communications infrastructure, recreational facilities and security. Security services will be provided onsite, but in the event that a serious crime is committed, local police will be required to attend.

The WAF will be designed to ensure a comfortable living space and access to natural elements. The WAF will include a number of social and recreational facilities to ensure the wellbeing of the workforce, including a wet mess, gym, recreation room, sporting field, barbeque pavilions and laundries.

Existing KEPCO Owned Properties

KEPCO currently owns 27 dwellings on land within, adjoining or in close proximity to the Project Boundary. Of the 27 properties owned by KEPCO:

- Two dwellings have been converted to office space for Project staff;
- One dwellings is uninhabitable due to its current condition; and
- Eight dwellings are located either within the Project Disturbance Boundary or in immediate proximity and are therefore unlikely to be suitable for occupation.

The remaining dwellings (16) are either occupied by tenants or Project staff, or are vacant.

Private Housing and Short-Term Accommodation in the Local Area

Private housing stock and short-term accommodation located within the Local Area will be used to accommodate the remainder of the Project workforce. Private housing stock and short-term accommodation provision in the Local Area is discussed in **Section 9.2**.

4.6.2 EIS Workforce Accommodation Strategy

The following section describes the preferred workforce accommodation scenario for the Project. As discussed in **Section 3.4.1** a sensitivity assessment has been undertaken of the preferred workforce accommodation scenario.

Construction Phase 1

Workforce requirements for Construction Phase 1 will ramp up quickly. Due to the short-term duration of these activities and the high demand for accommodation generated by the workforce, the majority of construction workers will be accommodated at the WAF.

Accommodation for the workforce associated with WAF construction will be provided by the lead contractor in short-term accommodation in Mudgee and/or KEPCO owned houses in the Bylong Valley until the WAF is operational.

The majority of key management personnel associated with construction will reside in either KEPCO owned housing in the Bylong Valley or the WAF.

During the peak period of construction i.e. when the workforce demand is 800 FTE persons in PY2, short-term accommodation in Mudgee will be used to supplement accommodation provided at the WAF. This is anticipated to occur for approximately six months generating demand for approximately 70 units of short-term accommodation (rooms or dwellings) in the Local Area.

The MWRC has received Resources for Regions funding from the State government to upgrade the section of Wollar Road between the Bylong Valley Way and the town of Wollar. Discussions with MWRC indicate that this upgrade will be completed by the end of PY1 reducing the travel time between the Project and Mudgee to less than one hour. Following the completion of the road upgrade it is anticipated that some of the longer-term construction workforce may choose to reside in the town of Mudgee, rather than continue to live at the WAF. However, the base assumption for the purposes of the SIA is that all NLHs (i.e. 90% of the construction workforce) will reside in the WAF.

Construction Phase 2

Construction Phase 2 is scheduled to commence in PY4. For planning purposes it is assumed that 100% of the Construction Phase 2 workforce will be NLHs and all will be accommodated in the WAF. This is due to the short-term nature of the construction phase, the intensity of the construction period (i.e. 24 hour/7 day a week construction), and to avoid placing significant demand on short-term accommodation (hotels, motels and caravan parks) in the Local Area.

Operations Phase

The Project Operations Phase commences in PY3 and extends for 23 years until PY25. The proponent is seeking to encourage all NLHs for Project operations (85% of the workforce) to relocate permanently to the Local Area. The WAF may be used by a small portion of the NLHs to transition to permanent accommodation in the local area.

4.6.3 Assumptions - Workforce Residential Locations

All NLHs associated with the Operations Phase will be encouraged to reside permanently within the Local Area (**Figure 9**).

The Local Area includes the regional centre of Mudgee, the smaller settlements of Kandos and Rylstone within the MWRC LGA and Denman within the Muswellbrook Shire LGA. Each locality in the Local Area offers different opportunities to potential residents - in the choice of:

- Settlement size;
- Housing cost and type;
- Commuting distance;
- Lifestyle;
- Local services and facilities; and
- Employment opportunities for partners.

It is therefore difficult to determine with accuracy the exact number of people who will be settling in any particular location, as a result of the Project. However, the regional centre of Mudgee is likely to attract the majority of the workforce due to the range of housing available, the diversity of services and facilities particularly education and the diversity of employment opportunities available for partners. Consultation with MWRC representatives (MWRC 2014, pers.comm., 5 December) also highlighted development limitations on the smaller centres of Wollar, Lue, Rylstone and Kandos which in the future will limit population growth in these centres.

Table 12 presents the predicted final residential location of all NLHs associated with the Project Operations Phase for PY3, PY9 and PY13. These percentages are considered approximations and are used throughout the remainder of the SIA to assess impacts on population size, housing and service provision.

Table 12
Assumptions Regarding Likely Final Residential Location of NLHs - Operations

Residential Location	% Total NLHs	Total Number of NLHs by Project Year		
		PY3	PY9	PY13
Within MWRC LGA, comprising:	95	174	380	222
<i>Mudgee Township</i>		156	342	200
<i>Bylong Valley</i>		9	19	11
<i>Rest of MWRC LGA</i>		9	19	11
Outside MWRC LGA	5	9	20	12
Total	100	183	400	234

4.7 WORKFORCE TRANSPORT AND LOGISTICS

4.7.1 Construction Phase

During the Construction Phases of the Project all NLHs will commute on a shift roster basis to the WAF. All local hires will commute on a daily basis from their place of residence to the Project. A bus service will operate between the WAF and the Project for shift change over.

4.7.2 Operations Phase

The Operations Phase workforce will commute on a daily basis from their place of residence to the Project. Car-pooling will be encouraged by KEPCO for the commute between Mudgee and the Project for all phases of the Project. KEPCO is currently investigating options to encourage car-pooling.

KEPCO will also investigate the provision of a bus service between Mudgee and the Project for shift change over. KEPCO has engaged in discussions with the MWRC LGA regarding suitable locations for a park and ride facility. However the provision of a bus service will ultimately be determined based on demand.

A 17 km section of Wollar Road between Bylong Valley Way and the Wollar Village is currently unsealed. The Resources for Region funding announcement in February 2015 (Mudgee Guardian 2015a) and discussions with the MWRC have confirmed that this section of road will be upgraded and sealed to enable the Project employees to commute daily between Mudgee and the Project.

5 COMMUNITY ISSUES, VALUES AND ASPIRATIONS

5.1 INTRODUCTION

This section provides a description of community issues, values and aspirations in the Project Area (Bylong Valley) and at the Sub Regional Level (MWRC LGA). This section utilises a number of data sources including:

- Outcomes of interviews conducted with residents of the Bylong Valley, representatives of the MWRC and service providers in the SIA Study Area;
- MWRC Community Plan (MWRC, 2013b); and
- Local, regional and state media.

5.2 BYLONG VALLEY VALUES, ASPIRATIONS AND ISSUES

5.2.1 Bylong Valley Values and Aspirations

SIA consultation was conducted with residents of the Bylong Valley to identify and explore the values and aspirations of the community. A range of economic, social, physical, natural and cultural values were identified by participants in the SIA consultation. **Table 13** provides a summary of the values and assets identified by participants. **Table 13** also provides a cross reference to the relevant section in the SIA (or other EIS technical reports) where potential impacts are discussed. These potential impacts are also discussed throughout the EIS.

Table 13
Summary of Bylong Community Values, 2014

Values	Assets	EIS Section
Economic	<ul style="list-style-type: none"> • Industries of agriculture, dairy farming, equine and tourism. • Productivity of the land in Bylong Valley. • Irrigation opportunities. 	SIA Report Section 7 EIS Agricultural Impact Statement EIS Rehabilitation Strategy
Social	<ul style="list-style-type: none"> • Sense of community (sharing, volunteering, togetherness). • Bylong Mouse Races. • Local cooperation and a willingness to assist. • Friendliness. • Range of skills and expertise in the local community. • Historical connection to the land. • Long term residents with strong connection to the location. 	SIA Report Section 10

Values	Assets	EIS Section
Physical	<ul style="list-style-type: none"> Bylong General Store – “[The] shop is the hub of the community”. Bylong Upper PS. The Bylong Community Hall and recreation area. Remoteness of Bylong Valley but relative connectedness to Rylstone and Mudgee. Heritage elements – homesteads, buildings in Upper Bylong. 	SIA Report Section 10 and Section 11 EIS Historic Heritage Report
Natural	<ul style="list-style-type: none"> The rural setting – “Bylong is beautiful and scenic”. Access to groundwater and groundwater quality. Agricultural land quality. Surface water. Remoteness and peacefulness of the setting – “Unspoilt landscape”. Great Dividing Range Escarpment. Bylong State Forest, Wollemi National Park. 	SIA Report Section 10 EIS Agricultural Impact Statement EIS Noise and Blasting Report EIS Air Quality Report EIS Visual Report EIS Surface Water Report EIS Groundwater Report
Cultural Heritage	<ul style="list-style-type: none"> St Stephen’s Anglican Church and Cemetery, Bylong. Bylong Station. Bylong Upper PS. Bylong Upper Hall. Upper Bylong Post Office and Store. Tarwyn Park House. Bylong Station House. 	EIS Historic Heritage Report

Many participants in SIA consultation spoke of their aspirations for the Bylong Valley with and without mining. The key themes identified were:

- Strong, social and united community - Turn around population decline and restore unity in the community;
- Secure the future of valued infrastructure - Ensure the long term viability of the Upper Bylong PS and Bylong General Store;
- Protect our natural assets, rural lifestyle and rural amenity from the impacts of resource sector growth;
- Work with the local mining industry to ensure local benefits accrue to the Bylong Valley community in the form of increased local resident population, employment, skill development, community development and business procurement;

- Balance mining and landholder interests - Find a balance between mining and preserving the rural character of the Bylong Valley; and
- Improve land productivity - Use the resources of the Proponent to improve land management and productivity throughout the Bylong Valley to improve economic output.

5.2.2 Bylong Valley Issues

Existing Issues

Consultation conducted with residents of the Bylong Valley to inform the SIA identified a number of specific issues of concern to the Bylong Valley community. The main issues of concern to the Bylong Valley community as they relate to the existing environment include:

- Stress and anxiety as a result of uncertainty in relation to:
 - The location, timing and potential impacts of future coal mining in the Bylong Valley; and
 - The potential impact of future coal mining on themselves and their property.
- Population decline and resulting changes in social networks and sense of community. *“Used to have a dance every month, then every six months. Been 20 years since dances stopped at the hall”* (Bylong resident 2014, pers.comm., 4 August). *“Community has been winding down since the 1990s”* (Bylong resident 2014, pers.comm., 4 August);
- Changes in community structure and social networks with the gradual departure of long-term residents;
- Declining social capital due to community fragmentation, attributed to historical exploration compensation arrangements and more recently KEPCO’s property acquisition process. *“Bylong is no longer friendly. Changes to the valley have caused people to change”* (Bylong resident 2014, pers.comm., 4 August);
- Property acquisitions and changes in landownership. *“City influences decreased the population as properties were acquired [historically] and only one manager worked the land”* (Bylong resident 2014, pers.comm., 4 August 2014). *“There is a changing land use in the valley with lifestyle properties taking over”* (Bylong resident 2014, pers.comm., 5 August);
- Potential loss of Bylong Upper PS due to lack of enrolments, attributed to population decline in the Bylong Valley *“Loss of [the local] shop or the school would be [a] negative impact and the community would be gone”* (Bylong resident 2014, pers.comm., 4 August); and
- Maintaining the economic viability of agricultural holdings and retaining property values.

Project Related Issues and Opportunities

When considering the Project and potential changes to the Bylong Valley, participants in SIA consultation identified the following concerns:

- Changes in natural landscape features as a result of the introduction of mining as a land use and the perceived corresponding change in rural character;
- Perceived air quality changes and resulting impacts on rural amenity and health;
- Potential impacts of noise and vibration from blasting on residential amenity;
- Visual impacts and perceived resulting changes to the rural character of the Bylong Valley;
- Property acquisitions and changes in landownership, household occupancy and property development aspirations. *“180 people left Wollar community and it has devastated the town”* (Bylong resident 2014, pers.comm., 5 August);
- Increased traffic on local road networks;
- Perceived changes in accessibility to Bylong as a result of road realignments and the decommissioning of a section of Upper Bylong Road;
- Perceived potential loss of community assets such as the Bylong Upper PS and Bylong Store. *“The store is the focal point of what community is left”* (Bylong resident 2014, pers.comm., 4 August);
- Loss of assets of perceived heritage value to the community e.g. homesteads, Upper Bylong Hall, Upper Bylong Post Office and Store, Tarwyn Park;
- Perceived impacts to groundwater and surface water. *“If the mine ruins the water then the impact will be very negative”* (Bylong resident 2014, pers.comm., 5 August);
- Perceived adverse changes in property values; and
- Potential impacts on future aspirations. *“Living next to a coal mine isn’t conducive to eco-tourism”* (Bylong resident 2014, pers.comm., 5 August).

Residents of Bylong Valley also identified a number of potential opportunities associated with the Project:

- Potential for local employment either directly with the mine or in relation to the operations of the WAF;
- Potential for landholders in the Bylong Valley to establish small businesses on the back of existing rural businesses to provide services to the mine e.g. catering, cleaning or plant hire;
- Population growth, with the Project attracting new residents to the Bylong Valley. Stakeholders perceived that population growth may also secure the long term viability of Bylong Upper PS;
- Potential for improved social capital as a result of population growth and social investment from KEPCO in Bylong Valley;

- Improved land management practices and overall land productivity across the Bylong Valley given KEPCO now owns considerable land holdings in the Bylong Valley. Using a long-term strategic approach may ultimately benefit residents; and
- Having a 'major player' in the Bylong Valley might be beneficial in attracting investment and/or new agricultural based industries and technologies to the area.

These concerns and opportunities are addressed in **Sections 6 – 12** of this SIA.

5.3 REGIONAL ISSUES, VALUES AND OPPORTUNITIES

5.3.1 Regional Issues

Analysis of key regional planning documents and studies (HillPDA, 2014; DEEWR, 2013; MWRC 2013b) highlights a number existing issues and future challenges for the MWRC LGA and the broader SIA Study Area. Many of these challenges and issues have already been experienced in the neighbouring LGAs of Muswellbrook and Singleton and relate largely to resource sector growth and the associated change in physical, social and economic dynamics.

Some of the key issues and challenges for the MWRC LGA include:

- Retaining the existing rural character and 'country feel' of the LGA's towns and villages;
- Enhancing infrastructure (roads, water and waste), housing (diversity, accessibility and affordability) and service provision (children's services, education and health) and improving future planning processes to meet the demands of a growing LGA;
- Ensuring employment and training opportunities for local people, particularly young people;
- Protecting and strengthening the economic diversity of the LGA in the face of significant resource sector growth; and
- Balancing the protection of the natural environment with the region's economic drivers.

The media provides a key source of information on the social context of the LGA, including details about community opinion, political actions, economic and industry development. Analysis of local media¹⁴ was conducted as part of the SIA to identify key issues of relevance in the SIA Study Area. Media articles dating from 2012 to 2015 were reviewed.

¹⁴ The majority of media articles reviewed were sourced from the Mudgee Guardian.

The following key themes have been identified following a review of media:

- Mine approvals and related opposition - Communities of smaller villages in the MWRC LGA such as Wollar and Bylong have been opposed to a number of mine expansions including Wilpinjong Mine, Mt Penny and the Project due to perceived direct and cumulative impacts on the community and the environment.
- Increased housing and accommodation stress in Mudgee - During the most recent period of resource sector growth, Mudgee experienced a significant change in housing market dynamics. During this period there was an increasing level of community concern in relation to housing prices and availability of all types of accommodation in Mudgee. These issues are discussed further in **Section 9**.
- Access to local children's services - The demand for children's services in Mudgee, most notably preschool and early intervention services, is significant and far outstrips the capacity of the existing services. MWRC, education providers and the community are concerned that many children are commencing school without having had the opportunity to attend preschool. These issues are discussed further in **Section 10**.
- Strong demand for employment driven by rapidly expanding coal markets - Several media articles reported on the range of resource sector projects occurring in the MWRC LGA and the benefits for the region in terms of economic growth and employment. More recent media coverage has reported job losses as a result of changes in coal market conditions. These issues are discussed further **Section 7** and **Section 8**.
- Infrastructure - The loss of the regional airline service at Mudgee Airport¹⁵, and the impending closure of a number of rural village schools has been of increasing concern to residents of the MWRC LGA. These issues are discussed further in **Section 11**.
- Economic vitality - The slow-down in the mining industry across NSW and the corresponding reduction in both mining sector employment and local spend appears to be of increasing concern to a number of stakeholders, particularly small business operators in mining regions such as MWRC LGA and Muswellbrook LGA. These issues are discussed in **Section 7**.

5.3.2 Regional Values and Aspirations

The most recent information relating to the values of importance to the communities of the MWRC LGA is contained in the MWRC Community Plan (MWRC 2013b). The MWRC Community Plan sets out the community's vision for the future. The MWRC Community Plan was prepared following consultation with more than 3,600 people in 2011 and 2013.

¹⁵ As at June 2015 the air service has been reinstated. Air Pelican now fly between Mudgee and Sydney.

The findings of the 2011 consultation conducted to inform the MWRC Community Plan indicate that the community values the following key attributes:

- The “country town feel” with historical linkages to the area;
- Maintaining and improving the road networks;
- A strong focus on health services and facilities;
- Emphasis on youth services;
- The development of additional pre-school and education facilities; and
- Working towards achieving a balance between our natural environment and our economic drivers.

Table 14 presents:

- A summary of the values and expectations of communities in the MWRC LGA as identified through consultation to inform the Community Plan; and
- A summary of the opportunities identified in the Community Plan to achieve the goals identified by the community.

Table 14
Issues, Values, Expectations and Opportunities, MWRC LGA

Community Values and Expectations	Community Plan Response
<p><i>Vibrant towns and villages with a rich history, a safe and healthy community, and a strong sense of community pride – a great place for families.</i></p>	<ul style="list-style-type: none"> • Maintain community services; • Lobby for effective health services in the MWRC LGA; • Support networks and programs that promote health and wellbeing; • Respect and enhance heritage value of our towns; • Manage growth pressure driven by the increase in mining operations; • Make available diverse, sustainable, adaptable and affordable housing options through effective land use planning; • Maintain and promote the aesthetic appeal of the towns and villages within the MWRC LGA; • Provide infrastructure and services to cater for the current and future needs of our community; • Support programs which strengthen the relationships between the range of community groups; • Support arts and cultural development across the MWRC LGA; and • Provide equitable access to a range of places and spaces for all in the community.

Community Values and Expectations	Community Plan Response
<i>Conserving and promoting the natural beauty of our region.</i>	<ul style="list-style-type: none"> • Minimise the impact of mining and other development on the environment, both natural and built; • Maintain and manage water quantity and quality; and • Protect and improve catchments across the MWRC LGA by supporting Catchment Management Authorities.
<i>A prosperous and diversified economy delivering lifestyle benefits to the community through employment, income and sustainable economic growth.</i>	<ul style="list-style-type: none"> • Support the attraction and retention of a diverse range of businesses and industries; • Encourage the development of a skilled and flexible workforce to satisfy local industry and business requirements; • Promote the MWRC LGA as a great place to live, work, invest and visit; • Provide leadership on economic development initiatives and identify resources and infrastructure required to drive investment and economic growth in the MWRC LGA; • Support the expansion of essential infrastructure and services (education, health) to match business and industry development in the MWRC LGA; • Develop tools that simplify development processes and encourage high quality commercial and residential development; • Support projects that create new jobs in the MWRC LGA and help to build a diverse and multi-skilled workforce; and • Build strong linkages with institutions providing education, training and employment pathways in the MWRC LGA.
<i>Linking our towns and villages and connecting our region to the rest of NSW.</i>	<ul style="list-style-type: none"> • Provide traffic management solutions that promote safer local roads and minimise traffic congestion; • Provide a road network that balances asset conditions with available resource and community needs; • Develop and enhance walking and cycling networks across the MWRC LGA; • Develop a regional transport network, in partnership with other relevant government agencies, that grows with the needs of business and industry; and • Create a communication network that services the needs of our residents and businesses.

Source: MWRC, 2013b

The MWRC Annual Report 2012-2013 (MWRC, 2014a) highlights the following key priority areas for which Council is working on solutions:

- Access to doctors and upgrades to health infrastructure;
- Investment in local tourism facilities and maintaining diverse economies; and
- Continued improvement to local roads to meet the needs of increased traffic volumes.

The SIA considers the potential impacts of the Project on the community values and expectations identified in **Table 14** and seeks, where possible, to enhance the opportunities identified.

6 POPULATION AND DEMOGRAPHICS

6.1 INTRODUCTION

This section presents the population and demographic profile of the SIA Study Area. It provides an analysis of the potential impacts of the Project on population and demography in the SIA Study Area and identifies management mechanisms. Presentation and analysis of ABS 2006 and 2011 Census data for the SIA Study Area is a key component of this section. Where possible, changes over time have been measured, but as mentioned previously, this has not always been possible due to ABS boundary changes between the 2006 and 2011 Census periods.

6.2 SETTING

6.2.1 Census Population

The MWRC LGA had a population of 22,318 in 2011 (ABS, 2012a).

The 2011 census populations for key statistical areas within and adjoining the SIA Study Area are presented in **Table 15** and **Table 16**. The location of key statistical areas and settlements is shown on **Figure 3** to **Figure 6**.

Table 15
Census Populations - Sub Regional and Regional Study Area

ABS Census Geographic Area	2011 Census Population	2011 Estimated Population of Village Area ¹
Lithgow-Mudgee Region	43,919	NA
MWRC LGA	22,318	NA
Breakfast Creek SS	273	NA
Bylong Valley	NA	100
Bylong Village	NA	5
Gulgong UCL	1,866	NA
Kandos UCL	1,284	NA
Lue SS	456	NA
Lue Village	NA	72
Mudgee SA2	10,483	NA
Rylstone UCL	624	NA
Wollar SS	260	NA

ABS Census Geographic Area	2011 Census Population	2011 Estimated Population of Village Area ¹
Wollar Village	NA	37
Ulan Village	NA	3
Lithgow LGA	20,160	NA

Source: ABS 2012a

Note:

1. Population based on place of usual residence and generated through analysis of ABS Mesh Block Counts applicable to each village area

Table 16
Census Populations - Other Geographic Areas

Census Geographic Area	2011 Census Population	2011 Estimated Population of Village Area ¹
Muswellbrook LGA	15,791	NA
Denman SS	1,403	NA
Sandy Hollow SS	401	NA
Sandy Hollow Village	NA	175
Central West Region	196,742	NA
Orana RDA ²	121,882	NA

Source: ABS 2012a

Note:

1. Population based on place of place of usual residence and generated through analysis of ABS Mesh Block Counts applicable to each village area
2. Orana RDA is not an ABS Census statistical geographical area. The population is drawn from RDA Orana NSW (n.d.)

6.2.2 Estimated Resident Population

The ERP for the SIA Study Area and the Central West Region is presented in **Table 17**. The most recent data available is for 2013. In 2013 Mudgee and the MWRC LGA accounted for almost 25% and 50% respectively of the Lithgow-Mudgee Region population.

Table 17
SIA Study Area ERP, 2013

Census Geographic Area	ERP in 2013
Lithgow-Mudgee Region	46,452
MWRC LGA	23,843
Mudgee SA2	11,421
Central West Region	207,810

Source: ABS 2014a

6.2.3 Historical Population Growth

Census data for the Regional and Sub Regional Study areas (including key towns and villages) from the Census years of 2001, 2006 and 2011 are presented in **Table 18**. Care should be taken when interpreting trends in the data in **Table 18** due to the 2011 ABS boundary changes (**Section 3.3**). Notable trends in **Table 18** include:

- Significant population growth in Mudgee between 2006 and 2011, with a population growth rate of over 10%. This growth rate is significant given that during the period 2001-2006 Mudgee population declined. HillPDA (2014) attributes this population growth to new mining activity in the MWRC LGA and preference of new residents to reside in Mudgee over Gulgong or other communities in the LGA. Population growth shown in Table 18 may also be attributed to ABS boundary changes which resulted in an increase in the spatial area covered by the Mudgee UCL and Mudgee SA2.
- Population decline in Kandos, likely due to the closure of Kandos Cement Works in 2011 and reduced production at the nearby Charbon mine with resulting loss of jobs. Many employees of the Kandos Cement Works and Charbon mine resided in Kandos.
- Population decline of 1.1% (241) people in the MWRC LGA between 2001 and 2006. However between 2006 and 2011 the LGA experienced a population growth rate of 5.7% slightly higher than across NSW.

Table 18
Population Change 2001-2011

Census Geographic Area	Census Population ¹			Change (%)	
	2001	2006	2011	2001-2006	2006-2011
Breakfast Creek SS	NA	230	273	NA	18.7
Rylstone UCL	NA	615	624	NA	1.5
Kandos UCL	NA	1,306	1,284	NA	-1.7
Mudgee ¹	8,930	8,726	9,830	-2.3	12.7
MWRC LGA	21,357	21,116	22,318	-1.1	5.7
Lithgow-Mudgee Region	42,404	42,181	43,488	-0.5	3.1
Central West Region	189,094	188,832	196,778	-0.1	4.2
NSW	6,311,168	6,549,177	6,917,658	3.8	5.6

Source: ABS 2012b

Note:

1. Figures in this table may differ from that in **Table 15**, as **Table 15** sources population 'based on place of usual residence', while **Table 18** sources Census Time Series Profiles (ABS 2014), which only use population 'based on place of enumeration'.

2. Mudgee census populations are drawn from HillPDA (2014)

Bylong Valley

The Project is located within the Breakfast Creek SS, which has a very small population. The population growth trends for Breakfast Creek SS presented in **Table 18** can be attributed in part to the change in ABS statistical geography boundaries as described in **Section 3.3**. These figures should therefore be relied upon sparingly.

It is not possible to accurately assess population growth in the village of Bylong and the broader Bylong Valley due to the spatial scale of existing quantitative data sources. During EIS consultation, residents of the Bylong Valley reported steady population decline in the area since the early 1980s. This is also evidenced in enrolment numbers at the Bylong Upper PS which in January 2015 was placed in temporary recess by the NSW DEC due to a lack of confirmed enrolments for the 2015 school year (**Section 11.2.1**). The school has not yet been closed.

Participants in SIA consultation (**Section 3.6.1**) attributed population decline in the Bylong Valley to a number of factors including:

- Consolidation of small landholdings into single large landholdings with a Property Manager, resulting in the loss of families (landholders) and farm hands;
- Challenging economic conditions particularly in the agricultural industry resulting in changing property management dynamics and a decrease in demand for farm labour;
- Changing family dynamics and associated lifestyle needs e.g. families with teenagers departing Bylong Valley in search of secondary schooling options;
- The completion of the construction phase of Sandy Hollow to Gulgong railway line; and
- A general trend of population decline across rural Australia.

The declining population in the Bylong Valley follows a significant trend across regional NSW and Australia of small towns experiencing decreasing populations as residents gravitate towards larger centres (The Australian 2013a). Demographer Bernard Salt describes these regional centres as “sponge cities”, which soak up populations from nearby small towns with the lure of increased health, education and transport services (The Australian 2013b).

Based on ABS data, population decline in small towns appears to increase with the remoteness of the town. The Project is located in an “Outer Regional” area according to ABS classifications. Between 2004 and 2014 the population of the Outer Regional areas of NSW increased by only 1.7% compared to an increase of 15.0% in Major Cities of NSW and 10.0% in Inner Regional NSW. Remote areas of NSW experienced a population decline of 4.8% and Very Remote areas a decline of 7.3% (ABS 2015).

Residents of the Bylong Valley who participated in the SIA interviews (**Section 3.6.1**) identified the following features of Bylong Valley as evidence of population decline:

- Reduced enrolment numbers at Bylong Upper PS;
- Reduced participation in village activities;
- Loss of key community events, notably the famed 'Mouse Races';
- Significantly reduced number of volunteers for the Bylong Brigade of the Cudgegong Rural Fire Service; and
- Evidence of vacant properties, particularly those owned by KEPCO.

Historical Population Trends in Bylong Valley

Historically, Bylong and the Bylong Valley have only ever comprised a small population. AECOM (2015) reports that:

"Bylong has generally never comprised more than a few centrally located community buildings and stores which are thought to have developed around the adjacent Tindale property Sunnyside . Prior to the 1880s, Bylong was a district of isolated farmsteads with a small local population and few community facilities."

"According to records for the land district for Rylstone, in 1884, the Bylong district comprised 49 households consisting primarily of farmers and graziers but also tradesmen including a lime burner, carpenter, cabinet maker, builder, storekeepers, hawkers, a chemist and a confectioner (Centenary Booklet Committee, 1984: 12). The tradesmen are likely to have operated their businesses from their homes" (AECOM, 2015a).

The findings of SIA consultation suggest the population of Bylong and the Bylong Valley peaked during the early 1980s with the construction of the Sandy Hollow railway line. During this period a workers camp was constructed in Bylong Valley and Bylong saw an influx of workers and their families who moved away when works ceased. *"The completion of the railway line in the 1980s heralded a slow decline in Bylong's population"* (AECOM, 2015a).

6.2.4 Future Population Growth

Population projections are available from the NSW DP&E (DP&E 2014a); however these projections do not necessarily reflect policy positions of the relevant Council area, nor do they take into account specific local economic circumstances or likely development scenarios such as proposed resource projects in an LGA.

The following section presents the latest population projections for the SIA Study Area from the NSW DP&E and the MWRC.

NSW Department of Planning and Environment Population Projections

The NSW Government release population projections for LGAs in NSW, taking into account findings from the 2011 Census, preliminary ERPs published by the ABS for the period 2006-2011, and the latest data and expertise on fertility, mortality and migration. These projections do not take into account in-migration within NSW and the workforces associated with potential projects such as mining related projects. **Table 19** shows the NSW DP&E population projections to 2031 for the MWRC LGA.

Table 19
NSW DP&E Population Projections for MWRC LGA, 2011 - 2031

Census Geographic Area	2011	2031	Total Change	Total Change (%)	Annual Change (%)
MWRC LGA	23,000	26,100	3,100	13.5	0.6
All NSW Regional LGAs	1,776,600	1,964,100	187,500	10.6	0.5
NSW	7,211,500	9,193,900	1,982,400	27.5	1.2

Source: NSW DP&E 2014a

Table 19 shows an increase in population in the MWRC LGA from 23,000 people in 2011 to 26,100 people in 2031, an increase of 3,100 people or 13.5%, a significantly slower rate of population growth than expected to occur in NSW over the same period.

There are no population forecasts produced by the NSW DP&E specifically for the Bylong Valley. However, the NSW DP&E forecasts that population decline will continue in the MWRC LGA Part B¹⁶, in which the Bylong Valley is located. Between 2011 and 2036, the NSW DP&E forecasts the population of the MWRC LGA Part B to decline by 15%, from 3,500 persons in 2011 to 3,000 in 2036 (2014a).

MWRC Population Projections

MWRC has made assumptions about the likely future mining projects in the LGA and their forecast employment as summarised in **Table 20**. MWRC has prepared its own population projections for Mudgee and Gulgong, taking into account forecast employment associated with these mining projects. These population projections are presented in the Mudgee-Gulgong URS (HillPDA, 2014), and summarised in **Table 21**.

¹⁶ When combined the ABS areas of MWRC LGA Part A and MWRC LGA Part B form the MWRC LGA. MWRC LGA Part B contains the settlements of Rylstone and Kandos. The larger settlements of Mudgee and Gulgong are located within MWRC LGA Part A.

Table 20
MWRC Forecast Employment in New Mines in MWRC LGA

Mine	Estimated Commencement Date	Construction Workers	Operations Workers
Expansion to existing mines			
Moolarben	2015+	282	122
Wilpinjong	2016+	110	0
Proposed mines			
Cobbora ¹	2021+	300	400
Bylong	2017+	1,000 ²	350
Inglenook	2021+	300	250
Bowdens Silver Mine	2016+	300	200
Total		2,292	1,322

Source: HillPDA 2014

Notes:

1. The Cobbora project is currently on hold.
2. EIS peak project workforce is 800 FTE and is associated with PY1 construction.

Table 21 shows the additional population forecast by the MWRC as a result of the employment shown in **Table 20** and the resulting population growth anticipated to occur in Mudgee. The following key assumptions underpin these projections:

- Mudgee will attract 83% of the LGA's population growth over the next 20 years;
- Gulgong will attract 10% of the LGA's population growth over the next 20 years; and
- The rest of MWRC LGA will attract 7% of the population growth (HillPDA, 2014).

Table 21
MWRC Forecast Additional Population, 2011 – 2031

Area	2016	2021	2026	2031
Increase from Mining Activity	376	1,212	1,570	1,283
Estimated Mudgee Population	11,398	12,732	13,464	13,468

Source: Hill PDA 2014

Comparison of NSW Government and MWRC Population Predictions

Table 22 and **Table 23** compare the DP&E population projections and annual growth rates for Mudgee with the MWRC projections.

Table 22
Population Projection Comparisons, 2011-2031

Area	2011		2016		2021		2026		2031	
	LGA	DP&E	LGA	DP&E	LGA	DP&E	LGA	DP&E	LGA	DP&E
Mudgee	10,483	10,483	11,398	11,230	12,732	11,894	13,464	12,558	13,468	13,056

Source: HillPDA 2014

Table 23
Annual Population Growth Rate Comparison, 2011-2031

Area	Actual Population Growth (ABS) (%)			Population Projections (DP&E) (%)		Population Projections (MWRC) (%)	
	1991-2011	2001-2011	2006-2011	2011-2021	2011-2031	2011-2021	2011-2031
Mudgee	1.1	1.0	2.4	0.9	0.8	2.0	1.3

Source: HillPDA 2014

The MWRC projects a 1.3% annual growth rate between 2011 and 2031 and a 22% increase in Mudgee population during this period. In comparison the NSW Government projects a 0.8% annual growth rate between 2011 and 2031 and a 20% increase in Mudgee population during this period. In either scenario, it is likely that the population of Mudgee will exceed 13,000 people by 2031.

6.2.5 Indigenous Population

The size of the Indigenous population in the SIA Study Area and NSW is presented in **Table 24** for the 2006 and 2011 Census. In 2011 there were a total of 870 Indigenous persons in the MWRC LGA, making up 3.9% of the LGA population. The proportion of Indigenous persons in the MWRC LGA was higher than the proportion in NSW (2.5%) at the time of the 2011 Census. Between 2006 and 2011 the size of the Indigenous population in the MWRC LGA increased by 52%. Consultation with MWRC suggests that this increase may be due to a combination of the following factors:

- The presence of mining related employment opportunities in the MWRC LGA during this period;
- A corporate focus by local mining companies on Indigenous employment, education and training opportunities; and
- The high Indigenous population and lack of employment opportunities in neighbouring areas such as Gilgandra Shire and Wellington Council LGAs (MWRC 2015, pers.comm., 7 April).

The proportion of Indigenous persons in the MWRC LGA is smaller than the proportion of Indigenous persons in neighbouring LGAs including Muswellbrook (5.4%), Lithgow (4.5%) and Warrumbungle Shire (9.3%) (ABS 2013a).

Of the areas of interest within the MWRC LGA, Mudgee and Kandos had the largest proportion of Indigenous population. **Table 24** suggests that there has been a significant increase between 2006 and 2011 in the number of Indigenous persons in almost all areas of interest in the SIA Study Area. However, these increases can be attributed to changes in the ABS census geographical boundaries and corresponding changes in population size, not incremental population growth.

No issues specifically relating to the MWRC LGA's Indigenous population were raised during SIA consultation with stakeholders. "*The MWRC LGA does not experience the Indigenous socio-economic issues that are often prevalent in highly populated and urbanised areas.*" (MWRC 2015, pers.comm., 7 April)

Table 24
Indigenous Persons, 2006-2011

Census Geographic Area	2006			2011		
	Indigenous Persons	Total Pop.	% of Total Pop.	Indigenous Persons	Total Pop.	% of Total Pop.
Breakfast Creek SS	3	230	1.3	3	273	1.1
Rylstone UCL	8	615	1.3	18	624	2.9
Kandos UCL	39	1,306	3.0	57	1,284	4.4
Mudgee SA2 ¹	270	8,249	3.3	444	10,483	4.2
MWRC LGA	572	21,086	2.7	870	22,318	3.9
Lithgow-Mudgee Region	NA	NA	NA	1,856	43,919	4.2
NSW	138,506	6,549,177	2.1	172,620	6,917,658	2.5

Source: ABS 2007a, ABS2012a, ABS 2013a,

NA – Not Available

Notes: 1. 2006 data based on UCL

Indigenous Population Age Structure

The age structure of the Indigenous population of the SIA Study Area is presented in **Table 25**. The Indigenous population of the SIA Study Area exhibits similar age structure characteristics as the Indigenous population of NSW.

The Indigenous population of the SIA Study Area is significantly more youthful than the total population of the SIA Study Area (**Table 27**). The SIA Study Area has a significantly high proportion of Indigenous people aged 0-24 years when compared with the total population aged 0-24 years in the SIA Study Area. Mudgee has a higher proportion of children aged 0-4 years and 5-14 years compared to other areas of interest.

Table 25
Age Distribution 2011 – Proportion of Indigenous Persons (%)

Age Cohort	Mudgee SA2	MWRC LGA	Lithgow-Mudgee Region	NSW
0-4 years	16	13	13	12
5-14 years	27	24	24	24
15-19 years	10	12	11	11
20-24 years	9	8	8	8
25-34 years	11	10	11	11
35-44 years	11	11	11	12
45-54 years	9	11	10	10
55-64 years	4	7	7	7
65 years and over	4	4	5	4
Total Indigenous Population	443	870	1,854	172,622

Source: ABS 2012r

6.2.6 Age Structure

Current Age Structure

Table 26 and **Table 27** present key demographic data for the SIA Study Area. Notable age structure trends occurring in the SIA Study Area include:

- A relatively high median age across all areas of the SIA Study Area except Mudgee, compared to NSW;
- A higher median age in Breakfast Creek SS, Rylstone and Kandos than in other areas, indicating an older population. The higher than average median age correlates with the trend outlined below showing a decline in the proportion of younger people and an increase in the proportion of older people in the MWRC LGA;
- A significantly higher proportion of people aged 55 years and older and a significantly lower proportion of persons aged under 15 years in Breakfast Creek SS and Rylstone, compared to other areas;
- A higher proportion of people aged 55 years and older in all areas, except Mudgee, than in NSW; and

- A lower proportion of people aged 20-44 years in all areas, except Mudgee, than in NSW.

Table 26
Median Age 2006 and 2011

Location	Median Age	
	2006	2011
Breakfast Creek SS	49	49
Rylstone UCL	47	49
Kandos UCL	44	45
Mudgee SA2	38	38
MWRC LGA	41	41
Lithgow-Mudgee Region	NA	42
NSW	37	38

Source: ABS 2007a, ABS 2012c, ABS 2013a

Table 27
Age Distribution 2011 – Proportion of Total Persons (%)

Age Cohort	Breakfast Creek SS	Rylstone UCL	Kandos UCL	Mudgee SA2	MWRC LGA	Lithgow-Mudgee Region	NSW
0-4 years	4	5	6	7	7	6	7
5-14 years	13	10	14	14	14	13	13
15-19 years	1	5	6	7	7	6	6
20-24 years	2	4	4	6	5	5	7
25-34 years	7	12	8	12	10	10	14
35-44 years	14	8	12	14	13	13	14
45-54 years	15	15	13	13	14	14	14
55-64 years	19	16	13	10	13	14	12
65-74 years	19	13	15	8	10	11	8
75-84 years	4	8	7	6	6	6	5
85 years +	1	3	3	3	2	2	2
Total Population	275	624	1,284	10,483	22,319	43,920	6,917,658

Source: ABS 2012a

Age Structure Trends

Table 28 presents the population of each five year age cohort in the MWRC LGA over a 10 year period from 2001 to 2011. Table 28 shows that between 2001 and 2011 there was a:

- Significant decrease in the number of people aged 5 to 14 years;
- Significant increase in the number of people aged 55 years and above; and
- A significant increase (45%) in the number of people aged 85 years and over.

Table 28 also shows that the MWRC LGA has retained its working age population (15-64 years) with a sizeable increase in the number of people in the 20-24 age cohort. The age cohort that experienced the greatest increase as a proportion of MWRC LGA’s residents was the 55-74 year age cohort. The size of the retirement age (55 years +) population suggests the MWRC LGA is an attractive retirement location.

Table 28
Age Trends, 2001-2011, MWRC LGA

Age	Census			Difference 2001-2011	
	2001	2006	2011	Number	Percent
0-4 years	1,468	1,284	1,485	17	1.2
5-9 years	1,718	1,457	1,451	-267	-15.5
10-14 years	1,704	1,594	1,464	-240	-14.1
15-19 years	1,349	1,376	1,404	55	4.1
20-24 years	929	885	1,021	92	9.9
25-34 years	1,090	925	1,097	7	0.6
35-44 years	4,636	4,552	4,656	20	0.4
45-54 years	4,503	4,388	4,634	131	2.9
55-64 years	3,678	4,358	4,503	825	22.4
65-74 years	2,517	2,767	3,238	721	28.6
75-84 years	998	1,131	1,262	264	26.5
85 years +	318	381	461	143	45.0
Total Population	21,357	21,115	22,195	838	3.9

Source: ABS 2012c

Projected Age Structure

The NSW DP&E produces projected age distribution for each LGA in NSW. The NSW DP&E projects an aging of the population in MWRC LGA with:

- An increase in the number of people aged over 55 from 7,150 (31.1%) in 2016 to 9,300 (37.7%) in 2031; and
- A slight decrease in the number of children as a proportion of the total population (despite the absolute number remaining the same) from 4,600 (20%) in 2016 to 4,600 (18.62%) in 2031 (DP&E 2014a).

6.2.7 Household Composition

Table 29 shows the 2011 structure of households and families in the SIA Study Area and NSW. Notable trends evident in the data include:

- Kandos, Rylstone and Breakfast Creek SS all recorded higher proportions of lone person households than other areas in the SIA Study Area, reflective of the older population in these localities;
- All communities of interest in the MWRC LGA recorded a lower proportion of family households than NSW;
- Mudgee is the Study Area community with a household composition that most closely reflects that of NSW more broadly; and
- Kandos had a significantly lower proportion of family households and a significantly higher proportion of lone person households compared to all other areas of interest.

Table 29
Household Structure, 2011 - Percentage

Census Geographic Area	Family Households	Lone Person Households	Group Households	Total Households (No)
Breakfast Creek SS	67.8	32.2	0.0	118
Rylstone UCL	65.0	31.9	3.0	263
Kandos UCL	58.8	37.9	3.2	554
Mudgee SA2	69.1	27.7	3.1	3,865
MWRC LGA	70.2	27.2	2.6	8,363
Lithgow-Mudgee Region	68.7	28.8	2.4	16,682
NSW	71.9	24.2	3.8	24,71,295

Source: ABS 2012d

6.2.8 Family Structure

Table 30 presents families by family type for the SIA Study Area as well as NSW and shows that:

- Breakfast Creek SS and Rylstone had significantly higher proportions of couple families with children compared to other locations in the SIA Study Area;
- Kandos had a higher proportion of one parent families than other areas of interest in the SIA Study Area;
- Mudgee had the lowest proportion of couple families with children and the highest proportion of couple families without children in the Sub Regional Study Area, but again was more reflective of the family structure noted more broadly for NSW; and
- The MWRC LGA had a slightly higher proportion of couple families without children than did the Lithgow-Mudgee Region or NSW in 2011 and a correspondingly lower proportion of couple families with children.

Table 30
Families by Type, 2011

Census Geographic Area	Couple Family With Children (%)	Couple Family Without Children (%)	One Parent Family (%)	Other Family (%)	Total Families (No.)
Breakfast Creek SS	61.4	31.3	7.2	0.0	83
Rylstone UCL	50.3	32.7	17.0	0.0	171
Kandos UCL	40.4	34.7	22.8	2.1	334
Mudgee SA2	39.8	42.2	16.8	1.2	2,709
Mid-Western Regional LGA	43.3	40.3	15.2	1.2	5,971
Lithgow-Mudgee Region	42.8	39.3	16.4	1.5	11,657
NSW	36.6	45.5	16.3	1.7	1,829,553

Source: ABS, 2012e

6.3 IMPACT ASSESSMENT AND MANAGEMENT

6.3.1 Overview

Population growth is the single most critical factor in the manifestation of almost all social impacts associated with the Project and a key driver of social change within the Project Area and the Sub Regional Area. The following section:

- Examines the magnitude of population change predicted as a result of the Project;
- Describes the predicted geographical distribution of this population change; and
- Estimates the potential impacts of the anticipated population growth on demographic characteristics of the MWRC LGA and in particular Mudgee.

During SIA interviews held in August 2014, Bylong Valley residents raised a number of concerns in relation to the potential population growth and population movement impacts of the Project, including:

- The current trend of population decline in the Bylong Valley; and
- The impact of Project related property acquisitions on the population of Bylong Valley.

During SIA consultation, representatives of the MWRC LGA also raised concerns about the following issues relating to population growth:

- The timing and geographical distribution of Project induced population growth;
- The size of any anticipated Project induced population growth in Mudgee; and
- The potential for population decline in Bylong Valley.

6.3.2 Construction Phase Population Impacts

Due to the short duration of the Project construction phases, the transient nature of construction work and the proximity of the Project to neighbouring regions with skilled construction workforces e.g. Muswellbrook and Singleton LGAs, it is unlikely that families will accompany construction workers to the Local Area for the Project.

Where construction employees are drawn from neighbouring regions e.g. the Hunter Valley, and the daily commute time between their place of residence and a project site is longer than acceptable driving time, then the employee is likely to reside in the Local Area (either in a WAF or short-term accommodation e.g. hotel) for block shift periods before returning home to their family.

Construction Phase 1

The SIA assesses the impact of the peak construction workforce of 800 FTE (720 NLHs) workers in PY2. The peak workforce is associated with Construction Phase 1.

To understand the potential worst case scenario for population change the following assumptions have been made:

- 10% of the workforce associated with Construction Phase 1 will be local hires residing within a one hour commute of the Project;
- 90% will be NLHs who will temporarily reside as close as possible to the Project i.e. in the WAF; and
- Due to the short-term nature of the construction phase, the families of the NLH workforce will not relocate with the worker.

*Bylong Coal Project
Social Impact Assessment
for WorleyParsons Services Pty Ltd*

*2 July 2015
Page 62*

KEPCO anticipates that the Project will be constructed by a Tier 1 contractor. The Tier 1 contractor will likely employ existing experienced Tier 2 and Tier 3 contractors from the lower and upper Hunter Valley during the construction phase. Given the existing workforces in the region engaged in the construction of other mines, e.g. Moolarben Stage 2, it is anticipated that as these projects near completion, workforces may be redeployed to the Project.

Bylong Valley

Construction Phase 1 is predicted to significantly increase the population size of the Project Area (Bylong Valley). This is because the majority of NLHs (720) associated with Construction Phase 1 will reside in the WAF which is located to the immediate north of Bylong Village (**Figure 3**), and KEPCO owned accommodation in the Bylong Valley. Whilst this impact is predicted to be temporary (for a period of 18 months) the population change does have the potential to give rise to short-term social change in the Bylong Valley. This issue is discussed further in **Section 10**.

Sub Regional Study Area

The percentage of population change that is predicted to occur in the MWRC LGA as a result of the peak construction phase workforce is approximately 3% (**Table 31**). This increase in population will only occur for the first six months of PY2.

Table 31
Population Change - Peak Construction Phase Workforce

Location	ERP (2013)	Estimated Peak Workforce	Estimated Peak Workforce - NLHs	Percentage Change from NLHs
MWRC LGA	23,843	800	720	3.01

Using the average annual workforce of 466 FTE persons for PY2 of Construction Phase 1, the anticipated population increase in the MWRC LGA is less than 2% (**Table 32**).

Table 32
Population Change - Annual Average Workforce PY2 - Construction Phase 1

Location	ERP (2013)	Estimated Annual Average Workforce	Estimated Annual Average Workforce - NLHs	Percentage Change from NLHs
MWRC LGA	23,843	466	419	1.8

Project related consultation indicated only a low level of stakeholder concern in relation to population change associated with the construction phases of the Project. This is likely due in part to the use of a WAF which significantly reduces potential for population change in Mudgee and smaller settlements within the MWRC LGA.

It should also be noted that a number of these construction workers may 'transfer' over into the operations phase workforce, or they could also later become part of the 'cumulative' increase in the regional workforce if they move on to another construction or operational project in the region after the Project is constructed.

Moderate stakeholder concerns were raised in relation to the potential impact of the construction workforce on the private housing and short-term accommodation market in Mudgee. These issues are discussed in **Section 9**.

Construction Phase 2

Construction Phase 2 involves a substantially smaller workforce than Construction Phase 1. To understand the potential for population change the following assumptions have been made:

- 100% of the workforce associated with Construction Phase 2 will be NLHS who will temporarily reside as close as possible to the Project i.e. in the WAF.
- Due to the short-term nature of the construction phase, the families of the NLH workforce will not relocate with the worker.

The population impact of the Construction Phase 2 workforce has been assessed for the following accommodation scenarios:

- Scenario 1 (base case scenario) – The WAF operates from PY1 to the end of underground construction in approximately PY6;
- Scenario 2 – The WAF operates for Construction Phase 1 (PYs 1 and 2) only; and
- Scenario 3 – The WAF operates for the life of the Project and accommodates all non-local hires (NLHs).

Under Workforce Accommodation Scenario 1 and 3, the entire Construction Phase 2 workforce of 100 will be accommodated in the WAF. Construction Phase 2 will have a significantly smaller population impact on the Bylong Valley than Construction Phase 1 and a negligible impact on the population of the broader MWRC LGA.

Under Workforce Accommodation Scenario 2, the WAF will not be operational and as such the entire Construction Phase 2 workforce of 200 FTE people will reside in the Local Area predominantly in Mudgee and to a lesser extent Rylstone and Kandos. Given the size of the Construction Phase 2 workforce, the workforce is anticipated to have a negligible impact on the population of the MWRC LGA. Any impacts will be geographically dispersed according to the residential base locations of the workforce whilst on shift roster. There may be impacts on housing and accommodation. These impacts are described in **Section 9.3**.

6.3.3 Operations Phases Population Impacts

Direct Project Induced Population

Table 33 presents the potential Project induced population associated with the Operations Phase. These population forecasts are based on the annual FTE estimates of NLHs provided in Table 10. The following assumptions underpin the population forecasts:

- The expected final residential location of NLHs as explained in Section 4.6.3;
- The Operations Phase workforce residing in the Bylong Valley and other areas in MWRC LGA will exhibit the same demographic characteristics as the MWRC LGA demographic profile in the ABS 2011 Census;
- The Operations Phase workforce anticipated to reside in Mudgee will exhibit the same demographic characteristics as the Mudgee SA2 in the ABS 2011 Census; and
- Demographic characteristics used to inform the population projections are based on family structure and household type, not occupancy rates. This is to enable predictions of changes in age cohorts.

Table 33
Predicted Population as a Result of Operations Phase Workforce

Expected final Residential Location of NLHs	Predicted Project Induced Population By Project Year		
	3	9	13-23
MWRC LGA ¹	458	1,000	585
Bylong Valley	23	50	29
Mudgee	414	905	529
Other areas in the MWRC LGA	23	50	29

Notes:

1. Totals for MWRC LGA do not equal the total of the following three rows due the Mudgee population being generated based on Mudgee SA2 data.
2. Excludes short-term workforce engaged in open cut mine rehabilitation.

Project induced population growth over the life of the Project, will be most significant in PY3 with the commencement of the Operations Phase. In PY3 up to approximately 460 new residents are anticipated to relocate to MWRC LGA, of which up to approximately 415 are anticipated to reside in Mudgee. This is equivalent to a 3.6% increase in the current ERP of Mudgee and a 1.9% increase in the ERP of MWRC LGA.

Between PY3 and PY9 a further approximately 540 people are anticipated to relocate to the MWRC LGA, of which approximately 490 are predicted to reside in Mudgee. This is equal to a 4.3% increase in the current ERP of Mudgee and a 2.3% increase in the ERP of MWRC LGA.

The cessation of open cut mining in PY12, reduced workforce requirements and the transition of the workforce to underground operations will result in a reduction in the size of Project induced population from PY12. With the cessation of open cut mining in PY12, it is anticipated that the majority of open-cut workforce and their families will seek other mining employment in the MWRC LGA or adjoining LGAs. This may result in the movement of people out of Mudgee and the MWRC LGA. It is difficult to predict with any accuracy the size of the anticipated population movements.

The impact of Project induced population growth on housing and accommodation, labour force, community services and infrastructure etc. is discussed in **Sections 8, 9, 10 and 11**.

Impact on Population Projections

Table 34 shows the direct Project induced population growth against the latest DP&E population projections for Mudgee and MWRC LGA. The DP&E population projections do not take into consideration the workforces associated with major projects planned for the MWRC LGA i.e. those projects listed in **Table 3**.

Table 34
Direct Project Impact on Local and Regional DP&E Population Projections

Area	DP&E			Additional Project Population by Project Year			% Difference Between DP&E Projections and Additional Project Impact		
	2021	2026	2031	6	11	16	2021 (PY6)	2026 (PY11)	2031 (PY16)
Mudgee	11,894	12,558	13,056	509	504	529	4.3	4.0	4.1
MWRC LGA	24,700	25,500	26,100	563	558	585	2.3	2.2	2.2

Source -DP&E 2014a and EIS workforce data

The predicted increase in the Mudgee and MWRC LGA population resulting from the underground only operations phase (PY16) represents a 4.1% and 2.2% change in the DP&E population projections, respectively, for the year 2031.

6.3.4 Population as a result of Flow-On Employment

This section presents estimates of the population that could be expected in the Sub Regional Study Area as a result of flow-on employment from the Project. The flow-on employment estimates discussed below are drawn from the EIS EclA.

Bylong Coal Project
Social Impact Assessment
for WorleyParsons Services Pty Ltd

2 July 2015
Page 66

Construction Phase 1

For Construction Phase 1, an additional 579 jobs are estimated to be generated in the Sub Regional Study Area. The estimate of the flow-on employment associated with Construction Phase 1 was based on annual average FTE workforce for PY1 and PY2 (Gillespie Economics, 2015).

Operations Phase

For the Project Operations Phase, an additional 1206 jobs are estimated to be generated within NSW for the life of the Project, with 540 of these jobs estimated to be generated in the Sub Regional Study Area. The estimate of the flow-on employment in the Operations Phase was based on the average annual FTE workforce from PY3-PY25 (Gillespie Economics, 2015).

It is not possible to provide estimates of the number of local hires and NLHs associated with flow-on employment, as flow-on employment cannot be subject to any employment policies that seek to maximise local employment opportunities in the same way that the policies can be applied by KEPCO to the direct Project workforce.

Table 35 presents for the Project Operations Phase:

- An estimate of flow-on employment;
- The predicted size of the population induced growth associated with Project flow-on employment; and
- The geographical distribution of this population growth, based on the predicted final residential locations of the NLHs associated with the Operations Phase (**Section 4.6.3, Table 12**).

Table 35
Population as a Result of Flow-On Employment in the Sub Regional Area

Location	Percentage of Flow-on Employment	Flow-on Employment	Total Population as a result of Flow-on Employment
Within MWRC LGA	100	540	1,296 ¹
Mudgee	90	486	1,215 ²
Rest of MWRC LGA	10	54	130 ²
Total	100	540 ³	2,641

Notes:

1. Based on an occupancy rate for MWRC LGA
2. Based on the occupancy rate for Mudgee SA2
3. Total figure derived from EIS Economic Impact Assessment

Gillespie Economics (2015) does not distinguish between the flow-on employment effects on the population already living in the SIA Study Area as opposed to the population that will migrate into the SIA Study Area over the life of the Project. Hence **Table 35** cannot provide conclusions as to how much of the flow-on employment and subsequent population is additional to the existing population in the SIA Study Area. It should be appreciated that the estimates provided in this section represent the total flow-on employment over the Project life (23 years of operation).

6.3.5 Population Changes associated with Property Acquisition

Local stakeholders who participated in SIA consultation indicated strong concern that the Project would have a significant impact on the sustainability of the Bylong community. Some stakeholders perceive that property acquisition associated with coal exploration in the Bylong Valley has had a cumulative impact on population decline in the Bylong Valley. This section discusses population changes associated with Project related property acquisition.

Property Acquisition to April 2015

To date KEPCO has purchased the majority of landholdings within the Project Acquisition Boundary. Population movements have already occurred in the Bylong Valley as a result of these purchases. KEPCO currently owns 27 dwellings across 20 properties in the Bylong Valley. Prior to purchase by KEPCO:

- Two of these dwellings were occupied periodically by landholders who resided permanently in Sydney;
- Approximately nine of these dwellings were either not fit for habitation, unoccupied or not permanently occupied at the time of purchase; and
- 16 of these dwellings were permanently occupied.

The total permanent population of the 16 occupied dwellings at the time of purchase by KEPCO was approximately 37 people, the majority of whom were couples without children.

As at April 2015, 21 of the original 37 residents have remained connected with their properties, through either licensing the land, a tenancy agreement or employment with the licensee. All 21 residents will be required to move off site in 2015 and early 2016 under current tenancy agreements. The majority of dwellings on properties purchased to date by KEPCO will be adversely affected by the Project to the point where the properties are no longer suitable for permanent occupancy. Six new residents have moved into the Project Area to work on the Project as employees of KEPCO or WorleyParsons.

This means that there was a net population loss of ten people as a result of the purchase of the properties up to April 2015. This is equal to 10% of the Bylong Valley population (estimated at 100 people in 2014).

Future Property Acquisitions

Three further property acquisitions may be required as a result of the Project's noise and air impacts. This may result in the displacement of a further six people from the Bylong Valley (in addition to the 16 original residents already displaced). Based on the findings of consultation, three of these people may relocate to within Bylong Valley if suitable alternative properties can be identified. The mine plan for the Project has been designed to manage the noise and dust impacts associated with operations as far as practicable.

Whilst the percentage change in population from Project related property acquisition appears significant, it must be considered in the context of the gradual decline in Bylong Valley population as discussed in **Section 6.2.3**. Further, open cut operations are a medium term activity, extending only until PY12. It is realistic to plan for the return of land affected by open cut mining to productive non mining land uses and for the associated arrival of new landholders to manage the land. Further, a loss of current residents from the Bylong Valley will be offset by Project employees moving into the Bylong Valley once the Project Operations Phase commences (**Section 6.3.3**).

6.3.6 Population Changes associated with Mine Closure

Over the longer term, a potential social impact of the Project is the population change associated with mine closure.

KEPCO will conduct a closure-specific SIA five years prior to the end of mine life, as a component of mine closure planning. The conduct of the SIA and associated consultation will enable KEPCO to better understand and manage the impacts on the communities of the MWRC LGA.

6.3.7 Population Demography Impacts

Forecast Change in Gender Structure

Construction Phases 1 and 2

At the 2011 Census, there were 152 males and 121 females resident in the Breakfast Creek SS. Based on the demographic profile of the existing mining industry in NSW, the majority of the workforce for Construction Phases 1 and 2 is anticipated to be male. Hence it can be expected that the number of males residing in the Breakfast Creek SS will increase during Construction Phase 1 as a result of the presence of the WAF outside Bylong Village. Whilst this is a temporary impact occurring for approximately 18 months, it has the potential to adversely impact liveability for those existing residents of Bylong Village and neighbouring landholders. These issues are discussed in **Section 10**.

During Construction Phase 2 occupancy at the WAF will be approximately 100 people, significantly less than during Construction Phase 1.

The magnitude of the impact experienced as a result of Construction Phase 2 is anticipated to be much smaller than Construction Phase 1.

Operations Phase

At the 2011 Census, there were 1,288 people who worked in the mining industry in the MWRC LGA, of which 90% were male (ABS 2012h). Similarly, it is expected that the majority of the Project's operations workforce will be male. The majority of the Operations Phase workforce is anticipated to be employees that bring their families to reside permanently in the MWRC LGA. This will reduce the potential for any noticeable change in gender balance at the Sub Regional level.

Forecast Change in Family Structure

Construction Phases 1 and 2

The Construction Phase 1 and Construction Phase 2 workforces are unlikely to impact family structure in the SIA Study Area as the majority of the construction workforces will be employed as non-resident workers and will not relocate permanently to the Local Area with their families. Rather they will reside in the WAF for block shift rosters.

Operations Phase

An estimate has been made of the number of NLHs associated with PY9 and PY13 who are likely to settle in the Bylong Valley, Mudgee and the MWRC LGA with their families (Table 36). These estimates will assist in determining impacts on a range of community facilities relating to families and young people (Section 11). The estimates for Bylong Valley should be treated with some caution due to the small number of NLHs anticipated to relocate to the area.

Table 36
Estimate of Families in Project Induced Population (PY9 and PY13)

Location	Project NLHs		Families ¹		Couples with Children ²		Single Persons	
	PY9	PY13	PY9	PY13	PY9	PY13	PY9	PY13
Bylong Valley ³	19	11	14	8	10	5	5	3
Mudgee ⁴	342	200	255	149	184	107	87	51
MWRC LGA	380	222	287	168	197	115	93	55

Notes:

1. Includes the following family types: Couple without children; One parent family; Couple with children; and Other family as defined in the 2011 ABS Census.
2. Includes the following family types: One parent family; and Couple with children as defined in the 2011 ABS Census.
3. The number of families predicted to relocate to Bylong Valley and MWRC LGA has been calculated based on the 2011 ABS Census breakdown of families for the MWRC LGA.
4. The number of families predicted to relocate to Mudgee has been calculated based on the 2011 ABS Census breakdown of families for the Mudgee SA2.

The Project is anticipated to attract up to 287 new families to the MWRC LGA by the peak year of operation (PY9) of which:

- Up to 255 are anticipated to reside in Mudgee; and
- Approximately 70% are anticipated to be couples with children, one parent families or other families (as defined by the ABS).

Forecast Change in Age Structure

Construction Phases 1 and 2

The Construction Phase 1 and 2 workforces will have a temporary impact on the median age of the Bylong Valley population and little to no impact on the age structure of the greater MWRC LGA. This is because the workforce associated with Construction Phase 1 and 2 will be employed as non-resident workers and will reside temporarily in the Local Area, at the WAF for block shift rosters.

Operations Phase

Table 37 provides an estimate of the number of young people (0-18 years) who are likely to be part of the population associated with the Project’s NLH operations phase workforce at PY9 and PY13. These estimates will assist in determining impacts on a range of community facilities relating to young people as discussed in **Section 11**.

Table 37
Estimate of People Under 19 Years in the NLH Population, by Project Year

Location	Total Population Associated With NLHs		No of 0-4 year olds		No of 5-12 year olds		No of 13-18 year olds		No of 0-18 year olds	
	PY9	PY13	PY9	PY13	PY9	PY13	PY9	PY13	PY9	PY13
Bylong Valley	50	29	5	3	8	5	6	4	19	11
Mudgee	905	529	95	55	144	84	110	64	349	204
Rest of MWRC LGA	50	29	5	3	8	5	6	4	19	11
MWRC LGA	1000	585	96	56	158	92	122	71	375	220

Notes:

1. Figures for Bylong Valley and MWRC LGA are based on MWRC LGA 2011 ABS Census demographic profile.
2. Figures for Mudgee are based on the Mudgee SA2 2011 ABS Census demographic profile.
3. Population figures for the MWRC LGA reflect the MWRC LGA 2011 ABS Census demographic profile and are not calculated by adding together the figures for Bylong Valley, Mudgee and Rest of MWRC LGA.

The estimates for Bylong Valley should be treated with some caution due to the small number of NLHs anticipated to relocate to the area. The figures have been included to provide an indication of the potential demand for education services into the future and to attempt to quantify population growth. A similar analysis has not been undertaken for the centres of Rylstone and Kandos as these are established centres and the anticipated population increase associated with the Project in these centres is small.

Table 37 shows that in PY9 the Project has the potential to result in up to an additional:

- 19 young people in the Bylong Valley;
- 349 young people in Mudgee; and
- 375 young people in the MWRC LGA.

The number of young people in the Project induced population will reduce significantly by PY13 with the cessation of open cut mining and a corresponding reduction in workforce size. It is anticipated that the majority of open cut workforce and their families will seek alternative employment in the MWRC LGA or adjoining LGAs. This may result in the movement of young people out of Mudgee and the MWRC LGA between PY10 and PY13.

The natural population growth between PY1 and PY25 of the Project will also affect the proportion of young people at PY9 and PY13. More significantly, the cumulative effects of population growth as a result of the increase in workforce from expected mining and resource projects in the Sub Regional Area and Regional Area will have an effect on the population and age structure at that time.

In addition there will be indirect population growth associated with the Project supply chain. The predicted size of this indirect population is described in **Section 6.3.4**.

The population increase expected with the Project may also mean that the median age of the population in various areas decreases over time if a younger workforce resides in the Sub Regional Study Area.

6.3.8 Cumulative Population Impacts

The additional population anticipated to be generated in the MWRC LGA as a result of new mining activity occurring in the LGA between 2011 and 2031 is presented in **Table 19**. This information is sourced from the Mudgee-Gulgong URS (HillPDA 2014). The population estimates presented in **Table 19** include consideration of the Project workforce.

Based on Project workforce data for PY16 (2031) the Project will result in approximately 585 additional persons in the MWRC LGA (**Table 33**), representing approximately 45% of the total additional population anticipated in 2031 from new mining activity in the LGA (based on HillPDA 2014).

The cumulative growth of the mining and resources sector in the Sub Regional Area will be significantly more than the impacts of the Project alone, as demonstrated by **Table 38**.

Table 38
Cumulative Population in the SIA Study Area, 2015-2024

Year	Employment in Mining/Resource Projects in MWRC LGA ¹	No. of Bylong Project Personnel (Operations Phase)	Population associated with Mining Personnel ²
2015	1,830	0	4,392
2016	2,080	0	4,992
2024 ³	3,110	470	7,464
2028	2,915	275	6,996
Difference 2015-2024	1,280	NA	3,072
Difference 2015-2028	1,085	NA	2,604

Notes:

- Using the data from **Table 2** and **Table 3** of **Section 2**.
- Using the occupancy rate of 2.4 for MWRC LGA at 2011 ABS Census.
- Assumes Charbon Mine is closed.

Table 38 shows:

- The potential cumulative mining and resource industry workforce for the MWRC LGA in 2024 (PY9) is estimated to be approximately 3,110, almost twice the existing size; and
- In 2028 (PY13), the Project Operations Phase workforce (275) may represent 9.4% of the total personnel expected to be directly employed in mining and resource industry projects in the MWRC LGA;
- There is potential for an additional 3,072 people associated with mining and resource project personnel in the MWRC LGA by 2024 (PY9) as a result of cumulative resource projects, with a further increase to 3,604 in 2028 (PY13).

No assumptions have been made about the proportion of local or NLHs of the cumulative resource projects in these calculations. In addition, the analysis does not include further population growth driven by additional jobs and economic activity generated indirectly by new mining activity.

6.3.9 Summary of Impacts and Management

The Project is predicted to influence population change in the Project Area and the Sub Regional Area as a result of:

- An influx of workers associated with Construction Phase 1 (**Section 6.3.2**);
- An influx of workers associated with the Operations Phase (**Section 6.3.3**);
- An influx of workers indirectly associated with Construction Phase 1 and 2 and the Operations Phase (**Section 6.3.4**); and
- Acquisition of land within and adjoining the Project (**Section 6.3.5**); and
- Mine closure (**Section 6.3.6**).

The Project will also have a cumulative impact on the population across the MWRC LGA (**Section 6.3.8**). Predicted population changes are also influenced by the local and NLH ratios described in **Section 4.3**.

Of the population and demographic changes described in **Section 6** the following are considered to be of most significance when considering the potential impacts of the Project:

- The increase in permanent resident population predicted for the Bylong Valley as a result of the Project's Operations Phase.
- The potential Project induced population growth in Mudgee during the Operations Phase, in particular the anticipated growth in PY3 and PY9; and
- The potential influx of families with children into Mudgee during the Operations Phase, in particular PY3 and PY9.

The VPA to be negotiated with the MWRC LGA is the primary mechanism for managing the socio-economic impacts of the Project and enhancing the realisation of potential opportunities. The VPA will include a Community Investment Fund designed to provide funding for strategic infrastructure projects and community initiatives that aim to deliver measurable improvements in selected priority focus areas associated with the anticipated Project induced population growth. The VPA is described in **Section 12.2.1**.

Table 39 provides a summary of the strategies to be implemented by KEPCO to enhance the potential benefits of Project related population changes to the Bylong Valley, Mudgee and broader MWRC LGA. Other mitigation measures that may also relate to population impacts are listed in the most relevant section of the SIA.

Table 39
Summary of Population Change and Management Commitments

Population and Demographic Change	Impact Category	Management Strategies
Temporary increase in non-resident population of Bylong Valley through introduction of 650 non-resident workers during Construction Phase 1.	Negative	6.1 A WAF will be constructed in the Bylong Valley and operated from PY1 to the end of underground construction in ~ PY6. The WAF will accommodate all NLHs associated with this stage of the Project.
Population increase across MWRC LGA during Construction Phase 1.	Positive	6.2 KEPCO will negotiate a VPA with MWRC and seek to establish a Community Investment Fund as a component of the VPA.
Permanent potential increase of up to 3.6% in Mudgee resident population by PY3.	Positive	6.3 KEPCO will support the MWRC in seeking that the NSW Government to produce population projections for the MWRC LGA that more reasonably reflect the mining resource development activities within the LGA. This could facilitate the MWRC in applying for further funding for physical and social infrastructure and potentially enable improved forward planning for the LGA.
Potential further increase of up to 4.3% in resident population of Mudgee by PY9.	Positive	6.4 KEPCO will provide the MWRC with an annual workforce report for the Project for the years PY1 to PY13. The biannual workforce report will detail the current and anticipated workforce numbers for the Project. This will enable the MWRC to plan proactively for anticipated population changes.
Cumulative population growth in the MWRC LGA as a result of new mining activity in the LGA.	Positive	
Temporary reduction in resident population of Bylong Valley due to current and future Project related property acquisitions	Negative	6.5 KEPCO will assess which Project-owned houses in the Bylong Valley are of a standard suitable for habitation by Project employees.
Potential increase in the number of families with children in resident population of Bylong Valley, Mudgee and the broader MWRC LGA.	Positive	6.6 KEPCO will make existing proponent owned housing in the Bylong Valley available to the workforce associated with the Project Operations Phase where health, safety and environment (HSE) requirements and residential amenity requirements can be met.
Potential increase in resident population of Mudgee and broader MWRC LGA through flow-on employment associated with the Project.	Positive	6.7 KEPCO will consider developing and implementing an Employee Incentive Scheme (if needed) which will detail a range of incentives to encourage re-location to the Bylong Valley and Mudgee. 6.8 KEPCO will encourage all NLHs associated with the Project's Operations Phase to locate permanently with their families to Mudgee and other areas in the MWRC LGA.
Reduction in resident population of Bylong Valley, Mudgee and the broader MWRC LGA as a result of mine closure	Negative	6.9 KEPCO will undertake a closure-related social impact assessment for the mine five years prior to the envisaged closure date.

7 ECONOMIC VITALITY

7.1 INTRODUCTION

An EclA has been prepared for the Project by Gillespie Economics. To complement the information presented in the EclA, and to provide a context to the information provided in later sections in the SIA, this section briefly describes the economic profile of the MWRC LGA, focussing on relevant recent economic data. It also describes the current economic planning directions of the MWRC LGA. The socio-economic impacts of the Project on the LGA economy are described and potential management measures identified.

7.2 SETTING

7.2.1 Economic Governance

The Project is located within the MWRC LGA, which defines the 'regional economy' referred to in this section and the EclA. Mudgee is the regional service centre for the MWRC LGA. Agriculture, viticulture, mining and tourism are important driving industries in the MWRC LGA that together with Mudgee's expanding retail, service and commercial sectors, provide a growing employment base for a diverse economy. Consultation with MWRC representatives (MWRC 2014, pers. comms., 4 December) confirm the protection and enhancement of economic diversity as a key goal for the MWRC.

The MWRC Economic Development Strategy (MWRC 2010) describes the 10 year economic development plan for the MWRC LGA covering the period July 2010 – June 2020. MWRC's economic development mission is to *'encourage a strong and diversified economy that delivers lifestyle benefits to the community through supporting business and investment activities that in turn generate opportunities for employment, income and sustainable economic growth'* (MWRC 2010).

The strategy focuses on the following issues:

- Employment – the number of jobs and the level of participation in employment;
- Education – the quality and availability of education and supporting infrastructure;
- Workforce skills – access to a skilled and flexible workforce with the competencies and capabilities to satisfy industry and business needs;
- Business development – the attraction and retention of a diverse range of businesses that actively participate in business development initiatives and embrace creativity, innovation and entrepreneurship;
- Investment – a business and economic environment which attracts investment and targets new investment opportunities;

- Infrastructure – infrastructure that accommodates economic growth and meets the commercial, industrial and retail needs of the region;
- Tourism – diverse tourism offerings to attract visitors; and
- Marketing.

7.2.2 Gross Regional Product

The MWRC LGA is a regional LGA with a specialisation in the mining sector. **Table 40** shows the estimated GRP for the MWRC LGA in 2012/13.

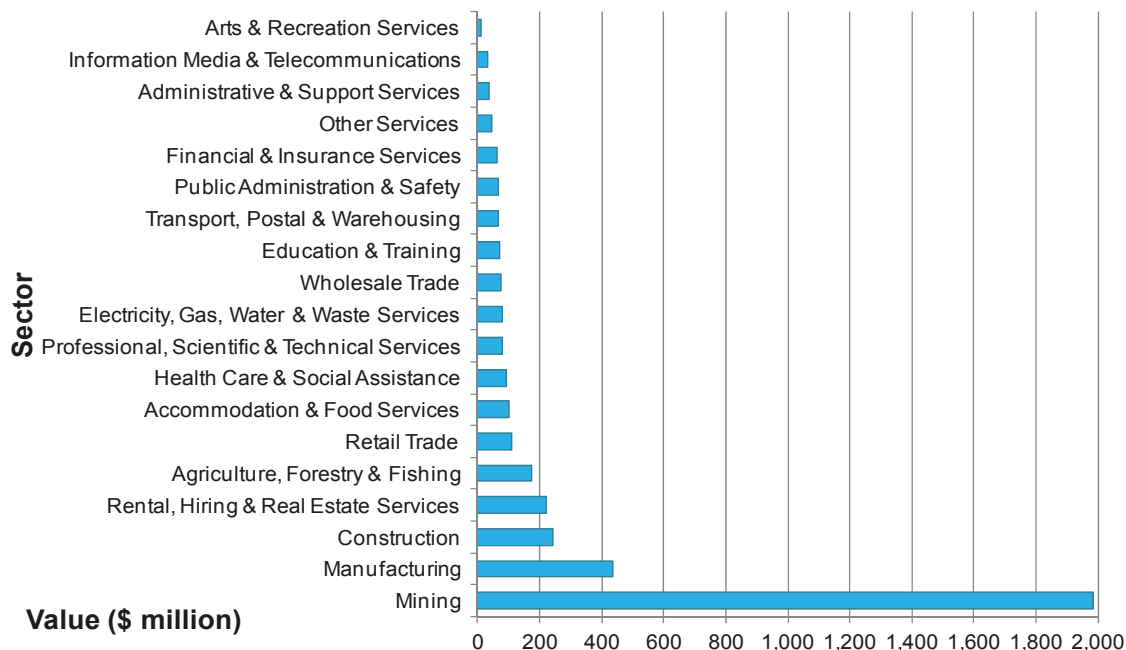
Table 40
Gross Regional Product MWRC LGA 2012/13

GRP Expenditure Method	MWRC LGA
Gross Regional Product (\$ M)	2,017
Population (persons)	22,320
Per Capita GRP (\$)	90,390
Per Worker GRP (\$)	234,103

Source: REMPLAN 2013

Graph 3 presents the gross revenue generated by industry sectors in the MWRC LGA. Output generated by the MWRC LGA is estimated at approximately \$4 Billion (B). The mining sector is the largest producer of output in the MWRC LGA accounting for almost 50% of all output.

Graph 3
Output by Industry, MWRC LGA, 2013



Source: REMPLAN 2013

7.2.3 Business Activity

Table 41 shows the proportion of businesses in each industry sector for Mudgee and the MWRC LGA at 2013, and change in industry sectors between 2011 and 2013.

Table 41
Businesses in Mudgee and MWRC LGA 2013

Industry	Proportion of Businesses 2013 (%)		Change 2011-2013 (%)	
	Mudgee	MWRC LGA	Mudgee	MWRC LGA
Accommodation & Food Services	20.3	37.3	6.1	-0.8
Administrative & Support Services	16.7	13.2	-2.6	8.2
Agriculture, Forestry & Fishing	9.5	6.5	-6.3	-1.9
Arts & Recreation Services	7.5	6.0	-25.0	-9.5
Construction	7.1	5.5	3.2	-0.3
Education & Training	6.0	5.0	0.0	-4.8
Electricity, Gas, Water & Waste Services	5.6	4.0	0.0	0.0
Financial & Insurance Services	4.8	4.1	8.0	7.6

Industry	Proportion of Businesses 2013 (%)		Change 2011-2013 (%)	
	Mudgee	MWRC LGA	Mudgee	MWRC LGA
Health Care & Social Assistance	4.6	3.3	15.6	5.5
Information Media & Telecommunications	4.5	3.0	-100.0	-33.3
Manufacturing	3.9	4.1	0.0	9.4
Mining	3.2	2.6	28.6	43.5
Other Services	2.4	2.2	0.0	-8.0
Professional, Scientific & Technical Services	2.3	1.3	5.1	7.5
Public Administration & Safety	0.9	0.8	0.0	-66.7
Rental, Hiring & Real Estate Services	0.5	0.7	-3.3	0.0
Retail Trade	0.3	0.1	3.7	-8.2
Transport, Postal & Warehousing	0.0	0.1	-15.1	-10.3
Wholesale Trade	0.0	0.2	-3.4	-10.8

Source: REMPLAN 2013

The MWRC LGA and Mudgee both have a high proportion of businesses in the accommodation and food services sector and the administrative and support services sector. The economic diversity in Mudgee and the broader MWRC LGA is evident in the proportion of businesses in the industry sectors of agriculture, forestry and fishing, arts and recreation services, construction, education and training and electricity, gas, water and waste services.

The following notable changes have occurred between 2011 and 2013 in the number of businesses within specific industry sectors:

- The mining sector recorded the largest number of new businesses in both Mudgee and the MWRC LGA;
- The number of agricultural businesses in Mudgee and the MWRC LGA declined;
- The number of business in the information media and telecommunications sector in Mudgee and MWRC LGA declined significantly;
- The number of businesses in Mudgee in the arts and recreation services sector declined significantly, with a smaller decline experienced across the MWRC LGA;
- The number of businesses in the Mudgee and the MWRC LGA in the transport, postal and warehousing sector and the wholesale trade sector declined; and
- The mining, administrative and support services and financial and insurance services sectors in the MWRC LGA experienced growth. The growth in the latter two sectors may be partially due to the growth in the mining sector in the LGA.

Table 42 shows growth in businesses in the MWRC LGA by turnover ranges, for the years 2009-2013.

Table 42
Business Growth by Turnover MWRC LGA, 2009-2013

Business Turnover	Business Counts, June					Change 2009-13 (%)
	2009	2010	2011	2012	2013	
Zero to \$50,000(k)	1,762	1,794	1,730	1,692	1,672	-5.1
\$50k to less than \$100k	874	924	900	886	876	0.2
\$100k to less than \$200k	870	874	914	834	878	0.9
\$200k to less than \$500k	906	926	932	1,044	1,030	13.7
\$500k to less than \$2M	606	588	602	634	586	-3.3
\$2M or more	154	124	204	210	264	71.4
Total	5,172	5,230	5,282	5,300	5,306	2.6

Source: REMPLAN 2013

Table 42 shows a significant increase in the number of businesses earning \$2 M or more in annual turnover and an increase in the number of businesses earning between \$200,000 and \$500,000 in annual turnover. This may be a reflection of the larger businesses that service the mining sector.

7.2.4 Economic Activity

This section discusses the contribution of industries in the MWRC LGA to value added¹⁷ in the LGA. The total value added by the MWRC LGA economy is estimated at \$1.9 B for the 2012/2013 period. **Table 43** shows the value added to the MWRC LGA by each industry sector in 2012/13 and illustrates the relative importance of each sector to the economy of the MWRC LGA.

Whilst there is a higher proportion of businesses servicing the agriculture, forestry and fishing sector across the MWRC LGA, the mining industry contributes a significantly higher proportion of value added to the LGA. In 2012/13 mining accounted for almost \$1 B in value added to the LGA, and is the highest sector contributor of value added in the LGA. This is almost six times the contribution of the rental, hiring & real estate services sector, the second highest contributor of value added to the LGA. Together, the mining sector and the rental, hiring and real estate services sector accounted for over 60% of the value-added in the MWRC LGA in 2012/13.

¹⁷ Value-Added data represents the marginal economic value that is added by each industry sector in a defined region. Value-Added can be calculated by subtracting local expenditure and expenditure on regional imports from the output generated by an industry sector. Value-Added by industry sector is the major element in the calculation of GRP (REMPAN 2013).

Table 43
Value-Added by Industry Sector MWRC LGA, 2012/13

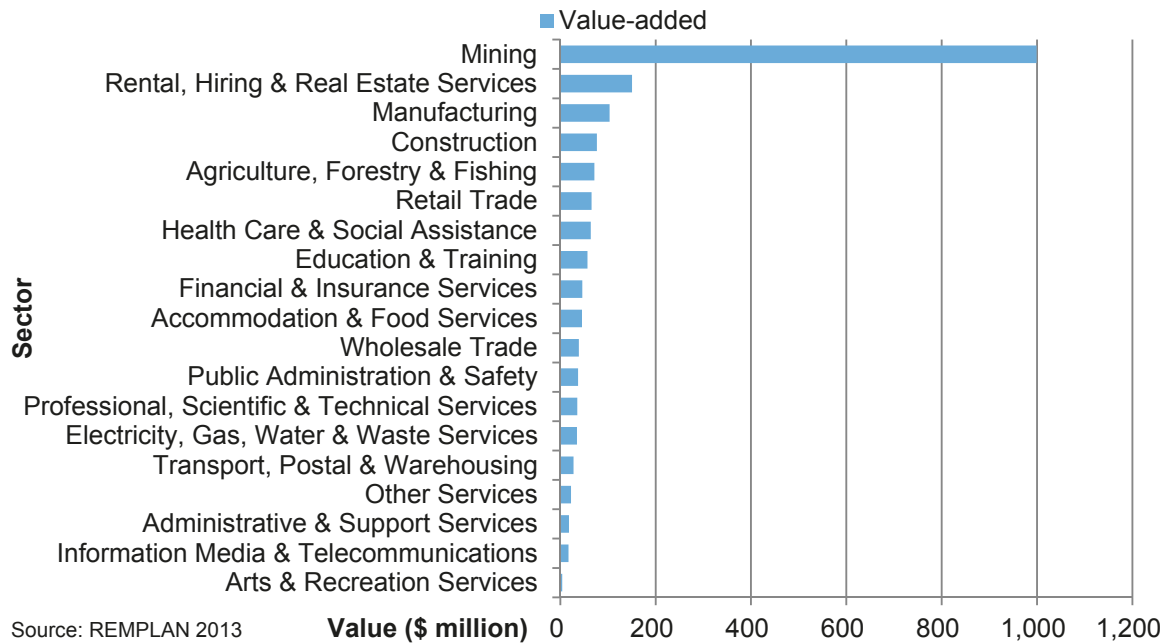
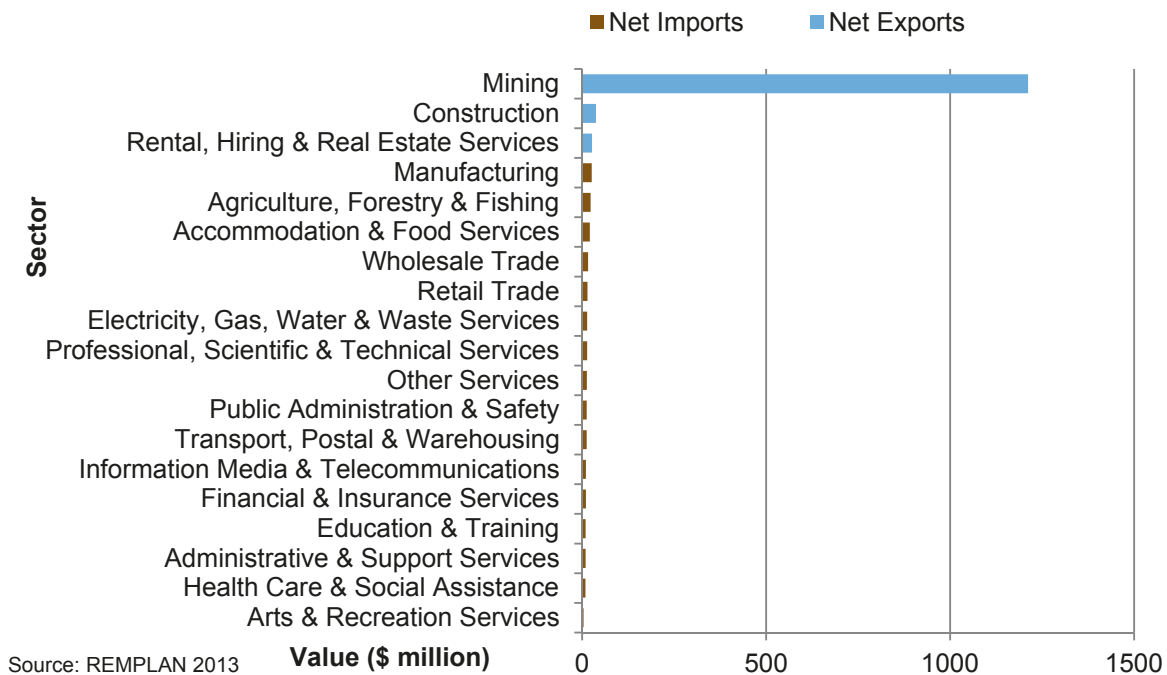


Table 44 presents net imports and exports of each industry sector. Industry sectors with net exports are producing more output than demand within the MWRC LGA, while industries with net imports are producing less output than required in the LGA.

Table 44
Net Imports and Exports MWRC LGA, 2012/13



The MWRC is a net exporter of mining, construction and rental, hiring and real estate services and a net importer of all other services. The exports of the mining sector vastly outpace all other sectors in the MWRC LGA.

Mining Economy

In 2013-2014 mining accounted for approximately 30% of the MWRC LGA GRP and the mining industry directly employed approximately 1,434 residents of the MWRC LGA (NSW Minerals Council, October 2014). The NSW Minerals Council (October, 2014) estimates total direct spend by the mining industry in the MWRC LGA during the 2013-2014 financial year of \$320.4 M including \$150.2 M in business purchases and community contributions.

Agricultural and Viticulture Economy

The agriculture, forestry and fishing sector of the MWRC LGA was the fifth highest contributor to the local economy, with a value-added contribution of \$72 M in 2012/13. Although the mining sector contributes a significantly larger share of value-added in the MWRC LGA (almost \$1 B) the agriculture, forestry and fishing sector accounts for 9.5% of employment in MWRC LGA (**Section 8.2**) and 37% of all businesses in the MWRC LGA (**Table 41**). There were 965 businesses in this sector in 2013 in the MWRC LGA, compared with just 33 mining sector businesses.

The MWRC LGA produces livestock, crops, honey and wool, and is home to a reputable wine industry. The MWRC LGA has over 2,300 ha under vine and approximately 40 cellar doors (MWRC 2010). The MWRC is increasingly focusing on the wine industry as a tourism draw to the region.

Tourism

The MWRC LGA has a healthy tourism industry, focused on a number of areas, in particular the viticulture sector. **Table 45** presents the top four sectors in which tourism dollars are spent, and the proportion of each dollar spent in these sectors for 2013.

Table 45
Top Four Sectors for Tourism Spend MWRC LGA and NSW, 2013

Sector	Proportion of Tourist Dollar Spend (%)	
	MWRC LGA	NSW
Accommodation & Food Services	54.5	33.2
Manufacturing	11.2	6.2
Transport, Postal & Warehousing	9.1	24.3
Retail Trade	8.5	9.6

Source: REMPLAN 2013

7.2.5 Income

Median Income Indicators

Table 46 shows the 2006 and 2011 median weekly incomes for individuals, families and households in the Sub Regional and Regional Study Areas as well as the Lithgow-Mudgee Region and NSW. Table 47 shows the percentage change in median individual, household and family income between 2006 and 2011.

Table 46
Income Indicators, 2011

Census Geographic Area	Median Individual Income (\$/weekly)		Median Family Income (\$/weekly)		Median Household Income (\$/weekly)	
	2006	2011	2006	2011	2006	2011
Breakfast Creek SS	367	394	939	877	819	712
Rylstone UCL	323	389	833	1,354	640	758
Kandos UCL	260	342	606	807	512	614
Mudgee SA2	389	515	1,026	1,379	745	1,059
MWRC LGA	353	449	936	1,204	700	929
Lithgow-Mudgee Region	NA	446	NA	1,181	NA	903
NSW	461	561	1,181	1,477	1,036	1,237

Source: ABS 2012i

1. ABS census boundary changes will have influenced data in this table.

All communities of interest in the SIA Study Area had median individual, family and household incomes below the NSW rates in both 2006 and 2011. Kandos had distinctly lower median family incomes and median household incomes compared to other communities of interest in the SIA Study Area and NSW. The income indicators in Kandos are not surprising given its mining history, and the population’s education and labour market characteristics (Section 6 and Section 8). Breakfast Creek SS also had low median family and household income in both 2006 and 2011. This is in keeping with the rural nature of these areas and the strong agricultural base.

Mudgee showed higher family and household income medians than the MWRC LGA, which reflects its position as a regional centre and a more diversified economy.

Table 47
Income Indicators - Percentage Change 2006-2011

Census Geographic Area	Median Individual income (%)	Median family income (%)	Median household income (%)
Breakfast Creek SS	7.4	-6.6	-13.1
Rylstone UCL	20.4	62.5	18.4
Kandos UCL	31.5	33.2	19.9

Census Geographic Area	Median Individual income (%)	Median family income (%)	Median household income (%)
Mudgee SA2	32.4	34.4	42.1
MWRC LGA	27.2	28.6	32.7
NSW	21.7	25.1	19.4

Source: ABS 2012i, ABS 2007d

Table 47 highlights the significant growth in income that has occurred for all indicators between 2006 and 2011 in all communities of interest with the exception of Breakfast Creek SS.

7.3 IMPACT ASSESSMENT AND MANAGEMENT

The Project will have both direct and indirect (or flow-on) economic impacts on the SIA Study Area. For the most part these impacts will be positive and will contribute significantly to the long-term sustainability of the MWRC economy. Economic impacts are described in detail in the EIS EclA. The economic impacts relevant to the social environment are outlined in this section.

7.3.1 Direct and Indirect Economic Impacts

The EclA (Gillespie Economics, 2015) prepared for the Project has estimated the direct economic impacts of the Project.

Construction Phase Impacts

The Project will result in significant economic benefits at the regional and state level. The total average annual impact of the peak year of construction (PY2) on the economy of the MWRC LGA is estimated at up to:

- \$297 M in annual direct and indirect regional output or business turnover;
- \$104 M in annual direct and indirect regional value added;
- \$55 M in annual direct and indirect household income; and
- 863 direct and indirect jobs.

The introduction of the Construction Phase 1 workforce will generate significant indirect economic benefits over that 24 month period to the Sub Regional Study Area, particularly in flow-on spending by those employees in the local area, particularly on accommodation, food, leisure and recreation and personal services.

The geographic spread of this spending is difficult to determine, and will depend on where each employee resides during that time and their personal preferences for travelling to different centres for various products and services. Further detail regarding the construction phase indirect economic impacts are given in the EIS EclA.

It is however acknowledged that the majority of the construction workforce will not reside permanently in the Sub Regional Study Area, so the long-term indirect economic benefits of their incomes will not be absorbed in the Sub Regional Study Area.

Operations Phase Impacts

The Project is estimated to make up to the following total average annual contribution to the NSW economy for 23 years:

- \$855 M in annual direct and indirect output or business turnover;
- \$492 M in annual direct and indirect value-added;
- \$135 M in annual direct and indirect household income; and
- 1,496 direct and indirect jobs.

The total annual impact of an average year of operations on the economy of the MWRC LGA is estimated at up to:

- \$624 M in annual direct and indirect regional output or business turnover;
- \$378 M in annual direct and indirect regional value added;
- \$72 M in annual direct and indirect household income; and
- 830 direct and indirect jobs.

Flow-on spending by the operational workforce in the Sub Regional Study Area will produce significant indirect economic benefits to the Sub Regional Study Area, whether that workforce are local hires continuing to live in the Sub Regional Study Area, or will be new residents as a result of being NLHs. Further detail regarding the indirect economic impacts of the Operations Phase of the Project are provided in the EIS EclA.

7.3.2 Impacts on Economic Diversity

MWRC representatives raised concerns about potential impacts of the Project on economic diversity of the MWRC LGA (MWRC 2014, pers.comms., 4 December). The Project will result in an increase in the number of employees in the mining and resources industry in the MWRC LGA further bolstering this sector of the economy, potentially detracting or drawing labour from other sectors. In 2011, there were 1,286 people living in the MWRC LGA and employed in the mining sector (ABS, 2012h).

At peak operations (PY9) the Project workforce represents a 35% increase in the number of people employed in coal mining and living in the MWRC LGA in 2011.

While the Project will certainly reinforce the MWRC LGA's specialisation in the mining industry, this increased specialisation can result in both positive and negative impacts. The increased reliance on the mining sector may lead to increased vulnerability to economic oscillations in this industry. However, the specialisation of the MWRC LGA economy in mining allows for greater economies of scale and therefore higher productivity in mining and related sectors.

It is likely that the cumulative impacts of the growing resources sector in the MWRC LGA will be far more significant than the direct Project impacts, and may present a challenge for maintaining economic diversity in the MWRC LGA. HillPDA (2014) forecast the creation of 1,322 direct jobs in mining in the MWRC LGA once all forecast mines and expansions are completed (**Table 20**), an approximate 100% increase in the number of people currently employed in the mining sector in the MWRC LGA.

At peak operations (PY9) the Project workforce represents 36% of all forecast new employment in mining in the MWRC LGA.

KEPCO acknowledges the potential impacts of the Project on other sectors of the economy, particular with regards to labour demand. KEPCO will continue to monitor labour force demand and dynamics, in consultation with local Government. KEPCO is developing a Local Content Plan for the Project. The Local Content Plan will address actions that aim to secure a long term local workforce for the Project.

Projects that support the economic diversity of the MWRC LGA may be suitable for funding under the VPA Community Investment Fund, acknowledging the valuable contributions other industries in the MWRC LGA make to the economic stability of the LGA.

7.3.3 Mine Closure Impacts

Cessation of the Project after 25 years of operation may lead to a reduction in economic activity in the MWRC LGA at that time. The impacts on the economy after Project closure will entirely depend on the structure of the mining and resource sector at that time, which cannot be predicted at present. The significance of closure impacts would depend on the degree to which any displaced workers and their families remain within the region, even if they remain unemployed. This is because continued expenditure by these people in the SIA Study Area (even at reduced levels) contributes to final demand, albeit significantly reduced. If there are other as-yet-unconstructed or unknown projects operating at that time, then the impacts of the gradual decrease of the Project workforce will be lessened as other projects absorb the excess labour. If Project cessation takes place in a declining economy the impacts may be greater than if it takes place in a growing and diversified economy.

KEPCO is committed to actively planning for mine closure throughout the life of the mine and to adapting this planning as the local context requires. The EIS Impacts, Management and Mitigation Section addresses mine closure. KEPCO will undertake a closure-related social impact assessment for the mine five years prior to the envisaged closure date.

7.3.4 Increased Revenue for Local Government

The Project will have a positive impact on the annual revenue stream of the MWRC LGA. Through the Project workforce accommodation strategy (**Section 4.6**) the Project has the potential to attract up to 342 new households to Mudgee and a total of 380 households to the MWRC LGA (**Table 9**) in PY9 (peak operations). The EclA predicts a further 540 flow-on jobs in the MWRC LGA as a result of the Project. Flow-on employment generated by the Project has the potential to attract over 1,000 people to the MWRC LGA (**Table 35**), although it is unknown how many of the 540 flow-on jobs in the MWRC LGA will be filled by existing residents.

Direct and indirect Project induced population growth will increase the rateable population base of the MWRC LGA. This in turn will increase annual revenue for the MWRC LGAs through rates. Additionally, the VPA for the Project has the potential to bring significant benefits in the form of community infrastructure and service improvements.

7.3.5 Impacts on Other Sectors of the Economy

In addition to direct economic impacts, it is expected that both the Project and the cumulative effects of expected mining and resources projects in the SIA Study Area could also have both positive and negative impacts on other (non-mining) sectors of the economy.

The positive impacts relate to the potential for:

- Production-induced flow-on employment in the services sectors, building and construction sectors, wholesale/retail trade sectors, mining sectors, manufacturing sectors and transport sectors;
- Consumption induced flow-on employment in services sectors, wholesale/retail trade sectors and accommodation/cafes/restaurants sectors; and
- Businesses that can provide the inputs to the production process required by the Project and/or the products and services required by employees to directly benefit from the Project by way of an increased economic activity.

The potential negative impacts relate to:

- The creation of a “two stream” economy where the mining sector and related industries grow at a rapid rate, but the rest of the economy grows at a slower pace. This has the effect of creating economic winners and losers within a single economy;
- The competition for labour from the mining sector may mean that other sectors of the economy have difficulty retaining or recruiting appropriate levels of staff, particularly given the comparatively high wages of the mining sector;
- The demand for training in mining related skills sets has the potential to divert the focus from non-mining related skills training;
- The increase in the number of mining and resource projects in the SIA Study Area could negatively affect the ‘image’ that the area currently portrays to attract tourists; and
- The increased demand for short-term accommodation for workers and their families could limit the availability of tourism accommodation for tourists.

As described above, the cumulative effects of the expected mining and resources projects in the SIA Study Area are likely to have a far larger impact on these issues than the impacts of the Project alone.

7.3.6 Impacts to Agricultural Production

The EIS Agricultural Impact Statement describes the current enterprises operating within the Bylong Valley, the carrying capacity of each enterprise and their current agricultural productivity. The current gross value of agricultural production from land within the Project Disturbance Boundary is estimated to be \$0.82 M per annum and the net value of agricultural production is \$0.35 M (Scott Barnett and Associates 2015).

The current gross value of agricultural production from land within the Biodiversity Offset Areas is estimated to be \$1.43 M per annum and the net value of agricultural production is \$0.76 M (Scott Barnett and Associates 2015).

The EIS EclA considers the regional economic impacts resulting from a reduction in agricultural activity from land directly impacted by the Project Disturbance Boundary and biodiversity offsets.

If it were to be assumed that agricultural production from the entire Project Disturbance Boundary ceases at the commencement of the Project for perpetuity, the present value of the gross value of production foregone is \$12.4 M (using a 7% discount rate¹⁸) and the present value of the net value of agricultural production foregone is \$5.3 M (using a 7% discount rate). These values are developed as a conservative worst-case scenario as the mitigation measures and proposed rehabilitation strategy ensures the present value of agricultural production will be forgone for as little time as practicable (Gillespie Economics 2015).

Conservatively assuming that agricultural production from the onsite Biodiversity Offset Areas ceases at the commencement of the Project for perpetuity, the present value of the gross value of production foregone is \$21.7 M (using a 7% discount rate) and the present value of the net value of agricultural production foregone is \$11.5 M (using a 7% discount rate) (Gillespie Economics 2015).

As the overall agricultural contribution of the Project Disturbance Boundary and Biodiversity Offset Areas is small when compared to the total agricultural production on a regional, state and national scale, the reduced availability and productivity of this land will have a minimal impact to the agricultural industry. In addition, the Project will not reduce the availability of land for agricultural purposes or affect the productivity of existing agricultural land outside the Project Disturbance Boundary and Biodiversity Offset Areas within the locality.

KEPCO is committed to returning appropriate areas within the Project Disturbance Boundary to agricultural land use practices as soon as possible following achievement of rehabilitation goals.

To maintain and where possible enhance the agricultural productivity of KEPCO owned land outside the Project Disturbance Boundary KEPCO has and will continue to undertake a range of actions including:

- Appointment of a dedicated professional Farm Manager to ensure the long term productivity of KEPCO-owned agricultural lands;
- Implementing sustainable farming practices and management of land situated outside the Bylong disturbance footprint on all KEPCO owned agricultural land; and
- Expanding the existing environmental monitoring network within the Project Boundary and in the locality to facilitate mitigation of unforeseen environmental impacts that could potentially deleteriously affect agricultural activities adjacent to the Project Boundary.

¹⁸ A discount rate is used to convert future stream of values to a present value. It is the percentage rate of compound interest at which future benefits and costs are adjusted to their equivalent present day values. NSW Treasury (2007) recommend the use of 7%.

7.3.7 Impacts to Critical Industry Clusters in the Bylong Valley

A small number of stakeholders from the Bylong Valley raised concerns in relation to the potential impact of the Project on the equine industry. Issues raised related to potential loss of land for the equine industry, changes in the perceived value of the Bylong Valley to the equine industry, and the impact of the Project on residential amenity with subsequent impacts to the equine industry.

The EIS Agricultural Impact Statement and the EIS EclA assess the impact of the Project on Critical Industry Clusters (CIC) in the Bylong Valley. While there are no thoroughbred breeding activities currently occurring within 10 km of the Project Boundary, 700 ha of Equine CIC is mapped within the Project Disturbance Boundary and 515 ha of mapped Equine CIC will be removed from agricultural production for the purposes of biodiversity offsets.

The area of CIC to be removed from agricultural production through direct disturbance until rehabilitation goals are achieved represents approximately 0.27% of the total mapped Equine CIC under the Upper Hunter SRLUP. The area of CIC to be removed from agricultural production through land use change for biodiversity conservation represents approximately 0.2% of the total mapped Equine CIC under the Upper Hunter SRLUP. It is further noted that no intensive equine industry activities have occurred within the mapped Equine CIC area to be disturbed or conserved for biodiversity values for a considerable period of time. The Upper Hunter SRLUP identifies that the relevant equine industry is focused in the Upper Hunter Valley surrounding the township of Scone.

Under a best practice equine land use scenario, the annual Net Value of production potentially lost as a result of the direct Project disturbance within areas of mapped Equine CIC is \$1.2 M. The annual Net Value of production potentially lost as a result of the Biodiversity Offsets Areas within areas of mapped Equine CIC is \$0.87 M.

Should, as an absolute worst case, the mapped Equine CIC within the Project Disturbance Boundary be lost for perpetuity, the present value of the gross value of production foregone is \$37.2 (using a 7% discount rate) and the present value of the net value of agricultural production foregone is \$18.4 M (using a 7% discount rate).

Should the mapped Equine CIC within the Biodiversity Offsets Area be lost for perpetuity, the present value of the gross value of production foregone is \$25.6 (using a 7% discount rate) and the present value of the net value of agricultural production foregone is \$15.4 M (using a 7% discount rate).

The Upper Hunter SRLUP does not map any Viticulture CICs within or in close proximity to the Project Boundary.

7.3.8 Impacts to Tourism

Bylong Valley Way is a designated tourist route connecting the Golden Highway near Sandy Hollow to the Castlereagh Highway near Ilford. It is named after the Bylong Valley, through which the road passes (Muswellbrook Visitor Information Centre, 2014). During SIA consultation a few Bylong Valley residents indicated an interest in understanding how the Project would impact the tourism value of the Bylong Valley Way. The majority of these stakeholders were more concerned about whether potential Project impacts to Bylong Village would reduce the attractiveness of the Village as a stopping point on the Bylong Valley Way.

The visual impacts of the Project on the character and amenity of Bylong Valley Way and Bylong Village are discussed in **Section 10.3.1**. The Project will have an adverse impact on the character and amenity of Bylong Village during Construction Phase 1 and during the open cut operations phase (PY3-PY10). This impact will be medium term, approximately 10 years and will be most apparent during Construction Phase 1. **Section 10.3.1** describes the range of actions to be taken to manage the visual impact of the Project.

Through the implementation of the management measures described in **Section 10.3.1** and the EIS Visual Report, changes to the character and amenity of the Bylong Valley Way and Bylong Village are not predicted to adversely impact the 'experience' of travelling along Bylong Valley Way.

KEPCO acknowledges the regional value of the Bylong Valley Way as a tourist route. KEPCO has established an Interim Community Investment Fund which will operate until the VPA commences, and a Corporate Sponsorship and Donations Fund (SD Fund). Through these Funds, KEPCO will contribute to the conduct of beautification and enhancement works at Bylong Village to enhance the attractiveness of the location as a tourist stopping point along the Bylong Valley Way. KEPCO has already contributed to the refurbishment of the Bylong Community Hall, and to the planting and upkeep of gardens around this hall. One of KEPCO's personnel or their family members will also volunteer to assist with the upkeep of the plants.

7.3.9 Income Impacts

The EIS EciA has assessed the impact of the Project on income levels in the regional economy. Increased regional demand for labour as a result of the Project could potentially result in some increased pressure on wages in other sectors of the economy. The magnitude and duration of this upward wages pressure would depend on the level of demand for additional labour, the availability of labour resources in the region and the availability and mobility of labour from outside the region.

However, because 90% of the Construction Phase workforce and 85% of the Operations Phase workforce is estimated to be NLHs, wage impacts are not likely to be significant (Gillespie Economics 2015).

7.3.10 Summary of Impacts and Management

The Project is predicted to have a predominantly positive impact on the economy of the MWRC LGA. Of the economic benefits described in **Section 7** the following are considered to be of most significance:

- Employment generation in the MWRC LGA; and
- The economic value of the total annual impact of the Project operation on the economy of the MWRC LGA.

The potential impact of the Project on other non-mining sectors of the economy is considered the most significant negative economic impact.

Table 48 provides a summary of the strategies to be implemented by KEPCO to enhance the potential economic benefits of the Project and manage the economic impacts. Other mitigation measures that may also relate to economic impacts are listed in the most relevant section of the SIA.

Table 48
Summary of Project Impacts and Management – Economics

Impact	Impact Category	Management Strategies
Significant economic benefits for the MWRC LGA during Project construction and operation.	Positive	7.1 KEPCO is developing a Local Content Plan to encourage the participation of local and under-represented groups in the Project's workforce and supply chain.
Increased revenue for MWRC LGA through direct and indirect project induced growth in population and household numbers during the Operations Phase.	Positive	7.2 KEPCO will encourage all NLHs associated with the Project's Operations Phase to locate permanently to Mudgee and other areas in the MWRC LGA.
The Operations Phase of the Project will reinforce the MWRC LGA's specialisation in the mining industry, resulting in a potential 36% increase in the number of people employed in coal mining in the MWRC LGA.	Negative	7.1 KEPCO will monitor labour force dynamics and demand, in consultation with MWRC. 7.2 Projects that support the economic diversity of the MWRC LGA may be suitable for funding under the VPA Community Investment Fund, acknowledging the valuable contributions other industries in the MWRC LGA make to the economic stability of the LGA.
Potential impacts to other non-mining sectors of the economy during peak Project Operations Phase.	Positive and Negative	
Potential impacts to the agricultural sector as a result of changes in the availability and productivity of agricultural land within the Project Disturbance Boundary.	Negative	7.3 KEPCO is committed to returning appropriate areas within the Project Disturbance Boundary to agricultural land use practices as soon as possible following achievement of rehabilitation goals. 7.4 KEPCO will continue to retain the services of a professional Farm Manager to oversee the use and management of all KEPCO owned land in the Bylong Valley. 7.5 KEPCO is developing a comprehensive Farm Management Plan to guide the use of all proponent owned land in the Bylong Valley. The Farm Management Plan identifies methods to generate an economic return from the agricultural land as KEPCO is committed to making a valued contribution to the agricultural economy in the MWRC LGA.
Potential visual impact of the Project on the quality of the 'tourist experience' along Bylong Valley Way.	Negative	7.6 Through the Interim Community Investment Fund and/or the Corporate SD Fund, KEPCO will contribute to the conduct of beautification and enhancement works at Bylong Village to enhance the attractiveness of the location as a tourist stopping point along the Bylong Valley Way.

Impact	Impact Category	Management Strategies
Reduction in economic activity as a result of mine closure.	Negative	7.7 KEPCO will undertake a closure-related social impact assessment for the mine five years prior to the envisaged closure date.

8 LABOUR MARKET DYNAMICS

8.1 INTRODUCTION

This section provides an overview of employment, unemployment and the labour force in the SIA Study Area, including a brief analysis of labour supply and demand. Current issues in labour force planning are also presented in this section. Potential impacts of the Project on labour supply and demand in the SIA Study Area are specifically discussed and management strategies presented.

Appendix B contains a series of data tables to support the discussion in this section.

8.1.1 Relevant Background Studies

In July 2013 Hansen Bailey undertook a Local Labour Market Assessment (Labour Study) for KEPCO to inform workforce planning for the Project. The objective of the Labour Study was to understand the size and characteristics of the labour force located within an acceptable daily commute of the Project site, in order to determine the number of employees that may be sourced locally for the Project operations workforce. The Labour Study is essentially a baseline study to assist KEPCO in understanding the existing local labour force demographics and skills base.

The following discussion is drawn from the Labour Study and provides updated data where available.

8.2 SETTING

8.2.1 Current Employment and Unemployment

Table 49 shows the annual unemployment rate and labour force for Mudgee and MWRC LGA compared to the adjoining LGAs of Muswellbrook, Singleton and Upper Hunter Shire and NSW from 2010 to 2014. This information is drawn from the DE.

Table 49
Unemployment Rates and Labour Force, 2010– 2014

Location	Dec-10	Dec-11	Dec-12	Dec-13	Dec -14
Unemployment (Persons)					
Mudgee SA2	320	282	359	374	356
MWRC LGA	648	577	841	809	780
Muswellbrook LGA	342	335	275	399	736

Location	Dec-10	Dec-11	Dec-12	Dec-13	Dec -14
Unemployment (Persons)					
Singleton LGA	308	266	244	411	654
Upper Hunter Shire LGA	202	179	153	232	383
NSW	181,300	195,300	193,100	219,600	229,000
Unemployment Rate (%)					
Mudgee SA2	5.5	5.2	6.5	6.2	6.0
MWRC LGA	5.5	5.2	7.6	6.8	6.6
Muswellbrook LGA	4.0	4.4	3.3	4.3	8.2
Singleton LGA	2.4	2.0	1.8	3.0	5.0
Upper Hunter Shire LGA	2.7	2.4	2.0	2.9	5.1
NSW	4.9	5.3	5.1	5.8	5.9
Labour Force (Persons)					
Mudgee SA2	5,801	5,439	5,526	6,009	5,909
MWRC LGA	11,791	11,025	11,074	11,968	11,767
Muswellbrook LGA	8,656	8,786	9,497	9,100	8,923
Singleton LGA	12,992	13,089	13,844	13,277	13,016
Upper Hunter Shire LGA	7,445	7,543	8,035	7,692	7,544
NSW	3,698,300	3,712,800	3,770,100	3,806,000	3,856,100

Source: DE 2015a, 2015b

The most recent unemployment rate for the MWRC LGA is 6.6% (December quarter 2014) compared to 5.9% for NSW. The unemployment rate in the MWRC LGA is higher than the adjoining mining regions of Upper Hunter Shire and Singleton LGAs but significantly lower than Muswellbrook LGA (8.2%). Muswellbrook LGA has been heavily impacted by workforce reductions associated with improvements in operation efficiency in the mining sector of the Muswellbrook LGA. In December 2014 Mudgee SA2 had an unemployment rate of 6.0%, slightly higher than NSW. The labour force in Mudgee has fluctuated between 2010 and 2014, with current labour force size similar to 2010. The labour force of the MWRC LGA remained relatively stable between 2010 and 2014.

8.2.2 Census Unemployment and Labour Force

Table 50 shows the status of the labour force in the urban settlements in the SIA Study Area at the 2006 and 2011 Census. In 2011 the SIA Study Area had a labour force of 19,198 people, almost half of whom were located within the MWRC LGA. Between 2006 and 2011 the labour force of the MWRC LGA increased by 706 people or 7.6%. This is likely to be associated with the growth in the mineral and resources sector over this period.

Table 50
Labour Force Status, 2006 and 2011 Census

Census Geographic Area	Total Labour Force (no.)		Unemployed (no.)	
	2006	2011	2006	2011
Breakfast Creek SS	124	129	3	7
Rylstone UCL	255	266	15	19
Kandos UCL	386	401	49	67
Mudgee SA2	3,716	4,863	278	255
MWRC LGA	9,223	9,929	676	564
Lithgow-Mudgee Region	Not comparable	19,198	Not comparable	1,232
Central West	Not comparable	90,368	Not comparable	4,701
NSW	3,092,604	3,334,856	183,157	196,525

Source: ABS 2012e, ABS 2007b
Count of persons aged 15 years and over

Table 51 presents labour force data for the Indigenous population of the SIA Study Area. In 2011 there were 50 unemployed Indigenous people in the MWRC LGA, 34 of whom were located in the Mudgee SA2. The number of unemployed Indigenous people in the Mudgee SA2 is equal to 13.3% of the total unemployed population. The proportion of unemployed Indigenous people in Mudgee is significantly higher than other areas of interest, however the number of unemployed Indigenous people in Mudgee is quite small.

Table 51
Labour Force Status of Indigenous People - 2011 Census

Census Geographic Area	Total Labour Force (no.)	Unemployed (no.)	
		Number	% of Total Unemployed Persons
Mudgee SA2	170	34	13.3
MWRC LGA	318	50	8.9
Lithgow-Mudgee Region	600	103	8.4
Central West	3,119	538	11.5
NSW	56,350	9,541	4.9

Source: ABS 2012t
Count of persons aged 15 years and over

Table 52 details the 2006 and 2011 Census unemployment rate, labour force participation rate and employment to population ratio for the SIA Study Area, as well as the component urban settlements of the MWRC LGA. The Central West and NSW are also shown.

Table 52
Labour Force Status, 2006 and 2011

Census Geographic Area	Unemployment rate (%) ¹		Labour force participation rate (%) ²		Employment to population rate (%) ³	
	2006	2011	2006	2011	2006	2011
Breakfast Creek SS	2.4	5.4	63.6	56.3	62.1	53.3
Rylstone UCL	5.9	7.1	48.5	51.0	45.6	47.1
Kandos UCL	12.7	16.7	37.2	38.7	32.4	32.3
Mudgee ⁴ SA2	7.2	5.2	61.3	59.2	53.5	56.1
MWRC LGA	7.3	5.7	55.4	55.8	51.3	52.6
Lithgow-Mudgee Region	Not comparable	6.4	Not comparable	54.3	Not comparable	50.8
Central West	Not comparable	5.2	Not comparable	58.1	Not comparable	55.1
NSW	5.9	5.9	58.9	59.7	55.4	56.2

Source: ABS2012e, ABS 2007b

Notes:

1. The number of unemployed persons expressed as a percentage of the total labour force.
2. The number of persons in the labour force expressed as a percentage of persons aged 15 years and over.
3. The number of employed persons expressed as a percentage of persons aged 15 years and over.
4. Mudgee SS used in 2006

Table 52 shows that in 2011 the communities of interest in the SIA Study Area all had unemployment rates comparable to that of NSW's (5.9%), with the exception of Kandos which had a significantly higher unemployment rate. In 2011, Kandos had by far the highest unemployment rate in MWRC LGA at 16.7%, with a correspondingly low labour force participation rate of 38.7%. This can be attributed to the closure of the Kandos Cement Works in 2011 which resulted in the loss of several hundred jobs both directly and indirectly (ABC News 2012). Nearby Rylstone had an unemployment rate of 7.1% in 2011 up from 5.9% in 2006.

The unemployment rate in Breakfast Creek SS increased from 2.4% in 2006 to 5.4% in 2011. Given the low population numbers in the Breakfast Creek SS it is possible that changes in farm management practices resulting from a combination of improvements to production and property acquisition i.e. such as those associated with the Mt Penny Project and the Project in the Bylong Valley, could significantly impact unemployment rates in the Breakfast Creek SS.

However, the unemployment rates in Mudgee and the MWRC LGA both reduced between 2006 and 2011 from 7.5% to 5.2% and from 7.3% to 5.7%, respectively, in line with development in the resource sector at that time. The NSW rate of 5.9% remained stable across the period.

8.2.3 Unemployment by Age and Gender

Table B-1 and **Table B-2** in **Appendix B** shows the labour force and rate of unemployment of males and females in 10 year age brackets for the MWRC LGA for the 2006 and 2011 census periods. Of significance is that unemployment for younger people (between 15-19 years of age) is substantially higher than for other age brackets (15.3% and 12.0% for males and females, respectively in 2011).

Between 2006 and 2011 the unemployment rate for the:

- 15-19 year age cohort decreased from 16.3% to 13.8%; and
- 20-24 year age cohort decreased from 11.5% to 9.8%.

8.2.4 Labour Supply-Demand Balance

The balance between local labour supply (working residents) and demand (local jobs) is a useful indicator of where jobs are needed and where job opportunities might lie. A labour surplus occurs when there are more resident workers than jobs in the local workforce, which means that some residents have to work outside the locality. Conversely, a labour deficit means there are more jobs locally than working residents, so some workers must come from outside the local area to fill some local jobs.

Labour supply and demand statistics for the MWRC LGA are presented in **Table B-3** and **Table B-4** of **Appendix B**. These tables show that in both 2006 and 2011 there was a labour surplus in each of the age cohorts of the working age population, for both males and females, in the MWRC LGA. However, this analysis does not take into account underemployment. The table counts people who are employed, regardless of whether they are full or part-time, and regardless of whether part-time employees have desires to work longer hours.

Analysis of labour supply and demand statistics highlights that a total of 672 residents of the MWRC LGA were employed outside the LGA in 2011. The Project provides an opportunity to attract these workers back to employment in the LGA.

8.2.5 Labour Force Characteristics

This section documents and analyses the following characteristics of the labour force in the Sub Regional Study Area:

- Industry of employment;
- Occupation; and
- Education attainment and qualifications.

Industry of Employment

Industry of Employment in the Study Area for the 2006 and 2011 Census is illustrated in **Table B-5** and **Table B-6** of **Appendix B**. **Table B-5** shows that:

- Mining was the top industry of employment in the MWRC LGA in 2011 (13.8%) compared to 1.6% in NSW.
- Within the MWRC LGA, the proportion of people employed in the mining industry sector was significantly higher than the State average in Rylstone (17%), Kandos (15.3%) and Mudgee (14.9%). This figure is likely to have increased further for Mudgee given the expansion in the mining industry between 2011 and 2012.
- In the MWRC LGA, retail trade was the second largest industry of employment at 12.9%, followed by agriculture, forestry and fishing at 9.5%.
- In Breakfast Creek SS the agriculture industry sector accounted for 42.3% of employment, reflecting that this is still the dominant economic sector, employer and source of income for households in the immediate area; and
- Mudgee showed a diverse spread of industries, commensurate with the profile of a regional service town.

Table 53 shows that the overwhelming majority of people employed in the mining industry sector in 2011 and living in the MWRC LGA were employed in the coal mining sector (at least 87%). The number of people employed in coal mining in 2011 is almost three times that recorded in 2006.

Table 53
Employment in Mining, MWRC LGA, 2006 and 2011

Mining Type	People Employed			
	2006		2011	
	Number	%	Number	%
Coal Mining	458	75.8	1,119	86.8
Mining (no further detail)	14	2.3	48	3.7
Oil and Gas Extraction	0	0.0	0	0.0
Metal Ore Mining	18	3.0	33	2.6
Non-Metallic Mineral Mining and Quarrying	9	1.5	41	3.2
Exploration and Other Mining Support Services	105	17.4	48	3.7
Total	604	100.0	1,289	100.0

Source: ABS 2007e and ABS 2012J

Note: Count of persons at place of usual residence

The DE releases projections of employment by industry for SA4 regions. The MWRC LGA is located within the Central West SA4. The 2014 employment projections (DE, 2014a) for Central West SA4 suggest that employment in the mining sector will experience a small increase from 7,500 people to 7,600 people (0.9% or 100 people) between November 2013 and November 2018. For comparison, projections for the Hunter Valley (excl Newcastle) SA4 indicate a 1.2% decline in employment in the mining sector across the same period. These projections do not take into account anticipated expansion in the mining sector as detailed in **Table 3**.

The DE projections indicate the following sectors in the Central West SA4 are likely to experience the most significant growth in employment numbers between 2013 and 2018:

- Health care and social assistance - 15.7% or 1,800 people;
- Education and training - 14.4% or 1,200 people;
- Accommodation and food services sector - 14.0% or 1,000 people;
- Administrative and support services - 13.9% or 300 people; and
- Electricity, gas, water and waste service sector - 12.4% growth or 200 people.

Occupation

Table 54 shows the proportion of employed persons in the SIA Study Area in each occupation in 2011. Specifically, it demonstrates that:

- Breakfast Creek SS had a significant proportion of managers (38.9%) compared to MWRC LGA (15.8%) and NSW (13.3%). This can be attributed to the number of farm owner/managers in the agricultural industry in these areas;
- Approximately 32.3% of employed persons in Rylstone and 29.7% in Kandos were employed as either machinery operators and drivers or labourers, compared to 24.9% in the MWRC LGA and 15.1% in NSW; and
- All urban areas of interest in the SIA Study Area had a lower proportion of professionals and a higher proportion of technicians and trades workers, machinery operators and drivers, and labourers than NSW.

Table 54
Occupation, 2011

Occupation	Breakfast Creek SS	Rylstone UCL	Kandos UCL	Mudgee SA2	MWRC LGA	Lithgow-Mudgee Region	NSW
	Percentage (%) of Employed Persons						
Managers	38.9	9.7	6.6	11.3	15.8	13.4	13.3
Professionals	11.9	12.1	14.7	15.1	13.6	12.9	22.7
Technicians & trades workers	5.6	15.3	19.8	17.3	16.6	17.0	13.2
Community & personal service workers	5.6	11.3	13.5	9.8	8.7	10.1	9.5
Clerical & administrative workers	4.8	11.7	8.4	10.2	9.9	11.3	15.1
Sales workers	4.0	5.2	6.3	11.0	9.0	8.6	9.3
Machinery operators & drivers	11.1	20.2	16.2	12.6	12.7	13.2	6.4
Labourers	15.1	12.1	13.5	11.5	12.2	11.9	8.7
Inadequately described/Not stated	3.2	2.4	1.2	1.3	1.6	1.7	1.8
Total persons	126	248	334	4,611	9,364	17,969	3,138,330

Source: ABS 2012k

Education and Qualifications

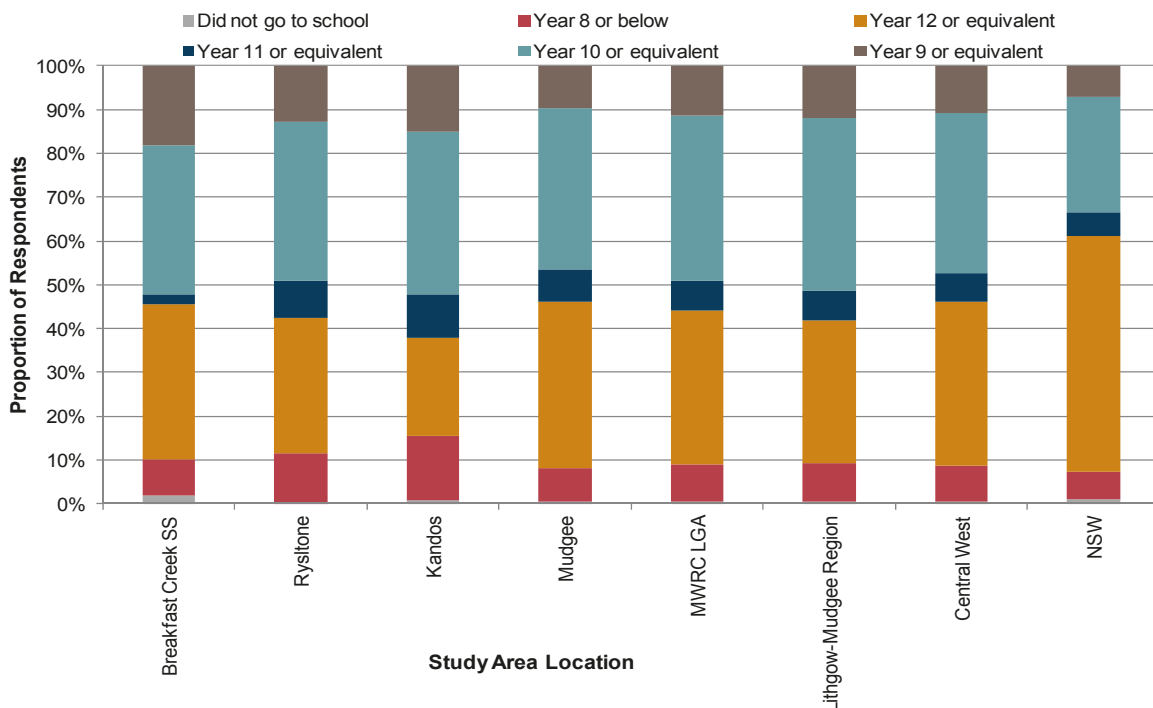
Education is a strong determinant of income and social status. Two indicators of a community's education level are the proportions of people with tertiary qualifications and the average school leaving age.

Data relating to post-school qualifications is provided in this section, while information relating to tertiary, secondary and primary education facilities is given in **Section 11.2.1**.

Graph 4 shows the highest year of school completed for residents of the SIA Study Area, and NSW, recorded in 2011. All areas of interest in the SIA Study Area recorded lower proportions of persons over 15 years completing Year 12 compared to NSW. In Kandos, Rylstone and the Breakfast Creek SS only 21%, 28% and 33% of people over 15 years completed Year 12 respectively, compared to 49% for NSW. After Kandos, the Breakfast Creek SS recorded the highest proportion of persons under 15 years who did not go to school, as well as the second highest proportion of persons under 15 who recorded Year 9 or lower as their highest level of schooling.

These statistical trends in Kandos, Rylstone and Breakfast Creek SS are a reflection of the aging population present in these areas and a combination of the historical impact of a dominant rural industry and the long term operation of the Kandos Cement Factory and Charbon Mine. It is likely that many current residents left school early to take up employment in the surrounding agricultural industry, Kandos Cement Factory or Charbon Mine.

**Graph 4
Highest Year of Schooling, 2011**

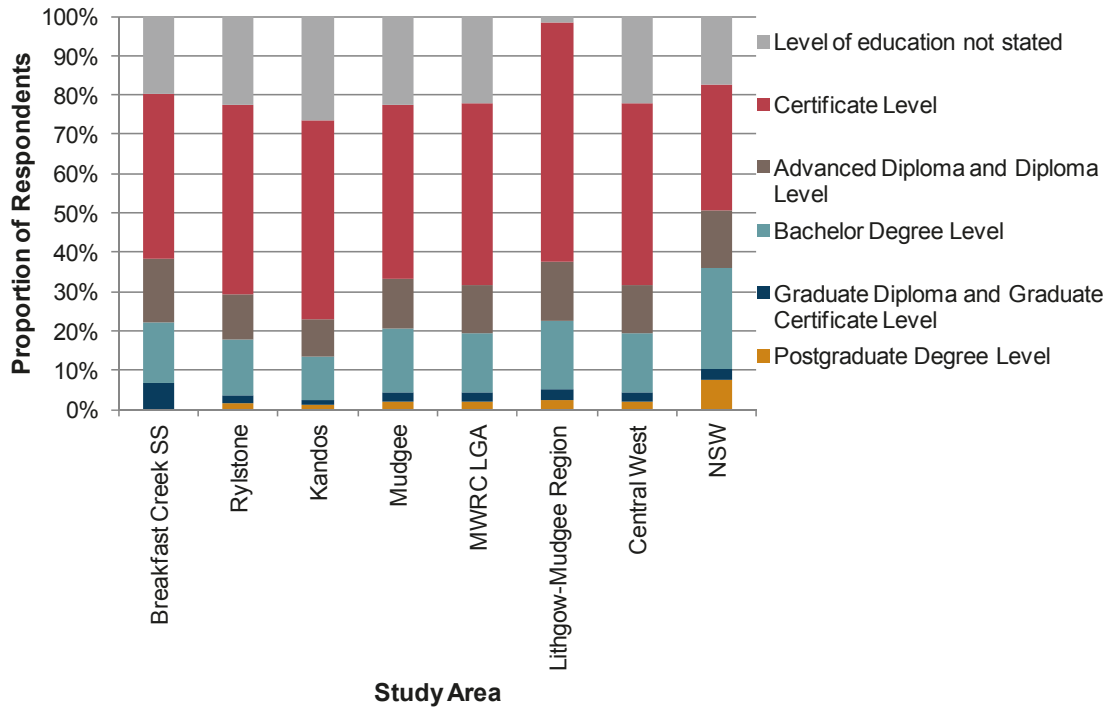


Source: ABS 2012I

Graph 5 shows the proportion of persons over 15 years of age in the SIA Study Area who held a post-school qualification in 2011, and the level of that qualification. Notable trends from Graph 5 include:

- A considerably less educated labour force in the SIA Study Area than that of NSW. In 2011 the proportion of people aged 15 years and over with a degree or equivalent in NSW was 34.7% compared to 19% in MWRC LGA, 20% in Mudgee, 23% in Breakfast Creek SS, 18% in Rylstone and 14% in Kandos. These statistics may be due in part to:
 - A historical lack of tertiary education facilities and/or access to these facilities in the region;
 - A strong rural industry which provided significant employment opportunities for less educated people;
 - The historical presence of the Kandos Cement Works or Charbon Mine which provided employment for both skilled and unskilled workers.
- Rylstone and Kandos had lower proportions of persons with a post-school qualification than all other areas in the SIA Study Area;
- Breakfast Creek SS had no persons recorded with a postgraduate degree level qualification. However, overall qualification levels were similar to the NSW level;
- The Lithgow-Mudgee Region had a high proportion of persons with a certificate level qualification. This is likely due to the historical presence of mining in the Region and the demand for machinery operators and drivers, technicians and trades workers and labourers, occupations that generally require certificate level qualifications; and
- All areas in the SIA Study Area had higher proportions of persons with a certificate level qualification than NSW and a lower proportion of people with a postgraduate degree.

**Graph 5
Post-School Qualifications, 2011**



Source: ABS 2012m

Vocational Education and Training

Vocational Education and Training (VET) Courses are offered through all high schools in the MWRC LGA. VET courses give students work-related skills in a variety of industry areas. Students receive a nationally recognised qualification when they complete their course. Some VET courses are studied at school while others are studied through Trade Training Centres (TTCs) or TAFE Western.

State Training Services (STS) (within the DEC) is responsible for all government-funded VET in NSW and regulates the apprenticeship and traineeship system across the State. The MWRC LGA is located within the Western NSW STS region. According to DEC (2015a) there were 5,920 participants in apprenticeships and traineeships in January 2015 in the Western NSW STS region, with approximately 27% aged 19 or under, 30% aged 20-25 years and a further 30% aged 25-45 years.

The top three areas of VET in the Western NSW STS region in January 2015 were:

- Automotive (12%);
- Building and construction (12%); and
- Finance (11%) (DEC 2015a).

Approximately 6% (338) of participants were engaged in training related to the mining industry (DEC 2015a). The number and proportion of people engaged in training in the mining industry in Western NSW STS is significantly larger than other STS regions and comparable to the Hunter and Central Coast Region (approximately 5% and 821 participants). The majority of participants in apprenticeships and traineeships were studying a Certificate III qualification.

Apprentice and traineeship data from DEEWR (2013) indicates that there has been a low take up of school-based apprenticeships and traineeships in the Orana RDA region. The latest available data (2013) shows all government students currently in training. As at 7 January 2013 there were 43 Australian School-based Trainees and 11 Australian School-based Apprentices in schools in the Orana RDA region.

8.2.6 Issues Impacting Workforce Capacity in RDA Orana

In 2014 RDA Orana commissioned Urbis Pty Ltd (Urbis) to complete research into the workforce capacity of the Orana RDA in order to inform the development of an Orana Workforce Planning and Development Strategy (**Section 1.5**). The work completed by Urbis builds on the findings of the 2013 Regional Education, Skills and Jobs (RESJ) Plan for the Orana Employment Service Area (ESA) (DEEWR 2013). The RESJ Plan presents locally identified opportunities and challenges, and outlines local strategies to improve education, skills and jobs outcomes in RDA Orana.

The 2013 RESJ Plan identified the following key skills and jobs challenges for the Orana ESA:

- Closing the Gap in all areas for Indigenous Australians;
- Establishing meaningful and engaging educational pathways for young people to reach Year 12 or equivalent;
- Establishing local options and pathways to tertiary and further education for people to study and work in the region; and
- A labour market with high youth and Indigenous unemployment, skill shortage areas (particularly in the mining sector) and an ageing workforce.

Urbis (2014) identified the following skills and jobs challenges in the Orana region:

- There is a desire for growth within the region with around half (45%) of employers surveyed planning to grow their businesses within the next five years.

- There are a number of skills gaps and shortages across the region (**Table 55**). Occupations identified as difficult to fill include automotive and engineering technicians and trade workers; sales workers; design, engineering, science and transport professionals; and health worker roles; and
- There are a range of structural, educational, attitudinal, socio-demographic, and geographic factors that are impacting on the ability of businesses to recruit and retain staff including:
 - A lack of basic and specialised skills including a lack of job readiness;
 - Informal recruitment methods which in turn limits the labour pool an employer can reach and ultimately the pool of people an employer can recruit from;
 - Reluctance by some employers to invest in unskilled workers;
 - Competition for staff and wage pressures; and
 - The characteristics of the region including the large geographic area of the Orana region, the limited number of higher educational facilities, and an ageing population all have an impact on the Orana labour market.

The findings of Urbis (2014) suggest that there is a pool of labour within the Orana RDA, including the MWRC LGA that with investment in job readiness and skill development could be available to work on the Project.

Skill Shortages

Urbis (2014) identified some consistency in the occupations employers in the Orana RDA find difficult to fill now and expect to find difficult to fill in the future. These occupations include automotive and engineering technicians and trade workers; sales workers; design, engineering, science and transport professionals; and health worker roles.

Urbis (2014) further reports that *“Orana is facing various skills shortages which are exacerbated by the ageing population, but also has pockets of excessive unemployment. The nature and extent of labour and job shortages is difficult to ascertain with precision. It is also changing, which adds to measurement challenges.”*

Table 55 presents the occupations relevant to the Project which are experiencing skill shortages in NSW and at a national level, as assessed in May 2014 by the DE. Skills shortage data is not available for local areas from state or national government.

Table 55
Skill Shortages, NSW and National, 2014

Occupations Experiencing Skill Shortages and Recruitment Difficulty (ANZSCO)*	Geographic Level
Surveyor	NSW
Diesel Mechanic	NSW
Welder (first Class)	NSW
Electrician (general)	NSW
Sheet metal Trades Worker	NSW
Diesel Mechanics	NSW
Welder (First Class)	NSW
Automotive Electrician	National
Motor Mechanics	National
Surveyor	National
Construction Estimator	National
Electrical Lines worker	National

Source: DE 2014a

Notes: * The Australian and New Zealand Standard Classification of Occupations (ANZSCO) is published by the Australian Bureau of Statistics to provide uniformity in the collection, analysis and dissemination of occupational statistics in Australia and New Zealand.

8.3 IMPACT ASSESSMENT AND MANAGEMENT

The Project is expected to have a number of benefits and impacts on the labour force in the Sub Regional Study Area. This section addresses the following aspects:

- Employment growth;
- Available labour supply for the Project;
- Availability of the labour force for the non-mining sector;
- Youth employment;
- Aboriginal employment; and
- Labour force qualifications.

Stakeholders consulted for the EIS identified a number of potential Project benefits in relation to the local labour market including:

- The potential for increased employment and training opportunities for young people;
- The generation of employment opportunities for existing residents of the Bylong Valley; and
- The provision of jobs, scholarships and training for locals.

Stakeholders consulted for the EIS also raised concerns in relation to the potential for the Project to draw labour away from the non-mining sector with resulting impacts on local business operations and service delivery.

8.3.1 Employment Generation

The Project is predicted to generate the following new employment opportunities in the MWRC LGA:

- 800 FTE positions at peak construction (PY2) for the development of the open cut mine and associated infrastructure;
- 100 FTE positions during Construction Phase 2 for the development of the underground mine (PY4 – PY6); and
- 470 FTE positions during peak operations (PY9) (dual operations) including 275 FTE positions associated with the underground only operations (PY13 to PY25).

The following flow-on employment will also occur in the MWRC LGA as a result of the construction and operation phases of the Project:

- An estimated 579 additional flow-on jobs associated with Construction Phase 1; and
- An estimated 540 additional flow-on jobs associated with the Operations Phase¹⁹.

The potential direct and indirect employment benefits of the Project are significant for the MWRC LGA.

8.3.2 Growth in Labour Force

There are currently 11,273 persons employed in the MWRC LGA (**Table 49**). During underground only operations (PY13-PY25), an additional 275 persons will be employed in the MWRC LGA, of which 235 persons are expected to relocate and reside in the MRWC LGA. The increase in employed residents of the MWRC LGA is equal to approximately 2%.

Section 7.3.2 describes the predicted increase in the number of employees in the mining and resources industry in the Sub Regional Study Area as a result of both the Project and the cumulative impacts of the current and expected mining and resources projects in the SIA Study Area. **Section 6.3.4** also outlines the expected indirect employment that will be generated in the SIA Study Area as an indirect impact of the Project.

¹⁹ Based on an average annual FTE workforce of 290 during the Operations Phase.

In addition, the Project will result in growth in the local labour force by virtue of new residents (predominantly families) moving to Mudgee and the MWRC LGA.

The impact of the Project on labour force size in the MWRC LGA is a significant positive impact.

8.3.3 Available Labour Supply

The Project has the potential to have both positive and negative impacts on the labour market in the MWRC LGA. The positive impacts relate to:

- The provision of employment opportunities for those people currently unemployed;
- An opportunity to increase labour force participation rates; and
- An increase in the size of the labour force through the additional population associated with Project employees.

The negative impacts relate to the cumulative impacts of resource sector growth and the corresponding demand for labour.

The potential available labour supply in MWRC LGA for the Project consists of:

- The labour surplus of 672 people (**Section 8.2.4**); and
- The unemployed labour pool of 780 (**Section 8.2.1**).

In addition, 3,020 employed people (30%) of the 2011 labour force were engaged in part-time work, some of whom may seek to take up full-time employment. There is no available data to ascertain how many of these part-time employees would aspire to full-time work but it can be assumed that a percentage would and may offer a potential labour pool for the Project.

These figures suggest a total labour surplus in 2014 of approximately 1,452 people. It is acknowledged that the skills and working intentions of the available labour force is not known. A portion of these unemployed people are likely to reside in Kandos and may have previously been employed at the Kandos Cement Works. The upside of this is that these unemployed persons may have trade and technical qualifications, or skills relevant to the two key occupation groups of the Project workforce – technicians and trades workers, and machinery operators and drivers.

Caution must be taken when applying data regarding the labour force surplus data to the Project. In particular, the labour force surplus shown for MWRC LGA masks the fact that much of the surplus (46%) will be workers currently travelling to other LGA's in the Lithgow-Mudgee Region.

Labour force participation rates for the SIA Study Area were outlined in **Table 52**. These rates show low participation rates for a number of areas in the MWRC LGA, including Kandos and Rylstone.

Based on the analysis of labour surplus and labour force participation rates, it appears that the MWRC LGA can absorb a small amount of the jobs created directly by the Project.

The impact of the Project on local labour supply will be influenced by the potential demand for local hires and the number of flow-on jobs generated in the MWRC LGA by the Project. KEPCO has committed to employing as many local residents of the MWRC LGA as possible. However, the company acknowledges it will need to monitor Project labour demands and any potential adverse impacts on the non-mining sector, particularly business operators in Mudgee and government and non-government social service providers (**Section 8.3.4**). This is particularly relevant given the potential cumulative demand for labour anticipated to be generated in the future by resource projects.

In this regard the Project workforce scenario for the Operations Phase assumes a maximum of 15% local hires in current market conditions. However, KEPCO will aim to remain informed of labour market changes and will adjust local hire numbers accordingly. The majority of the workforce is therefore likely to be recruited from outside the MWRC LGA reducing impacts on the existing labour pool in Mudgee or the MWRC LGA.

Gillespie Economics (2015) estimates that the Project is likely to generate an additional 540 jobs in the MWRC through flow-on effects. This will have a cumulative impact on labour availability across the MWRC LGA, specifically Mudgee.

The addition of new families (associated with any direct and indirect workforce) to Mudgee and the MWRC LGA will ultimately add to growth in the SIA Study Area labour force and depending on the skills of the incoming population, will assist in meeting both skilled and unskilled areas of labour demand. The Project is anticipated to result in the addition of approximately 255 family households to Mudgee by PY9 (**Section 6.3.7**). The partners of the incoming workforce may provide a pool of new and potentially skilled labour for local business operations.

The Project local hire arrangements described above together with the available pool of labour in the MWRC LGA suggests that the Project will have minimal impact on labour supply in the MWRC LGA.

KEPCO is developing a Local Content Plan and Indigenous Participation Plan to encourage the participation of local and under-represented groups in the Project's workforce and supply chain.

The Local Content Plan will provide a detailed analysis of identified existing local enterprise and the skills / education base of local residents. Wherever possible, Project supply and workforce requirements will then be 'matched' with existing capabilities in the local community. The Plan will also identify strategies to build local capacity where this is lacking, or does not meet Project needs. This may involve training, mentorship, recruitment and development programs which focus on local and regional communities as a first priority.

Similarly, the Indigenous Participation Plan will map details of existing Indigenous businesses and identify regional 'pockets' of potential Indigenous labour supply (e.g. those areas with high levels of Indigenous unemployment). This will build off the Local Labour Market Analysis completed as part of the SIA. The Indigenous Participation Plan will aim to identify particular job positions and supply work packages that will be targeted for Indigenous inclusion, and appropriate training and development programs will be outlined to support this objective.

KEPCO is committed to optimising local labour supply to the Project wherever feasible. The Local Content and Project recruitment planning processes will give due consideration to the following actions:

- Preparation of a targeted Recruitment and Training Strategy for the Project;
- Provision of a range of employment opportunities – potentially including school based traineeships, apprenticeships, graduate programs and mature aged placement programs.
- Offering part-time and/or flexible employment opportunities where practicable to encourage a higher rate of labour force participation, especially in relation to disadvantaged groups;
- Exploring opportunities to enhance existing mining related skill development programs at local high schools in Kandos and Mudgee; and
- Exploring opportunities related to mentoring and career development services to secondary schools in MWRC LGA to promote employment and career development pathways in the mining industry.

8.3.4 Labour Draw

It is difficult to predict how many people currently working in other industry sectors in the SIA Study Area will move to new occupations in the mining and resource sector as a result of the Project, or as a result of other mining and resource projects in the SIA Study Area e.g. Moolarben Stage 2.

This sentiment echoed during SIA interviews with representatives from MWRC, who consider that the mining industry with its higher wages is able to attract existing skilled and experienced employees away from their current jobs in the SIA Study Area. Such anecdotal evidence is also prevalent in the neighbouring mining regions of Upper Hunter Shire, Muswellbrook and Singleton LGAs, where there have been reports over a long period of the difficulty of the non-mining sector to attract and retain appropriately skilled and experienced staff.

In the MWRC LGA, a tightening of the labour market occurred during 2010-2012 due to an expansion of the local mining industry. MWRC LGA representatives who participated in SIA interviews noted the following trends in Mudgee during this period of high labour demand:

- As the mining sector expanded it attracted an increasing number of the existing labour force into the sector. This had the effect of driving wage competition between industry sectors within competing export industries.
- The attractiveness and relative availability of high wages in the resource sector further increased labour force participation in the MWRC LGA.
- Labour, and in particular skilled labour shortages, were evident in Mudgee during this period of growth and when combined with other pressures such as rising accommodation costs began to impact on the capabilities of business to benefit from the resource sector and the ability of the service industry to deliver services.

The demand for skilled labour can also influence the range of education opportunities on offer, especially at a local level, where technical education in mining-related fields is perceived to offer a comparatively quick entry into a high-paying career.

The Project has the potential to adversely impact labour supply in the non-mining sector in the MWRC LGA. KEPCO will monitor local labour supply and adjust local labour recruitment practices and rates accordingly. KEPCO will support the provision of education and training opportunities in the non-mining sector through initiatives established under the VPA.

8.3.5 Youth Employment

Youth unemployment is discussed in **Section 8.2.1**. The Project is anticipated to generate employment opportunities for young people in the MWRC. Youth unemployment in the MWRC LGA levels may experience a small improvement as a consequence of direct Project employment, flow-on employment and cumulative mining and resources development in the region. The extent to which youth unemployment levels improve is difficult to determine. However, KEPCO is keen to provide direct employment opportunities for young people in the MWRC LGA as the Operations Phase of the Project ramps up.

The Project Local Content Plan and Project recruitment planning processes will consider a workforce recruitment and training model that could potentially include the development of school based traineeship and apprenticeship opportunities at Kandos HS and high schools in Mudgee.

8.3.6 Labour Force Qualifications

In 2011 the majority (more than half) of people employed in the mining industry in the MWRC LGA were employed as 'machinery operators and drivers' and approximately one quarter were 'technicians and trades workers', being generally consistent with the occupations of the wider mining industry. The majority of employees in the mining industry in the MWRC LGA have a certificate qualification or no qualification.

The implication of these statistics is that the Project is likely to result in a an increase in demand for certificate level training locally in the Project's pre-construction and construction phases as people prepare themselves to apply for jobs. Discussions with local Regional Training Organisations (RTOs) indicate they are well equipped to provide tailored training services to meet the needs of the Project. However, school based programs in the MWRC LGA that focus on mining related skill development are limited and KEPCO will need to explore skill development opportunities further with the Cudgegong TTC and local secondary schools. These discussions will form part of the Local Content Plan for the Project.

8.3.7 Summary of Impacts and Management

The Project has the potential to benefit the labour market of the MWRC LGA through the:

- Provision of direct and indirect job opportunities for local residents of MWRC LGA;
- Provision of training and employment opportunities for a diverse sector of the population including young people, women, mature aged adults and Indigenous people; and
- Introduction of additional working age people to the labour force of the MWRC LGA.

The Project has the potential to draw labour from the non-mining sector in MWRC LGA, with resulting impacts on service provision.

Table 56 provides a summary of the strategies to be implemented by KEPCO to enhance the potential labour market benefits of the Project and manage the negative impacts on the non-mining sector. Note that other mitigation measures that may also relate to the labour force are listed in other thematic sections (e.g. Housing and Accommodation, or Community Liveability) in this report.

Table 56
Summary of Project Impacts and Management – Labour Market

Impact	Impact Category	Management Strategies
Creation of direct and indirect employment opportunities during the construction and operation phases of the Project	Positive	8.1 KEPCO is developing a Local Content Plan and Indigenous Participation Plan to encourage the participation of local and under-represented groups in the Project's workforce and supply chain. The Local Content Plan will provide a detailed analysis of existing local enterprise and the skills / education base of local residents. Wherever possible, Project supply and workforce requirements will then be 'matched' with existing capabilities in the local community.
The Project will directly increase the labour force of the MWRC by 2.1%.	Positive	8.2 KEPCO will encourage all NLHs to relocate permanently to Mudgee and the broader MWRC LGA with their families. The labour force of the MWRC LGA will benefit from the addition of a sizeable population aged between 15 and 65 years, in addition to the direct Project workforce.
Potential for labour draw from the non-mining sector in MWRC LGA with resulting impacts to local service provision.	Negative	8.3 In consultation with MWRC, KEPCO will encourage the provision of education and training opportunities in the non-mining sector through initiatives established under the VPA, should this be identified as a community need. 8.4 KEPCO will monitor local labour supply and adjust local labour recruitment practices and rates accordingly.
Potential increase in demand for labour with certificate level qualifications in the MWRC LGA	Negative	8.5 As a component of the Community Needs Assessment KEPCO will engage with Kandos and Mudgee SHS and St Matthews Catholic School in Mudgee and the Cudgegong TTC to identify potential opportunities for supporting the delivery of existing training programs targeting open cut and underground mining skill sets and other non-mining related skill sets in demand in the MWRC LGA e.g. childcare. 8.6 The Local Content and Project recruitment planning processes will consider a workforce recruitment and training model that could potentially include the development of school based traineeship and apprenticeship opportunities at Kandos and Mudgee HS.
Provision of employment for local residents of the MWRC LGA during the construction and operation phases of the Project.	Positive	8.7 KEPCO will prepare a targeted Recruitment and Training Plan for the Project which will consider a range of employment and training options for the MWRC LGA residents. 8.8 KEPCO will seek to provide part-time and/or flexible employment opportunities to encourage a higher rate of labour force participation, particularly among disadvantaged groups. This will be done wherever possible based on an assessment of each position and its association with

Impact	Impact Category	Management Strategies
Creation of employment opportunities for young people in the MWRC LGA	Positive	achieving 24/7 productions. 8.9 As a component of the VPA, KEPCO will encourage MWRC to establish an annual scholarship program offering financial support to local students seeking to study a university degree in a primary industry related course. 8.10 KEPCO will investigate opportunities for providing mentoring and career development services to secondary schools in MWRC LGA to promote: <ul style="list-style-type: none"> • Employment in the mining industry; • Project specific pathways to employment; and • Employment opportunities for women.

9 HOUSING AND ACCOMMODATION

9.1 INTRODUCTION

This section describes the housing and accommodation characteristics of the SIA Study Area, with a particular focus on the town of Mudgee as the closest significant urban centre to the Project. Potential impacts of the Project on housing and accommodation in Mudgee are specifically discussed and management strategies presented.

9.2 SETTING

9.2.1 Overview of Local Housing Setting

The MWRC LGA, and in particular Mudgee has experienced significant population growth over the past five years (**Section 6.2.3**). Consultation with MWRC (MWRC 2014, pers.comm., 4/5 December) confirms that this population growth was largely a result of the combined effects of the construction of the Moolarben Coal Mine near Ulan in 2010 and expansions to the existing Wilpinjong and Ulan Coal Mines between 2010 and 2012. This population growth placed sustained pressure on the housing market particularly in the regional centre of Mudgee where the majority of population growth has occurred.

During this period, both rental and housing prices in Mudgee and to a lesser extent nearby Gulgong experienced significant levels of growth. This is evidenced in **Section 9.2.3** which presents trend data for housing costs in Mudgee and the MWRC LGA. Consultation with MWRC representatives (MWRC 2014, pers.comm., 4 December) suggests that government employees and the workforce associated with the key service workers in Mudgee experienced difficulty securing affordable housing during this growth period.

The following housing profile confirms that the housing market in MWRC LGA and in particular Mudgee has softened a little as a result of the completion of the surrounding mine construction projects. However, rental and housing prices have not returned to pre 2010 costs, suggesting that the sustained larger population continues to place pressure on the housing market, albeit at lower levels than that of 2010-2013.

As a result of the housing market dynamics experienced between 2010 and 2012, MWRC (HillPDA 2014) identified the need to prepare a URS for the towns of Mudgee and Gulgong to guide decision making around the timing, location and type of future residential development. The purpose of preparing the Mudgee-Gulgong URS was to ensure that any future pressure from population growth associated with resource sector growth in the MWRC LGA could be proactively managed with adequate land and housing delivered in a timely manner. The majority of discussion in the following sections is drawn from the Mudgee-Gulgong URS (HillPDA 2014).

9.2.2 Housing Stock and Tenure

Dwelling Structure

Table 57 shows the total number of occupied private dwellings and their forms in the SIA Study Area and NSW in 2011.

Table 57
Dwelling Type, Occupied Private Dwellings, 2011

Geographic Location	Total Dwellings	Dwelling Type (%)				Total Unoccupied Private Dwellings (%)
		Separate Houses	Semi-Detached ^a	Apartment ^b	Other	
Breakfast Creek SS	203	93.4	2.5	0	2.5	40.4
Rylstone UCL	318	96.2	0	0	3.4	16.7
Kandos UCL	694	95.5	0.7	2.4	1.6	20.3
Mudgee SA2	4,308	83.7	7.7	6.3	2.2	10.4
MWRC LGA	10,275	91.1	3.6	3.6	1.7	18.6
Lithgow-Mudgee Region	20,050	91.0	4.4	3.2	1.3	16.8
NSW	2,736,637	69.5	10.7	18.8	0.9	9.7

Source: ABS 2012p

Notes:

- a) Semi-Detached, Row or Terrace House, Townhouse
- b) Flat, Unit or Apartment

In 2011, the communities of interest within the SIA Study Area showed patterns of dwelling types consistent with NSW country towns and villages, with the dominant housing structure being separate houses (70% in NSW compared to 93% and over for Breakfast Creek SS, Kandos and Rylstone). This pattern is typical of less urbanised areas of NSW.

The most common type of dwelling in Mudgee is separate houses (84%) followed by townhouses/semi-detached/apartment dwellings (14%). These dwelling types were minimal in Rylstone and Kandos, although Kandos recorded 13 units or flats. The MWRC recognises a lack of diversity in the MWRC LGA housing market, especially in Mudgee, and is looking to increase housing diversity through the development of smaller lot sizes and semi-detached properties such as townhouses and villas (HiIPDA 2014).

All communities of interest in the SIA Study Area had higher proportions of unoccupied dwellings in 2011 than NSW, with Breakfast Creek SS having the highest proportion. The number of unoccupied dwellings in Breakfast Creek SS can be attributed, in part, to the historical agricultural setting and the prevalence of landholders employing numerous station hands and their families to assist with property operations. With a decline in the agricultural industry, the size of the local labour force has also declined. A number of participants in the SIA interviews conducted in the Bylong Valley noted the prevalence of empty houses on properties and expressed a desire to see these houses occupied by the Project workforce where Project design and associated impacts determine it is possible.

The number of bed and breakfast and self-contained accommodation options in the SIA Study Area (particularly Mudgee) may also be responsible for the large number of unoccupied dwellings in the MWRC LGA. If these dwellings were not rented out on Census night they would be classed as unoccupied. Further, the findings of consultation with MWRC representatives (MWRC 2014, pers. comm., 4 December 2014) indicate that the MWRC LGA is growing in popularity as a 'tree change' destination with many properties purchased as second homes which remain unoccupied for periods of the year.

Occupancy Rate

Table 58 shows the 2006 and 2011 household occupancy rates in the communities of interest in the SIA Study Area, as well as NSW, noting that occupancy rates have remained relatively stable over the period. Not all data for the communities of interest was comparable in 2006 due to changes in the ABS statistical geography between 2006 and 2011 (**Section 3.3.1**).

Table 58
Average Household Size (Occupancy Rate), 2006 and 2011

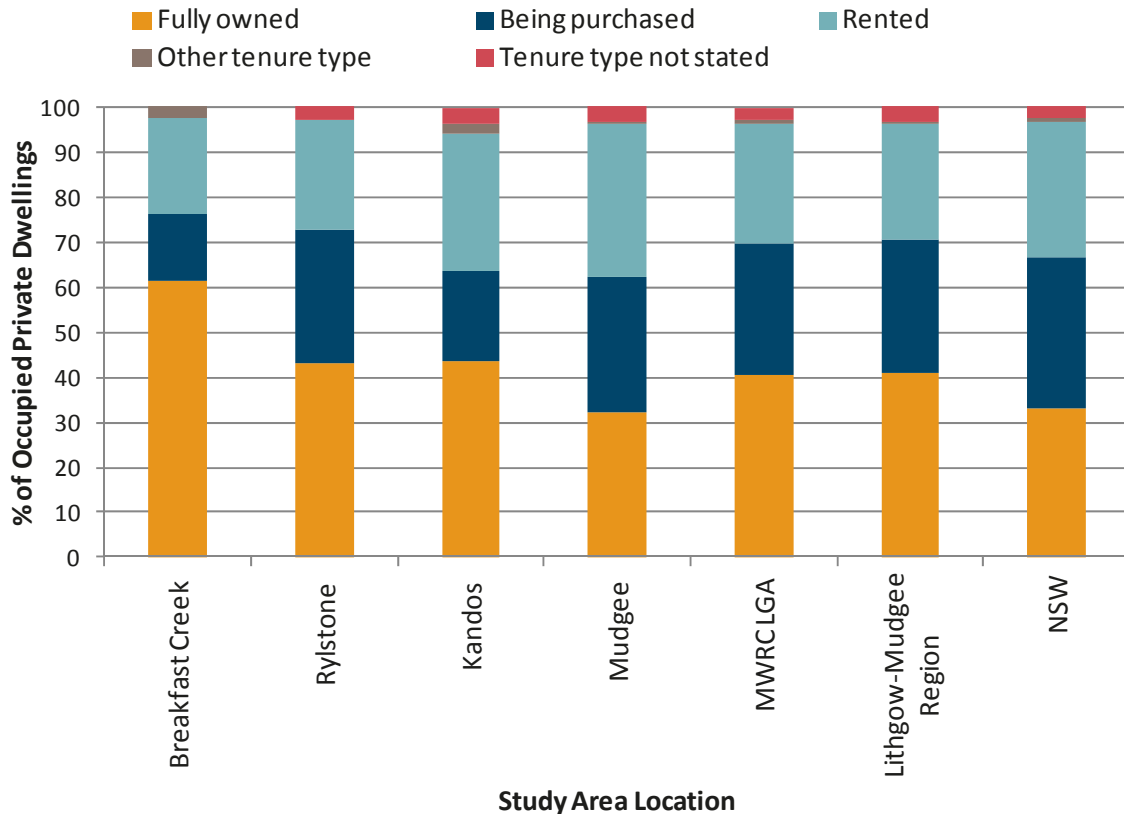
Census Geographic Area	Average Persons per Household	
	2006	2011
Breakfast Creek SS	2.3	2.2
Rylstone UCL	2.2	2.2
Kandos UCL	2.2	2.2
Mudgee SA2	2.4	2.5
MWRC LGA	2.5	2.4
Lithgow-Mudgee Region	NA	2.4
Central West	NA	2.5
NSW	2.6	2.6

Source: ABS 2007a and 2013a

Dwelling Tenure

Graph 6 shows tenure type for occupied private dwellings within the SIA Study Area.

**Graph 6
Tenure Type of Occupied Private Dwellings, 2011**



Source: ABS 2012q

The proportion of dwellings either fully owned or being purchased in 2011 varied considerably across the communities of interest. Generally, more fully-owned dwellings indicate an older, more settled population, e.g. Kandos. In general, dwelling tenures tend to vary with dwelling types, with people more likely to rent flats or units (particularly when they are young) but to own a house when they are older. For example, Breakfast Creek SS has a high proportion of dwellings either fully owned or being purchased (76%) and is characterised by a long-term agricultural community with an established population.

The proportion of dwellings being rented in Mudgee in 2011 was considerably higher than in other communities of interest in the SIA Study Area. HillPDA (2014) suggests this may be due to a significant number of construction and mine employees living in Mudgee, noting that mine workers are less likely to buy property when they are on short-term contracts during construction phase or when starting their employment with an operating mine. The high proportion of renters in Mudgee illustrates the transient and sometimes temporary nature of mining-driven population growth (HillPDA, 2014).

Social Housing

Social housing is a broad term that encompasses housing provided to low income earners in the form of public housing, community housing or Aboriginal housing.

Housing Plus is the principal provider of social housing in MWRC LGA. MWRC 2012b and recent (2015) discussions with Housing Plus and Barnardos (Mudgee) provides an indication of the provision of social housing in the MWRC LGA. In 2012 an estimated 350 social housing properties were provided in the MWRC LGA (MWRC 2012b). Based on discussions with Barnardos (Barnardos 2015, pers.comms., 12 March) it is understood a number of NSW Housing stock has been transferred and there are now approximately 300 social housing properties remaining in MWRC LGA distributed as follows:

- Approximately 230 properties in Mudgee;
- Approximately 30 properties in Gulgong; and
- Approximately 40 properties in Kandos.

Housing NSW (Housing NSW, 2015) provides a list of expected waiting times for approved applicants for social housing in Western NSW. In 2014 the expected waiting time for a one-bedroom dwelling in Mudgee was five to ten years. There are no one-bedroom social housing properties located in Rylstone or Kandos.

In 2014 the expected waiting time for a two, three or four-bedroom dwelling in Mudgee was two to five years. In the Rylstone allocation zone (which includes Kandos) the expected waiting time for a two or three-bedroom dwelling was up to two years. There are no four bedroom social housing properties located in the Rylstone allocation zone (Housing NSW, 2015).

Discussions with Housing Plus (Housing Plus 2015, pers.comms., 1 April) indicates significant waiting lists across all forms of dwelling types in the Mudgee and Rylstone allocation areas. This is consistent with the rest of NSW, where in excess of 50,000 people are currently on the waiting list for social housing.

Crisis accommodation is currently offered through a number of agencies in the MWRC LGA. There are three dedicated crisis houses in Mudgee, all operated in a partnership arrangement with Barnardos and Housing Plus. These crisis houses predominantly service victims of domestic violence. Crisis housing is also provided through motels (Barnardos 2015, pers.comms., 12 March). In those situations managed by Housing Plus, crisis housing is not for more than three nights at a time and it is not for more than 14 nights per year (Housing Plus, 20 June 2012 in MWRC 2012b). The findings of discussions with Barnardos in Mudgee to inform the Project SIA suggest long wait lists for homelessness support and long wait lists for access to social housing.

Youth homelessness in MWRC LGA was identified as an issue of concern for social housing providers during discussions with Barnardos (Mudgee) (Barnardos 2015, pers.comm., 12 April). Barnardos run the 'Reconnect Mudgee' program for young people aged from 12 – 18 years who are homeless or at risk of homelessness, and their families. Reconnect seeks to re-establish relationships between families and young people to resolve the homelessness situation.

There is no youth or women's refuge in the MWRC LGA. The nearest women's and/or youth refuges are located in Bathurst, Dubbo, Orange and Lithgow. Consultation conducted in 2012 to inform the MWRC Affordable Housing Strategy (MWRC 2012b) indicated that demand exceeds supply and this area of NSW housing is of the highest priority and will provide the greatest benefit to the local community. MWRC 2012b, identifies Barnardos, Housing Plus and MWRC as the potential funding partners for the provision of crisis housing in MWRC LGA.

9.2.3 Housing Costs

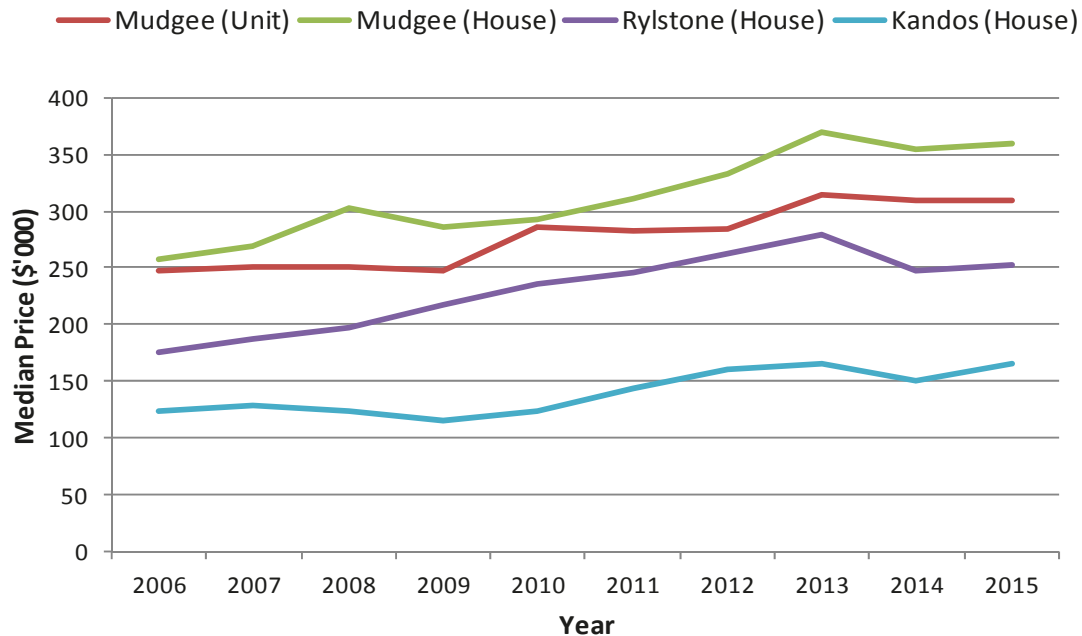
This section focuses on housing costs and affordability in Mudgee, as this is the preferred residential location for the workforce during the Project Operations Phase. Some information is also provided on Rylstone and Kandos as these locations also have the potential to provide accommodation for the workforce.

Despite being the closest village to the Project, Bylong and the Bylong Valley more broadly are not considered in detail in the following analysis of housing and accommodation due to their severely restricted growth potential, a consequence of their relative isolation, lack of services and lack of suitably zoned land.

Housing Market Prices

Strong population growth between 2006 and 2011 has driven strong growth in the housing market in Mudgee and Kandos. **Table 59** shows median dwelling prices for the Mudgee, Rylstone and Kandos townships (based on non-ABS suburb areas). The information is drawn from RESIDEX for the suburbs of Mudgee, Rylstone and Gulgong. Housing prices are noted to be significantly higher in Mudgee compared to Rylstone and Kandos.

Table 59
Median House Prices, 2006-2015



Source: RESIDEX 2015a,b, and c

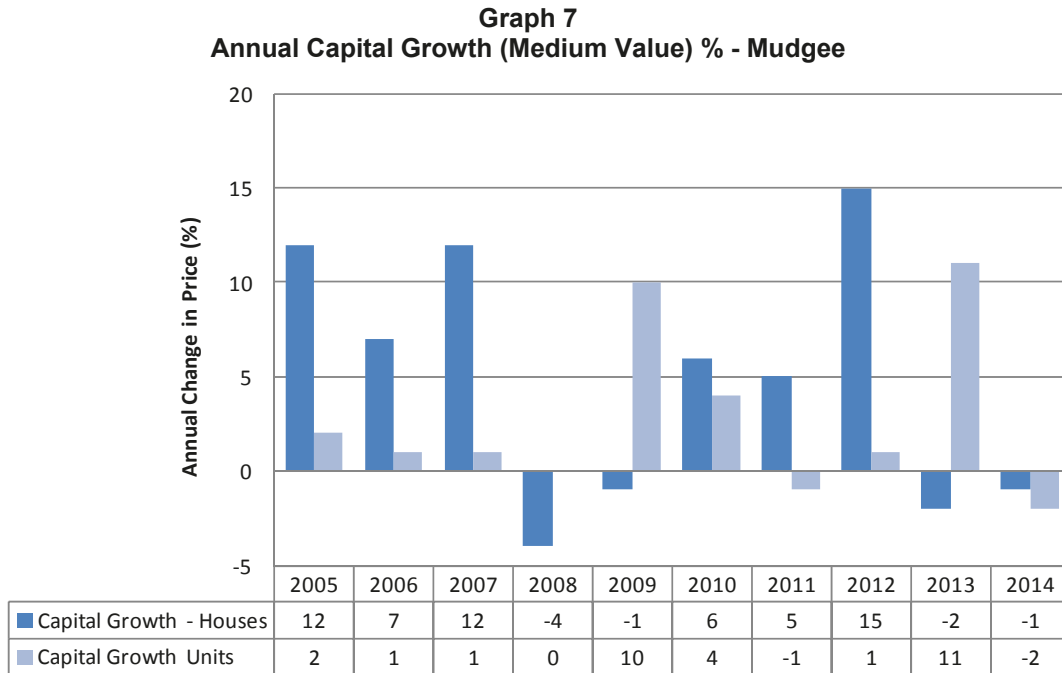
Between 2006 and 2015, Mudgee’s median house price increased from \$258,000 to \$359,000, an increase of around 39%. In the same period, Mudgee’s median unit price increased from \$247,000 to \$310,000. A drop in house and unit prices occurred in 2013 as uncertainty around mining projects grew and more land and housing supply entered the market (HillPDA 2014).

HillPDA (2014) reports that “market activity [in Mudgee] appears to be quite diverse, with both investors and owner occupiers actively purchasing dwellings”. Demand for housing in Mudgee is largely for already built housing within the \$300,000 to \$350,000 price range (HillPDA, 2014). This is the price range in which first home buyers and investors are active.

Kandos’ median house price generally increased annually from approximately \$123,000 in 2006 to a high of around \$166,000 in 2013 (a 35% increase) with a decrease to \$151,000 in 2014 and an increase to \$165,000 in 2014. The median price through that period was well below that of the MWRC LGA and was the lowest of the three centres presented above. The growth in house prices in Kandos is likely attributable to the demand for housing experienced across the MWRC LGA to service resource sector growth in 2011-2012.

In the period 2006 to 2015, Rylstone’s median house price increased from approximately \$176,000 to a high of approximately \$279,000 in 2013 before dropping to approximately \$253,000 in 2015. The median house price in Rylstone between 2006 and 2015 was below that of the MWRC LGA (RPData 2014).

Graph 7 shows the annual capital growth (median value) in houses and units in Mudgee between 2005 and 2014 (based on non-ABS suburb areas). **Graph 7** shows strong capital growth in housing in Mudgee between 2009 and 2012 with significant capital growth occurring in 2012. Capital growth rates for units have fluctuated across the same period.



Source: RESIDEX 2015a

The number of houses and units sold in Mudgee since 2004 has remained relatively consistent. On average 228 houses and 32 units are sold in Mudgee each year (new and existing) (HillPDA, 2014).

Current Rental Prices

Median rent in the communities of interest within the SIA Study Area for the 2006 and 2011 Census years is shown in **Table 60**. Between 2006 and 2011 all communities of interest in the SIA Study Area experienced a significant increase in median weekly rent.

Table 60
Median Rent, 2006 and 2011 Census

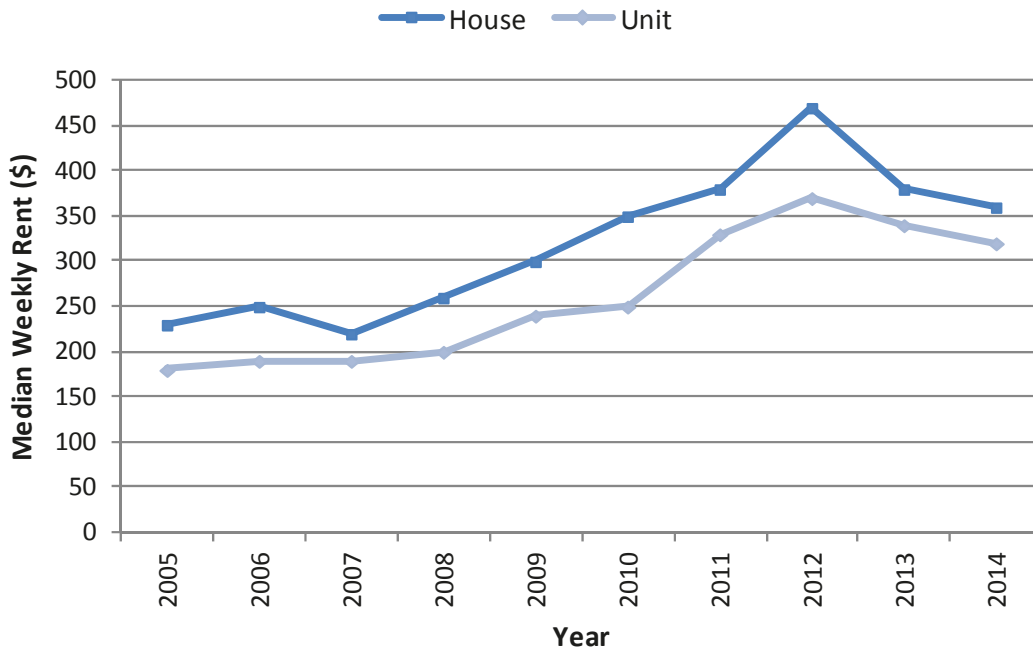
Location	Median Weekly Rent		
	2006	2011	% Change 2006-2011
Rylstone UCL	125	190	52
Kandos UCL	120	155	29
Mudgee SA2	165	240	45
MWRC LGA	145	200	38

Location	Median Weekly Rent		
	2006	2011	% Change 2006-2011
Lithgow-Mudgee Region	NA	195	Na
Central West	NA	180	Na
NSW	210	300	43

Source: ABS 2013a, ABS 2007a

Graph 8 shows median weekly rent for houses and units in Mudgee for the period 2005-2014 (based on non-ABS suburb areas). Rental prices in Mudgee have steadily increased in parallel with population growth and corresponding activity in the resource sector. Rental prices in Mudgee experienced a dramatic increase between 2009 and 2012 which corresponds to the demand generated by the construction phase of Moolarben Coal Mine and the expansion projects at Ulan and Wilpinjong. During 2010-2012 demand for rental properties far outstripped supply in Mudgee with very few rental properties available during that time. The number of rentals available has increased over the last 12 months with a slow-down in the mining industry and the completion of construction projects at a number of nearby mines.

Graph 8
Median Weekly Rent (\$) - Mudgee



Source: RESIDEX 2015a

Table 61 shows the highest and lowest priced rental properties and the number of properties available for rent in Mudgee, Rylstone and Kandos in April 2015. The number of properties available and the range in weekly rental is significantly greater in Mudgee than in Rylstone or Kandos.

Table 61
Rental Price, High and Low, April 2015

Property Type and Location	Highest Rent (\$p/w)	Lowest Rent (\$p/w)	Number of properties
Mudgee (Postcode 2850)			
All properties	900	155	148
3-bedroom houses	750	270	53
2-bedroom + unit	680	200	14
Rylstone (Postcode 2849)			
All properties	300	180	9
3-bedroom houses	280	210	5
2-bedroom+ unit	0	0	0
Kandos (Postcode 2848)			
All properties	280	150	15
3-bedroom houses	280	170	10
2-bedroom+ unit	0	0	0

Source: Realestate.com.au 2014

Rental Vacancy Rate

Rental vacancy rates available from SQM Research (SQM Research Pty Ltd 2014 a, b, c) cover the period April 2010 to June 2014 and show fluctuating rates for Mudgee (Postcode 2850), Rylstone (Postcode 2849) and Kandos (Postcode 2848) over that time with the following highlights:

- For Mudgee, a low of approximately 1% in July 2012 to a high of approximately 9% in November 2014, with a current (February 2015) vacancy rate of approximately 7.1%;
- For Rylstone, a low of 0% in January 2011, to a high of approximately 10% in November 2014, with a current (February 2015) vacancy rate of 6%; and
- For Kandos, a low of 0% in March 2011 to a high of approximately 7% in November 2014, with a current (February 2015) vacancy rate of approximately 5.4%.

The low vacancy rate in Rylstone and Kandos is likely due to these areas attracting the 'overflow' from Mudgee during a period of significant housing demand. During 2011-2012 Mudgee experienced a significant increase in rental rates and house prices. Kandos and Rylstone did not experience the same level of increase and consequently are likely to have attracted low income earners that were pushed out of the Mudgee housing market and/or mine related employees seeking lower cost housing.

Mudgee, Kandos and Rylstone experienced their highest rental vacancy rates in ten years during November 2014. Analysis of rental data indicates a steady increase in vacancy rates from April 2014 across all three settlements. All three settlements experienced low vacancy rates during the 12 months from July 2011. This is likely attributable to the demand for housing generated by mining projects occurring in the LGA during this period.

9.2.4 Affordable Housing

Housing affordability is a function of both housing costs and household income. Housing stress is a specific measure of the extent to which lower income households face unaffordable housing costs (rent or mortgage payments). The usual benchmark for affordability is that households paying more than 30% of their gross income for housing costs are in 'stress' (Housing Alliance 2014).

Consistently, the ABS defines households experiencing mortgage and rental stress as those households for whom mortgage or rental payments are greater than 30% of household income. **Table 62** shows rates of mortgage and rental stress for the SIA Study Area.

Table 62
Median Mortgage Repayment and Rent, 2011

Census geographic area	Median mortgage repayment (\$/monthly)	Households experiencing mortgage stress (%)	Median rent (\$/weekly)	Households experiencing rental stress (%)
Breakfast Creek SS	1,650	5.1	NA	NA
Rylstone UCL	1,213	4.5	190	7.8
Kandos UCL	953	4.3	155	13.0
Mudgee SA2	1,733	7.1	240	12.2
MWRC LGA	1,551	6.9	200	8.6
Lithgow-Mudgee Region	1,517	6.6	180	8.4
NSW	1,993	10.5	300	11.6

Source: ABS 2007a, ABS 2013a

Table 62 shows that:

- All communities of interest in the SIA Study Area experienced a significantly lower rate of mortgage stress than NSW;
- Mudgee and Kandos experienced a higher rate of rental stress than NSW. In Mudgee this can be attributed to pressure on the housing market at that time, a consequence of rapid population growth associated with an increase in mining activity. The high rate of rental stress in Kandos may also be due to population pressure associated with increased mining activity in the MWRC LGA; and
- Of the communities of interest in the SIA Study Area, Kandos experienced the highest level of rental stress (13% of households) in 2011.

Factors Influencing Housing Affordability

The MWRC Affordable Housing Strategy (MWRC 2012a) identified a number of issues impacting access to affordable housing in Mudgee. These factors included:

- Rental market volatility and overall significant increases in rental rates;
- Lack of public housing and crisis housing in the LGA.

In addition, a lack of housing diversity and the presence of pockets of social disadvantage have also influenced housing affordability and in turn housing accessibility in the SIA Study Area.

Rental Market Volatility

Regional areas where mining has expanded generally operate a two-tier housing market. Part of the market is focused on high income, often temporary, resource workers; while the established population working in support industries or not employed must compete for properties at the lower end of the housing market (Housing Alliance, 2014). MWRC LGA has experienced great volatility in the rental market including periods of extremely low vacancy rates and waiting lists for access to rental housing. The housing market has responded quickly to the contraction and expansion of local mine workforces. Anecdotal information collated during interviews (MWRC 2014, pers.comm., 4 December and Barnardos 2015, pers.comms., 12 March) suggests that lower socio-economic groups and residents on non-mining incomes experienced significant difficulties accessing affordable housing during this period of sustained population growth.

Lack of Public Housing

MWRC (2012b) reports that there has been no increase in public housing stock in the MWRC LGA over the last 15 years. Housing Plus has been instrumental in recent years in increasing affordable housing provision in Mudgee under the National Rental Affordability Scheme with the addition of 20 properties in Mudgee in 2014.

Lack of Housing Diversity

Regional areas typically have a lower diversity of building types than larger cities or more urban areas. The main form of property is the free-standing house, and the most typical configuration has three or more bedrooms. There are fewer small properties with one or two bedrooms, and higher density and co-joined houses are comparatively rare (Housing Alliance 2014).

Following analysis of rental affordability in Mudgee to inform the Mudgee-Gulgong URS, HillPDA (2014) concludes that the lack of smaller format housing and mismatch between earning and rental prices suggests the private rental market in Mudgee is not catering well to the needs of:

- Smaller households; and/or
- Those people looking for affordable rental accommodation that are not earning high or resource-sector incomes.

Social Disadvantage

One of the main factors affecting demand for social and affordable housing is social disadvantage. The Socio-Economic Index for Areas (SEIFA) is a measure of socio-economic advantage and disadvantage that aims to report on the socio-economic conditions of geographic areas. SEIFA consists of four indices which summarise the socio-economic conditions of an area in different ways. The Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) is one of the four SEIFA indices. IRSAD scores are standardised to a distribution where the average equals 1,000 and roughly two-thirds of the scores lie between 900 and 1,100 (ABS 2006). A low score on this index reflects an area with relatively high levels of socio-economic disadvantage, whilst a high score on this index indicates an area with high levels of advantage. Scores are used to rank the districts, so for example, an area with a score of 500 is not twice as disadvantaged as an area with a score of 1,000; it just had more markers of relative disadvantage (ABS 2006).

Table 63 lists the IRSAD scores for the SIA Study Area in 2011. There is no comparable data available for the Lithgow-Mudgee Region. With the exception of Kandos, all communities of interest in the SIA Study Area experienced relative advantage similar to NSW. Kandos SS experienced relative disadvantage when compared to other communities of interest in the SIA Study Area. This is also reflected in the income indicators and unemployment rates for Kandos (**Section 7.2.5** and **Section 8.2.2**).

Table 63
SEIFA Ratings, 2011 - IRSAD

Location	2011
Breakfast Creek SS	991
Kandos SS	816
Rylstone SS	951
Mudgee SS	950
MWRC LGA	951
NSW	999

Source: ABS 2013b

9.2.5 Short-Term Accommodation

Short-term accommodation relates to those types of accommodation that are typically provided to visitors or tenants for a short period of time; for example motels, serviced apartments, bed and breakfast, self-contained homes, caravan and camping, although the length of tenancy in these forms of accommodation can often extend to lengthy stays, depending on accommodation availability, price and the personal circumstances of visitors.

Tourist Accommodation

Local short-term accommodation providers in the SIA Study Area primarily provide temporary accommodation to tourism visitors to the region but are increasingly catering for mining staff, temporary contracting workforces and personnel visiting the town for meetings and mine inspections. Information from Barnardos (Mudgee) also indicates hotels and motels are used for crisis accommodation.

Table 64 lists the number of accommodation establishments with 15 or more rooms in the MWRC LGA in the June quarter of 2012, 2013 and 2014.

Table 64
Tourism Accommodation Statistics, June Quarter - MWRC LGA

Year	No Of Establishments	No of Rooms	Room Occupancy Rate (%)	Room Nights Occupied	Guest Arrivals
2014	10	274	73.6	18,000	NA
2013	10	276	69.0	17,534	15,918
2012	8	264	76.8	18,449	13,409

Source: ABS, 2013c and Destination NSW 2014

Note:

- Establishments included are hotels and resorts with 15 or more rooms, motels, private hotels and guest houses with 15 or more rooms and serviced apartments with 15 or more units
- The ABS ceased production of tourism data at LGA level in 2013. 2014 data was produced by amalgamating SA2 accommodation data.

Table 64 only lists tourist accommodation establishments with 15 or more rooms. There are also a number of smaller accommodation establishments in the MWRC LGA.

In Mudgee and surrounding areas that are accessible to the Project (generally located within the urban area, to the east and some immediately north of the town), there are currently 71 short-stay accommodation providers with a minimum estimated capacity of 1,855 beds, including:

- Three caravan parks with a total capacity of 477²⁰;
- Nine motels with a total capacity of 663;
- Three hotels with a total capacity of 125;
- 17 bed and breakfasts and guesthouses with a total capacity of 193; and
- 39 self-contained establishments with a total capacity of 193.

Within the vicinity of Rylstone and Kandos, there are currently nine accommodation businesses with a minimum estimated capacity of 172 beds, including one caravan park, one motel, one self-contained accommodation (just south of the SIA Study Area but still within possible commuting time of the Project) and six self-contained accommodation establishments. It is estimated that the Rylstone Caravan Park could accommodate 50 people, since no data was publically available.

SIA consultation with accommodation service providers, MWRC representatives and the Mudgee Visitor Information Centre confirmed a general reluctance by accommodation providers to release information relating to occupancy rates. However, **Table 64** suggests vacancy rates in short-term accommodation across the MWRC LGA are likely to be around 25%. Discussions with MWRC Economic Development Officer indicate that current vacancy rates in Mudgee are likely to be even higher based on “*how quiet business is across the MWRC LGA*” (MWRC 2015, pers.comm., 1 April).

Purpose-Built Workforce Accommodation

A number of temporary worker accommodation facilities (TWAs) have been approved in the MWRC LGA in recent years, as the mining industry has expanded into the region. These TWAs include:

- Moolarben’s TWA in Turill, with a capacity of 300 beds;
- Ulan’s 140-room TWA in Ulan; and
- The Mac Group’s camp in Gulgong, with 400 rooms.

²⁰ Advice from MWRC (MWRC 2014 pers.comm., 4 December) indicates that two of these caravan parks have been purchased and development applications approved for the construction of villa style accommodation on the sites suitable for permanent residency.

9.2.6 Development Approvals

Lot and Dwelling Approvals

Lot development and dwelling approvals in Mudgee for the period 2009-2014 are presented in **Table 65**. The number of residential lots released in subdivision certificates between 2011 and 2013 was more than double the number in previous years. On average in the last five years the MWRC released 68 residential lots a year in Mudgee and approved 116 residential dwellings per annum.

Table 65
Lots and Dwelling Approvals, Mudgee (2009/10 to 2013/14)

Approval Type	2009/10	2010/11	2011/12	2012/13	2013/14*	Approximate total dwellings	Average
Residential lots released in subdivision certificates	26	46	106	103	42	323	68
Complying Development Certificates for single dwelling/dual occupancies	51	42	82	55	20	250	53
DAs for single dwellings	7	22	26	67	34	156	33
DAs for dual occupancies	12	10	25	29	13	178	37
DAs for townhouses and units	1	1	2	8	2	60	13

Source: HillPDA (2014)

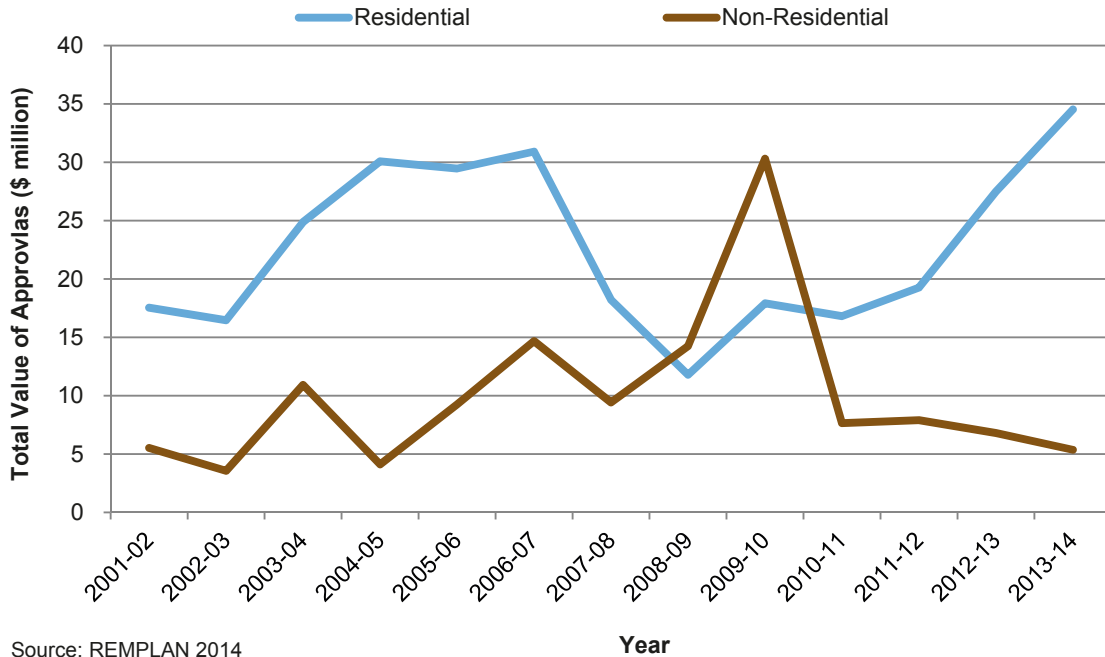
* Up to April 2014

A further 13 development applications were approved between 2009/10 and 2013/14 for multi-unit housing (i.e. villas, townhouses and residential flat buildings) suggesting that the town is increasing its capacity to accommodate different types of households (e.g. couple and single person households).

Building Approvals

Table 66 shows the value of building approvals granted in the MWRC LGA between 2001 and 2014. The value of non-residential building approvals have fallen from a high in 2009-2010, while the value of residential building approvals has risen steadily since 2010-2011 consistent with population growth and corresponding demand.

Table 66
Value of Building Approvals MWRC LGA, 2001-2014



Source: REMPLAN 2014

9.2.7 Available Residential Lots

Work undertaken to inform the Mudgee-Gulgong URS included an analysis of the current capacity of Mudgee urban release areas with respect to zoning and minimum lot size control. The analysis concluded that there are 1,351 ha of land zoned for residential purposes in Mudgee’s urban release areas. This land has the potential to yield approximately 2,331 lots of varying sizes. Most of these lots are located within the General Residential (R1) zone as defined in the MWRC LEP.

9.2.8 Future Dwelling Structure Demands

A proportional estimate of future demand for different housing types in Mudgee is provided in the Mudgee-Gulgong URS (HillPDA 2014). **Table 67** provides a summary of the anticipated demand and shows that detached housing on standard lot sizes is likely to continue to be the predominant residential requirement in Mudgee.

Table 67
Types of Lots/Dwellings Likely to Be in Demand in Mudgee

Dwelling and Lot Type	Density	Lot Size	Proportion of Future Dwellings (%)
Detached houses/dual occupancy on smaller lot	General Residential	400-600	10
Detached house on standard lot	General Residential	700-900	60
Large lot residential	Low Density Residential	2000	10
Large lot residential	Low Density Residential	4000+	5
Town houses, villa etc.	General Residential	NA	15

Source: HillPDA 2014

9.2.9 Residential Land Supply and Demand

The Mudgee-Gulgong URS includes predictions of the future demand for residential lots in Mudgee between 2015 and 2035. These predictions are based on DP&E population growth forecasts and forecast employment in new mines in the MWRC LGA. The following assumptions relevant to the assessment of Project impacts on housing in Mudgee underpin the predictions made by HillPDA (2014) in the Mudgee-Gulgong URS:

- The Project will have an annual construction workforce of 1,000 persons and an annual operations workforce of 350 persons²¹;
- 70% (245) of all new mine employees will move to the MWRC LGA from outside the LGA; and
- 45% to 70% (98 to 172) of new mine employees will choose to live in Mudgee, depending on the mine project.

The current supply and future demand for residential lots in Mudgee is presented in **Table 68**. This table shows that after a period of 19 years (2035) the land in Mudgee's urban release areas zoned for standard residential lots would be exhausted.

²¹ The Mudgee-Gulgong URS uses significantly higher construction workforce figures for the Project than current Project planning anticipates.

Table 68
Lots / Dwellings Required, Mudgee, 2015-2035

Mudgee Urban Release Areas	Estimated Current Supply of Residential lots	Estimated Future Demand for Residential Lots (2015-2035)	Difference
General Residential	1,981	2,083	-102
Low Density Residential	122	298	-176
Large Lot Residential	228	149	79
Townhouse/Multi-unit Dwelling	0	446	-446
Total	2,331	2,976	-645

Source: HillPDA 2014

As such, the Mudgee-Gulgong URS recommends a lot release schedule which meets the estimated demand and includes a five-year buffer to allow for unexpected growth in residential demand. **Table 69** presents the average annual number of lots estimated by MWRC LGA to be required to meet future demand and the estimated number of buffer lots for each five-year period between 2015 and 2035.

Table 69
Recommended Lot Releases

Type of Lot	Average Number of Lots Required per Year	Estimated Buffer			
		2015-2019	2020-2024	2025-2029	2030-2035
General Residential	104	540	740	715	290
Low Density Residential	15	76	76	71	96
Large Lot Residential	7	61	94	107	115

Source: HillPDA 2014

9.3 IMPACT ASSESSMENT AND MANAGEMENT

The Project has the potential to place pressure on housing options and the housing rental and purchase market in Mudgee as a result of the workforce associated with both the construction and operation phases of the Project. The cumulative impact of mining and resource projects in the SIA Study Area may also magnify this impact (refer to the workforce estimates in **Table 38**). This section outlines the likely impacts of the Project on housing and residential land and presents mitigation measures for these impacts.

The SIA assesses the key potential social impacts of the Project workforce under the following three 'accommodation scenarios':

- Scenario 1 (base case scenario) – The WAF operates from PY1 to the end of underground construction in approximately PY6.
- Scenario 2 – The WAF operates for Construction Phase 1 (PYs 1 - 3).
- Scenario 3 – The WAF operates for the life of the Project and accommodates all NLHs.

9.3.1 Construction Phase Housing Demand

Construction Phase 1

Construction Phase 1 workforce will generate minimal demand for housing in the Local Area. Approximately 90% of the Construction Phase 1 workforce is anticipated to be NLHs. All NLHs associated with PY1 will be accommodated in the on-site WAF under all three 'accommodation scenarios'. The WAF will have provision to accommodate 650 workers.

The initial-construction workforce will require short-term accommodation in the Sub Regional Area prior to the operation of the WAF. This demand is anticipated to be temporary, occurring only for the first few months of construction. KEPCO currently owns 27 dwellings in the Bylong Valley. Approximately 50% of these dwellings are anticipated to be available for use during Construction Phase 1. Some of the dwellings will be used by the initial-construction workforce. The remaining workforce will be accommodated in short-term accommodation in Rylstone, Kandos and Mudgee.

In the first six months of PY2 approximately 70 NLHs will require short-term accommodation in the Sub Regional Area as the peak NLH workforce of 720 people exceeds available capacity at the WAF. In the second six months of PY2 all NLHs will be accommodated in the WAF.

During peak construction KEPCO proposes to accommodate approximately 20 workers in KEPCO owned housing in the Bylong Valley with the remaining 50 workers accommodated in short-term accommodation in the Local Area for approximately six months. There is sufficient short-term accommodation within a one hour commute of the Project Boundary to supplement the WAF during Peak construction.

Through the operation of the WAF from PY1~PY6 and the use of KEPCO owned housing in Bylong Valley, Construction Phase 1 is predicted to have a temporary impact on short-term accommodation demands in Mudgee and the broader MWRC LGA.

Construction Phase 2

Construction Phase 2 occurs in PY4, PY5 and PY6. The Construction Phase 2 workforce is predicted to be 100% NLHs due to the specialist and short-term nature of underground mine construction activities and the size of the available labour force in the local area. **Table 70** provides a summary of the predicted housing and accommodation impacts associated with Construction Phase 2 for each of the three ‘accommodation scenarios’.

Table 70
Construction Phase 2 Housing Impacts by Accommodation Scenario

Scenario	Description of Impact
Scenario 1 WAF operational PY1-PY6	The full Construction Phase 2 workforce is accommodated in the onsite WAF. Flow-on employment related to Construction Phase 2 will generate some demand for short-term accommodation in Mudgee and possibly Rylstone and Kandos.
Scenario 2 WAF operational PY1 and PY2	The Construction Phase 2 workforce of 100 persons in PY5 and PY6 will require accommodation for a two year period in the Sub Regional Area. Likely preferred location is Mudgee.
Scenario 3 WAF operational PY1-PY25	The full Construction Phase 2 workforce is accommodated in the onsite WAF. Flow-on employment related to Construction Phase 2 will generate some demand for short-term accommodation in Mudgee and possibly Rylstone and Kandos.

Table 70 shows that Accommodation Scenario 2 is likely to have the greatest impact on housing and accommodation provision in the Sub Regional Area. The demand for 100 units of accommodation for the construction workforce will occur at the same time as open cut operations ramps up and an estimated 234 NLHs associated with PY4 open cut operation are also seeking accommodation, predominantly in Mudgee.

During 2010-2013 short-term accommodation providers in Mudgee experienced significant levels of demand as mining staff, contractors and tourism/business visitors sought accommodation during a period of increased mining activity. Under Accommodation Scenario 2 these short-term accommodation providers would once again experience a significant increase in demand, albeit short-term.

Given that the majority of the construction phase workforce will be NLHs, the best available option to relieve short-term accommodation pressure is the use of a WAF. This is further reinforced by the recent findings of the NSW Land and Environment Court (LEC) in relation to the construction of a 400-room workers’ accommodation camp at Gulgong. In April 2014 the LEC approved the accommodation camp at Gulgong, after a successful appeal against the rejection of the camp by the Western Joint Regional Planning Panel in October 2012.

The approval noted that concerns about the camp were often related to impacts on community services, housing pressures and loss of social cohesion, but that these issues were “all adverse impacts that are representative of the volatile mining industry generally and are not specific to this TWA” (LEC 2014). The approval also noted that:

“[the] TWA will buffer the impacts of that volatility (the mining booms and busts) rather than the conventional residential housing market or tourist accommodation in Gulgong. The economic evidence is that it is better for the town if the Mac [MAC Accommodation Village] rides the vacancy rates of the mining cycles rather than the local housing market”.(LEC 2014)

9.3.2 Operations Phase Housing Demand

The potential for the Operations Phase of the Project to give rise to housing impacts in the Sub Regional Area relates primarily to the proportion of NLHs for the Project and their associated housing demands as they relocate to the Sub Regional Area.

In addition, the local hires (those already residing in the Sub Regional Study Area) associated with the Operations Phase will need to retain suitable housing in the Sub Regional Study Area throughout the life of the Project. Suitable and reasonably priced housing must also be available to the wider community over the long term.

This section describes the direct demand for housing predicted to be generated in the Local Area by the Operations Phase workforce, under the three project accommodation scenarios (**Section 3.4.2**).

Accommodation Scenarios 1 and 2

The housing demand generated as a result of the Operations Phase NLH workforce under Accommodation Scenario 1 and 2 is presented in **Table 71** which shows:

- Estimates of the expected final residential location of the Operations Phase NLHs workforce and the percentage of employees expected to reside in each of those areas; and
- The total number of dwellings required to accommodate the NLH workforce and their families at PY3 (commencement of open cut operations), PY9 (peak operations) and PY13 – PY25 (underground only operations).

The number of dwellings required will match the number of Project Operations Phase NLHs. As described previously, this includes a conservative assumption that each employee (and where applicable their family) has the opportunity to be housed in a separate dwelling.

Table 71
Predicted Dwelling Demand by Location - Operations Phase

Residential Location NLHs	Proportion of NLHs (%)	Predicted Total Annual Dwelling Demand		
		PY3	PY9	PY13-PY25
Within MWRC LGA, comprising:	95	174	380	222
Bylong Valley		9	19	11
Mudgee		156	342	200
Rest of MWRC LGA		9	19	11
Outside MWRC LGA	5	9	20	12
Total	100	183	400	234

Notes: The number of dwellings anticipated to be required is the same as the number of the Project's expected non-local hire operational workforce as sourced from Table 10.

Table 71 shows that under Accommodation Scenario 1 and 2, the Project would directly generate demand for up to 174 dwellings in the MWRC LGA in PY3 and up to a total of 380 dwellings in PY9. In respect to individual locations:

- Mudgee would likely experience the greatest impact, with demand for a total of up to 156 dwellings by PY3 and up to 342 by PY9;
- In the Bylong Valley, the Project could generate demand for a total of up to nine dwellings in PY3 and up to 19 dwellings in PY9; and
- Smaller settlements (Kandos, Rylstone, Lue) within the MWRC LGA and settlements outside the MWRC LGA but within a one hour commute of the Project could experience demand for housing at a rate similar to the Bylong Valley.

When the increase and decreases experienced between PY3 and PY13 is applied to the Workforce Hiring Scenario, the number of dwellings required per year between PY3 (i.e. after the PY3 employees are housed) and PY9 (when the peak dwelling need is predicted) and PY9 and PY13 (when open cut operations ceases) for NLHs and their families can be estimated, as shown in **Table 72**.

Table 72
Dwelling Demand between PY3 and PY13 - Operations Phase

Residential Location NLHs	Proportion of NLHs (%)	Total Additional Dwelling Demand Required Each Year for Project Workforce	
		PY3-PY9	PY9-PY13
Within MWRC LGA, comprising:	90	34	-39
Bylong Valley		2	-2
Mudgee		31	-35
Rest of MWRC LGA		2	-2
Outside MWRC LGA	5	2	-2
Total	100	36	-42

Notes: The figures in Table 72 are calculated by firstly subtracting the number of additional dwellings required in PY3 from PY9 and PY9 from PY13 (as shown in Table 71), then dividing each figure by six years and four years respectively. Rounding will affect totals.

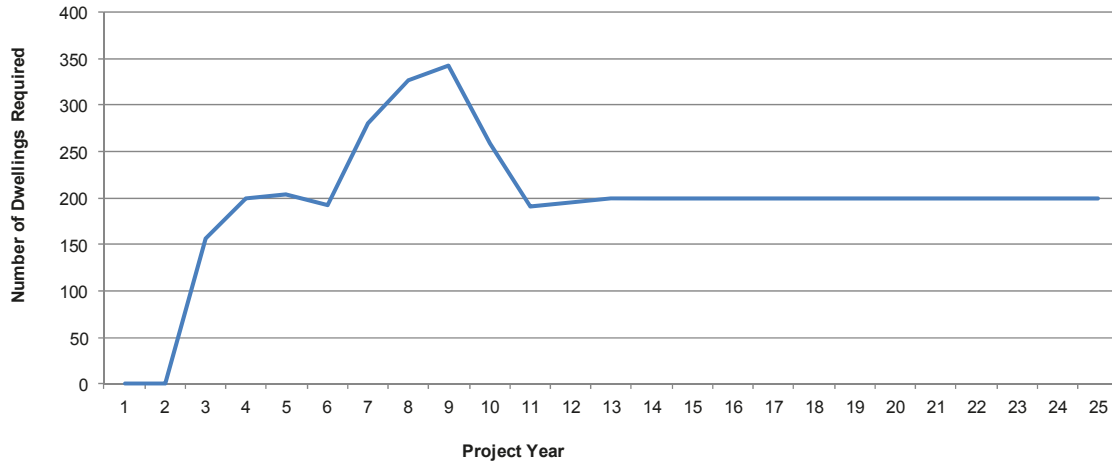
Graph 9 and **Table 72** show that:

- On average approximately 34 dwellings per year may be required to accommodate the Project workforce within the MWRC LGA between PY3 and PY9, following the initial demand for 174 dwellings. However between PY9 and PY13, up to 39 houses on average will be released back to the housing market each year as the open cut operation is decommissioned.
- The location likely to be impacted the most by housing demand is Mudgee, which could:
 - Require up to 31 dwellings per year on average between PY3 and PY9 to accommodate the Project workforce, following an initial demand for 156 dwellings; and
 - Be required to absorb the release of an estimated 35 houses per year between PY9 and PY13.
- The Bylong Valley and areas outside of Mudgee within the MWRC LGA could expect demand of an estimated two dwellings per year between PY3 and PY9, with a reduction in demand between PY9 and PY13.

Once open cut operations ceases in PY12 Project induced demand for housing is likely to stabilise with no further changes in direct Project demand for housing until PY25 when underground mining ceases and the Project is decommissioned.

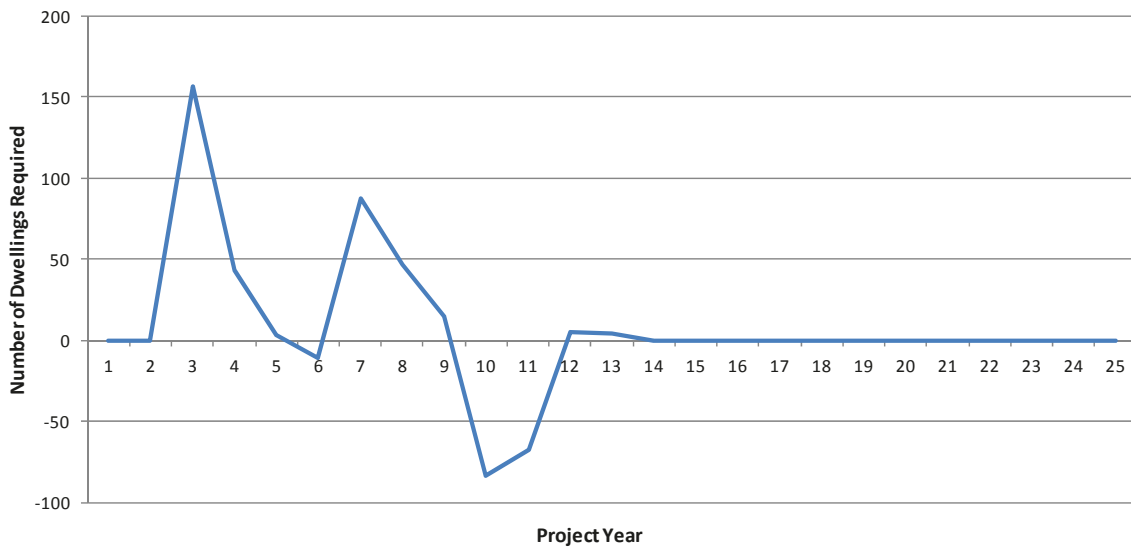
Graph 9 shows the estimated annual demand for housing in Mudgee likely to be generated by NLHs directly associated with the Project Operations Phase.

Graph 9
Estimated Annual Dwelling Demand in Mudgee - Operations Phase



Graph 10 shows the estimated annual change in dwelling demand in Mudgee over the life of the Project based on Workforce Accommodation Scenarios 1 and 2.

Graph 10
Estimated Annual Change in Dwelling Demand in Mudgee - Operations Phase



Graph 10 shows that:

- In the first year of open cut operations in PY3 up to 156 dwellings will be required in Mudgee for NLHs;
- Demand for housing will increase rapidly again in PY7 when underground operations commence; and
- Demand for housing will reduce significantly from PY10 as open cut operation winds down and underground only operations continue. The workforce associated with underground operations stabilises at 275 FTE persons in PY9.

The MWRC (MWRC 2015, pers.comm., 19 March) has confirmed that the broad housing demands anticipated to be generated by the Project have been considered in the preparation of the Mudgee-Gulgong URS (HillPDA 2014). Based on the findings of HillPDA 2014 it appears that the:

- Housing demands generated by the Project can be met without placing additional pressure on the existing housing market; and
- Anticipated release of 35 dwellings per year between PY9 and P13 can be absorbed without causing sustained impacts to the local housing market.

The ability of the housing market to absorb the release of houses in PY9-PY13 will require forward planning by the MWRC in relation to land releases.

Accommodation Scenario 3

The Project Operations Phase will have minimal impact on housing demand in the MWRC LGA under Accommodation Scenario 3. This is because all NLHs associated with the Project will be accommodated in the WAF. All local hires will remain in their existing accommodation, although it is possible some local hires may choose to move closer to the Project.

9.3.3 Housing Demand as a Result of Flow-on Employment

Table 73 shows the likely dwellings in the SIA Study Area that will be occupied as a result of flow-on employment in the MWRC LGA from the Project.

Table 73
Predicted Flow-On Employment Induced Dwelling Demand - Operations Phase

Residential Location - NLHs	Percentage of Flow-On Employment Attributed	Flow-On Employment ¹	Total Dwelling Demand as a result of Flow-On Employment
Total MWRC LGA	100	540	540
Mudgee	90	486	486
Rest of MWRC LGA	10	54	54

Notes:

1. Figure derived from EIS EclA.

As discussed in **Section 6.3.4**, the EclA does not distinguish between the flow-on employment effects on the population already living in the MWRC LGA as opposed to the population that will migrate into the SIA Study Area over the life of the Project. This SIA is therefore unable to provide any firm conclusions as to how much of the flow-on employment shown in **Table 73** will increase the dwelling demand in the SIA Study Area or its component LGAs. However, it would be expected that the estimated 540 dwellings would be gradually occupied over the Operations Phase of the Project (25 years) and that a sudden demand of dwellings would not be likely.

The Mudgee-Gulgong URS does not include consideration of housing demand associated with flow-on employment in the mining sector. However, the recommended land release program in the Mudgee-Gulgong URS does include a substantial “buffer” in annual release numbers. This buffer is included to respond to residential land demands generated by population growth that has not been considered in the population projections i.e. flow-on employment.

9.3.4 Impacts on Land Supply in MWRC LGA

The Mudgee-Gulgong URS (HillPDA, 2014) includes predictions of the future demand for residential lots in Mudgee between 2015 and 2035. These predictions are based on the anticipated population growth in Mudgee over the same period.

Table 74 provides an estimate of the annual demand for housing in Mudgee generated by the Project and considered in the Mudgee-Gulgong URS. The underlying assumption is that each NLH requires one unit of accommodation (house, semi-detached, apartment).

Table 74
Project Related Housing Demand Considered in the Mudgee-Gulgong URS

Mudgee-Gulgong URS Project Workforce by Project Phase		Mudgee-Gulgong URS Assumptions		Estimate of Project Related Dwelling Demand Factored into the Mudgee-Gulgong URS	EIS Project Workforce (NLHs) Estimated Dwelling Demand in Mudgee		
		70% NLHs move to MWRC LGA	70% NLHs reside in Mudgee		PY3	PY9	PY13-25
Construction Phase 1	1000	700	490	490 dwellings	0	0	0
Operations Phase	350	245	172	172 dwellings	156	342	200

Source: HillPDA 2014 and Hansen Bailey estimates

Table 74 shows that an estimate of 172 houses has been included in the Mudgee-Gulgong URS for the Operations Phase of the Project. This SIA predicts the actual workforce induced housing demand in Mudgee to be up to 342 houses during peak operations (PY9) and 200 houses during underground only operations (PY13-PY25). The Project is therefore anticipated to result in a higher demand for housing in the first six years of operations than is estimated in the Mudgee-Gulgong URS.

Peak Housing Demand

If it is assumed that 85% of the 342 dwellings required at Peak Operations are General Residential (**Section 9.2.8**) then a total of 291 General Residential lots (400-700 m²) would be required to meet Project demands. An estimated 132 of these 291 lots would be required for the first year of the Operations Phase (PY3). This figure is within the predicted Project housing demand included in the Mudgee-Gulgong URS.

HillPDA (2014) in the Mudgee-Gulgong URS recommends future land releases occur in Mudgee at a rate of 104 General Residential lots per annum (**Table 69**) and a total of 540 lots between 2015-2019 which includes a five-year buffer to allow for unexpected growth in residential demand. As the Operations Phase of the Project is unlikely to commence prior to 2019, the buffer included in the land release strategy would appear to be sufficient to accommodate the Project induced demand in PY3. For the additional demand of 186 dwellings required by PY9 (**Section 9.2.8** and **Table 72**), a rate of 31 dwellings per annum would also appear to be adequately provided for in the buffer for the period 2020-2024 (**Table 69**).

In addition to the future land releases described above there is 369 ha of land currently zoned General Residential in Mudgee under the MWRC LEP 2012 (HillPDA, 2014). This land would yield approximately 1,981 lots (HillPDA 2014).

However, it can be anticipated that not all of this land is likely to be suitable for residential development due to natural and physical constraints.

At June 2014 there were 190 residential lots for sale in Mudgee varying from 601 m² to 6,113 m². A number of these lots are included in Stage 1 of the Caerleon Estate, within the Caerleon Urban Release Area. Lot sizes in Stage 1 of the Caerleon Estate vary from 700 m² to 1,096 m². Further stages are proposed for the Caerleon Estate. The Caerleon Urban Release Area, which is already zoned for residential development has the potential to yield 1,146 lots in total.

It should be noted that the Mudgee-Gulgong URS considers the potential dwelling demands generated by a number of Projects that are no longer being progressed for development e.g. the Mt Penny Project and the Cobbora Project.

The key issue for consideration is the need for MWRC to ensure the timely release of land for residential development. In this regard it is understood that the MWRC has established a Land and Housing Supply Monitor which will enable the MWRC to track population, lot and dwelling approvals and identify the need for additional land and dwellings. According to the Mudgee-Gulgong URS (HillPDA, 2014) the model will track existing and pipeline stock, flag trigger points for land release, identify the amount of land needed and differentiate between housing types needed.

Housing Demand in the Bylong Valley

The workforce anticipated to reside in the Bylong Valley varies between nine and 19 employees over the life of the Project. KEPCO proposes to accommodate this workforce in Proponent-owned housing in the Bylong Valley. KEPCO's portfolio of housing in the Bylong Valley has been discussed in **Section 6.3.5**. Some of this housing will be either permanently impacted by the Project or temporarily impacted during open cut operations. However, existing KEPCO housing stock is sufficient to meet the anticipated demand for housing in Bylong Valley.

To assist MWRC in ensuring adequate residential land is made available to meet Project related housing demands KEPCO will:

- Keep the MWRC informed of the Project schedule, any changes to the size of the Project workforce and anticipated recruitment periods. KEPCO will proactively engage with the MWRC both prior to the commencement of the Construction Phase and throughout all phases of the Project to enable the MWRC to make informed decisions regarding availability of land and housing to meet Project generated demand; and
- Work with MWRC and industry to monitor mining industry workforce size, local housing demand and supply, housing prices and affordability.

In addition, KEPCO will ensure all Project owned housing located in the Bylong Valley and assessed as potential workforce accommodation is of a standard suitable for habitation.

9.3.5 Housing and Accommodation Impacts

Impacts on Short-Term Accommodation

This section discusses the impact of the Operations Phase on short-term accommodation under the three Accommodation Scenarios (**Section 3.4.2**) for the Project.

Accommodation Scenario 1

It is expected that NLHs associated with the Project Operations Phase will require short-term accommodation at the commencement of their employment as they look for suitable accommodation. It is expected that these employees would ultimately transition out of the short-term accommodation market and into a purchased home or a long term rental.

Under Accommodation Scenario 1, a 350 bed WAF will operate from PY3-PY6. There will therefore be ample capacity in the WAF during this period to meet the short-term accommodation requirements of the NLHs associated with the Project Operations Phase workforce. In the first instance, NLHs will be encouraged to use short-term accommodation options in the Local Area. However, if the commencement of operations coincides with other significant projects, then the workforce would be encouraged to make use of the WAF for short periods rather than depending on accommodation in local towns. This will assist in managing any temporary demands on short-term accommodation providers in the Local Area.

During PY11 and PY12 there will be 70 and 30 workers respectively involved in the rehabilitation of the open cut mining areas. Due to the short-term nature of these positions it is anticipated that these workers will reside in short-term rentals or short-term accommodation in the Local Area. The assumption is that the majority will stay in Mudgee, with some workers accommodated in Proponent owned housing in the Bylong Valley.

Based on current vacancy rates in short-term accommodation across the MWRC LGA, Project induced demand can be met within the current supply of short-term accommodation and without adversely impacting the supply of accommodation for the tourist industry.

Accommodation Scenario 2

Under Accommodation Scenario 2 it is expected that NLHs associated with the Project's Operation Phase will place additional demand on short-term accommodation in the Local Area at the commencement of their employment as they look for suitable accommodation. It is expected that these employees would ultimately transition out of the short-term accommodation market and into a purchased home or a long term rental.

The short-term workforce associated with open cut mine rehabilitation will be accommodated as described under Accommodation Scenario 1.

Accommodation Scenario 3

There will be minimal impacts on short-term accommodation from the Project Operations Workforce under Accommodation Scenario 3. The WAF will operate for the full Project life with capacity to accommodate all NLHs for both Construction Phases and the Operation Phase.

Housing Diversity

The Project will generate demand for a range of housing types. There are likely to be a range of households formed by the incoming population, from single person households, to group (share) households, couple-only households and family households of varying sizes. At present, the dwelling types available in the Sub Regional Study Area are predominantly 'separate houses', as shown in **Section 9.2.1**. There is scope to increase the types of available dwellings across the Sub Regional Study Area, including various forms of smaller dwellings, particularly to suit single person households and share or couple-only households.

A range of lot sizes also need to be available to meet market requirements in both urban and rural areas. For example, a range of rural residential and 'rural living' lot sizes would need to be available across the Sub Regional Study Area, as well as a range of sizes of urban housing lots.

HillPDA (2014) estimates that Mudgee's primary future demand will be for detached dwellings on 700-900 m² blocks representing around 60% of all future dwellings (**Section 9.2.8**).

MWRC acknowledges in the Mudgee-Gulgong URS (HillPDA 2014) the need for greater housing diversity in Mudgee and a variety of lot sizes. The Mudgee-Gulgong URS is the primary tool for delivering a range of housing choices in Mudgee. KEPCO will monitor the housing demands of its workforce in order to identify trends in housing choices, and report the outcomes to MWRC through regular Project communication.

Housing Prices and Affordability

The impact on housing prices and affordability as a result of the Project is difficult to quantify, although evidence would suggest that prices and affordability will continue to rise with demand as the mining and resources sector workforce size increases in the Sub Regional Study Area. Conversely, any reduction in demand is likely to have a detrimental impact on the housing market, particularly if it comes at the end of a significant period of high demand such as that which occurred in 2012-2013.

The increase in housing prices in the MWRC LGA since 2012 is primarily a result of the demand generated by cumulative population increases associated with growth in the mining and resources sector in the SIA Study Area and in particular in the MWRC LGA. The construction and operation of Moolarben Coal Mine and expansions at Wilpinjong and Ulan coal mines placed significant demands on the housing market in the Local Area at that time (MWRC, 2014, pers. comms., 4 December). The impact of this high demand was exacerbated by the fact that the MWRC was unprepared for the speed at which the resident population of Mudgee increased or the rate at which housing was in demand. The current drop in house prices in Mudgee is a result of a combination of reduced demand and an increase in the supply of land and housing as the MWRC prepares itself for the next increase in demand i.e. Moolarben Stage 2.

As **Table 72** demonstrates, the increase in dwellings required as a result of the Project is expected to be distributed predominantly in Mudgee at an average rate of 31 dwellings per year (between PY3 and PY9) following the initial demand for 156 dwellings in PY3. As previously stated, the key issue for consideration is the need for MWRC to ensure the timely release of land for residential development. MWRC has advised (MWRC 2015, pers.comm., 19 March) that they are in a much better position now, compared to five years ago to respond to any sudden increase in population or housing demand. With the completion of the Mudgee-Gulgong URS MWRC now has a better understanding of residential land supply in the LGA and has established triggers for the timely release of land.

The Project will result in the release back to the Mudgee housing market of approximately 35 dwellings per year between PY9-PY13 as open cut mining ceases. KEPCO has committed to keeping the MWRC informed of the project schedule and the timing of such housing releases. This will reduce any potential impacts to the housing market from property releases by enabling MWRC to factor the housing releases into the annual land and housing monitoring program established as part of the Mudgee-Gulgong URS process.

Even if the exact magnitude of effects on housing prices and affordability cannot be predicted, the key issue is how to best manage those impacts so that affordability is achieved and equitable accessibility to housing is available to the whole community.

9.3.6 Cumulative Impacts on Housing and Residential Land

The Project will generate direct demand for short-term accommodation in the initial stages of Construction Phase 1 and during PY11 and PY12 when rehabilitation of the open cut operation is undertaken. Based on the timing of proposed resource projects in the MWRC LGA (**Table 3**), Project induced demand for short-term accommodation will not coincide with the construction phase of other projects, notably Moolarben Stage 2. The construction of Moolarben Stage 2 is due to commence in June 2015 and will be completed before the construction phase of the Project commences. It is therefore unlikely that the Project will have a cumulative impact on short-term accommodation demand in the MWRC LGA.

The cumulative growth of the mining and resources sector in the SIA Study Area and the associated population growth will likely exacerbate the impacts on housing and residential land that have been described above. However, the Mudgee-Gulgong URS has considered the housing needs of the workforces described in **Table 3** and hence includes consideration of potential cumulative housing demand. Based on the findings of the Mudgee-Gulgong URS, the MWRC is confident it can respond proactively to demands generated by population growth in the MWRC LGA over the next 20 years (MWRC 2015. pers.comm., 19 March)

As explained in **Section 9.3.2**, the size of the additional population that could be expected as a result of flow-on employment from the Project is not estimated in this SIA. The Mudgee-Gulgong URS also excludes flow-on employment from population estimates and the housing needs assessment. As such, the overall cumulative impact of flow-on workers on the local housing market has not been assessed.

KEPCO acknowledges the concerns of social housing providers in relation to the potential impact of cumulative mining sector population growth to housing affordability and housing accessibility for lower socio-economic groups and vulnerable groups. In consultation with MWRC, actions to address the crisis housing deficit in the MWRC LGA will be discussed as a component of the VPA. Further engagement in relation to the provision of crisis housing will be conducted with key stakeholders such as Housing Plus, Barnardos and the MWRC as part of the preparation of a Community Needs Assessment.

9.3.7 Summary of Impacts and Management

Project induced population growth will generate demand for housing and accommodation across the MWRC LGA, particularly in Mudgee. The demand for accommodation will be greatest at the commencement of the Operations Phase in PY3. The most significant impacts associated with the demand for accommodation include:

- Demand for up to 156 dwellings in Mudgee by PY3 and up to a total of 342 dwellings by PY9;
- Fluctuating housing market dynamics due to changing workforce numbers as the Project transitions from dual operations to underground only operations and properties are released back to the market; and
- Potential impacts on housing affordability in the event that the dwelling demands of the workforce are not met.

Table 75 provides a summary of the strategies to be implemented by KEPCO to manage the potential impacts of the Project on the MWRC LGA housing market. Note that other mitigation measures that may also relate to housing and accommodation are listed in other thematic sections (e.g. Population, or Community Liveability) in this report.

Table 75
Summary of Project Impacts and Management – Housing/Accommodation

Impact	Impact Category	Management Strategies
Potential increase in demand for short-term accommodation during peak construction (PY2) and during PY11 and PY12 for open cut decommissioning.	Negative	9.1 KEPCO will construct the WAF at the commencement of Construction Phase 1 and extend its operation to the end of Construction Phase 2 to minimise the impact of the Construction Phase workforces on short-term accommodation provision in the MWRC LGA, particularly Mudgee. 9.2 KEPCO will encourage NLHs associated with the Operations Phase to use the WAF while they transition to permanent housing, if the local short-term accommodation market is experiencing high demand due to the cumulative impacts of projects.
Increased housing demand in Mudgee during the Project's Operations Phase: <ul style="list-style-type: none"> • Up to 156 dwellings in PY3; and • Up to a further 186 dwellings by PY9. 	Negative	9.3 KEPCO will keep the MWRC informed of the Project schedule, any changes to the size of the Project workforce and anticipated recruitment periods. KEPCO will proactively engage with the MWRC both prior to the commencement of the Construction Phase and throughout the Construction and Operations Phases to enable the MWRC to make informed decisions regarding land and housing availability to meet Project generated demand.
Project induced housing demand during the Operations Phase will impact on residential land supply in Mudgee.	Negative	9.4 KEPCO will monitor housing affordability and availability in the MWRC LGA and report in the regulatory Annual Review.
Potential adverse changes in housing and rental costs in Mudgee due to a fluctuating demand for housing by the Project workforce.	Negative	9.5 Actions to address the crisis housing deficit in the MWRC LGA will be discussed with MWRC as a component of the VPA.
Potential increase in the demand for social housing due to the displacement of lower socio-economic groups out of the public housing market in Mudgee during peak operations.	Negative	9.6 Further engagement in relation to the provision of crisis housing will be conducted with key stakeholders such as Housing Plus, Barnardos and the MWRC as part of the preparation of a Community Needs Assessment.

10 COMMUNITY LIVEABILITY

10.1 INTRODUCTION

The following section describes the SIA Study Area in terms of community liveability and presents the potential impacts of the Project on community liveability, and a description of management of these impacts.

10.2 SETTING

In this section, community liveability refers to the environmental and social quality of an area as perceived by residents, employees and visitors. This includes accessibility, safety and health, local environmental conditions and the quality of social interactions.

The following discussion focuses on the Bylong Valley as this is the area likely to experience the most significant change in community liveability as a result of the Project. Where relevant, information is also provided for Mudgee as this is where the majority of the workforce will be located. Much of the information provided in the following sections is drawn from the findings of SIA consultation. Approximately 25% of residents of the Bylong Valley participated in SIA consultation (**Section 3.6.1**).

The comments and information referenced in the following sections are not assumed to represent the opinions and perceptions of the whole community. Rather, they provide a snapshot of the range of current interests and concerns of the community.

10.2.1 Accessibility

Road Connections and Travel Times

The Project is situated in a geographical area that is relatively remote from major towns. The nearest major towns to the Project are Mudgee and Muswellbrook, both currently over an hour away (**Figure 2**). The distance and commuting times from the settlement of Bylong to surrounding communities is detailed in **Table 1**.

Within the Project Area, the Bylong Valley Way, Upper Bylong Road, Lee Creek Road, and Wooleys Road provide the majority of access routes for residents located within and adjoining the Project Boundary. Upper Bylong Road and Lee Creek Road currently provide landholders in Upper Bylong with ready access to the Bylong General Store and village recreation area, as well as access to friends residing on properties off Wooleys Road.

Local and Regional Public Transport Connections

There are no public transport connections between Mudgee and the Bylong Valley. There is a school bus services which operate within Bylong Valley to Kandos HS (with connections to Mudgee HS).

The broader Sub Regional Area is serviced by a number of public transport options, as described in the following section.

Aviation Services

The MWRC LGA has two air fields – Mudgee Airport and Rylstone Aerodrome. Mudgee Airport is a security controlled airport 5 km north-east of the Mudgee CBD with a passenger terminal including secure baggage handling facilities and passenger amenities. Passenger services to Sydney were previously operated by Brindabella Airlines, but the closure of this company in early 2014 has resulted in the termination of these services²².

However, MWRC supports the reinstatement of passenger services and has future plans for the re-invigoration of the airport site, including land for future airport development, particularly industries associated with the aviation industry and development that will allow hangars and accommodation units.

Rylstone Aerodrome is a non-licensed, unpatrolled and unsealed, grassed aerodrome located 4 km from Rylstone. The adjoining Rylstone Aerodrome Air Park (RAAP) is a private Community Title Development where members can own their individual freehold lots of either hangar or residential lots and share in the upkeep of the common property (RAAP 2014).

Rail and Bus Services

NSW Trainlink operates five daily services between Sydney and Mudgee and beyond, where a train is taken to Lithgow with a bus connection on to Mudgee. Three of these services also stop at Kandos, Rylstone and Lue (NSW Transport 2014).

Sid Fogg's Coaches, based in Newcastle, operate a daylight service three times a week from Newcastle to Dubbo return, which drops off at the Ulan Road intersection on the Golden Highway.

Locally, Ogden's Coaches operate four bus routes within the Mudgee urban area (Ogden's Coaches 2014).

²² As at June 2015 the air service has been reinstated. Air Pelican now fly between Mudgee and Sydney.

Community Transport Options

Mudgee Community Transport is part of the MWRC's Community Services Department auspices by Council and funded by Ageing, Disability and Home Care together with Greater Western Area Health Service and NSW Transport.

Due to limited public transport options in the area, the service provides transport for people in the MWRC LGA that are frail aged, disabled or disadvantaged. It has approximately 20 volunteer drivers covering local, regional and Sydney trips daily and on weekends (in special circumstances only). In an average year, Community Transport makes approximately 12,000 trips taking almost 2,000 clients to medical appointments, shopping trips, social, recreational and other outings (MWRC 2014a).

Taxi Services

Mudgee Radio Cabs operate in Mudgee and service the surrounding area (Taxi, 2009).

10.2.2 Character and Amenity

Bylong Valley

According to local consultation undertaken for the SIA, Bylong retains its character as a rural village and the Bylong General Store forms the heart of the main village area. The natural features within the Bylong Valley: its rivers and creeks, and views and vistas are tied to the continuing history of pastoralism and horse breeding in the valley (AECOM 2015a). Together these natural features create the rural setting that gives Bylong its character.

The values and aspirations of the community of Bylong and the broader Bylong Valley have been described in **Section 5**.

Mudgee

The Community Plan (MWRC 2013b) describes Mudgee as a vibrant town that retains the feel of a 'rural regional town'. Mudgee has a dynamic and friendly community (MWRC 2013a). Participants in SIA consultation described Mudgee as a "*perfect place to live and raise a family*", and a "*great place to live*". Mudgee has a strong sense of community with a variety of formal and informal opportunities for social networking such as sporting clubs, art and craft groups, music groups, book clubs and cultural and entertainment events. There are strong social networks amongst service agencies and groups within the LGA with collaborative committees including Mudgee Chamber of Commerce, the Healthy Communities Alliance and Mudgee Health Council. The community is welcoming to new people. There are lots of activities for young children and families, and many regional cultural and sporting events.

MWRC is proud of the fact that despite the sizeable mining workforce in Mudgee, the township has been able to retain its rural character. Unlike other mining communities Mudgee is not inundated with 'fluoro orange' shirts, cars with orange flags, and noisy vehicle beepers (MWRC 2014. pers.comm., 4 December). The existing mine operators in the MWRC LGA work to protect the rural character of Mudgee by enforcing clothing attire and vehicle rules on their workforces when off shift in the towns and villages of the MWRC LGA. MWRC representatives confirm that this has had a significant positive impact on the identity of Mudgee and in particular how Mudgee is perceived by the tourism industry.

10.2.3 Community Cohesion

Social cohesion and participation is a significant component of community liveability. The findings of SIA interviews conducted with Bylong Valley residents highlighted a perception that the nature of the community was changing as a result of the introduction of mining to the Bylong Valley.

The following section outlines current perceptions in Bylong Valley relating to community cohesion, with a particular focus on:

- Descriptions of 'sense of community';
- Stability of residency; and
- Volunteering.

Sense of Community - Bylong Valley

Many rural areas are known for the social support and cohesion that exists within the community. Perceptions of peoples' 'sense of community' give some insight into community cohesion. Information on 'sense of community' in the Bylong Valley was gathered through the SIA interviews, and findings show that:

- Residents hold varying degrees of social connectedness to the Bylong Valley. Long-term residents demonstrated a strong sense of belonging and connectedness to the area. More recent arrivals to the Bylong Valley demonstrated less community connectedness. In several cases new residents indicated that they only lived in the Bylong Valley for the perceived quality of the pastoral country, the presence or otherwise of a community was of less importance.
- Historically (pre-1970s) the Bylong Valley was a close knit community demonstrated by the willingness of residents to assist neighbours and become involved in community events.

- Today, the Bylong Valley is perceived by a number of local residents to be a fractured community due in part to a combination of population decline over the last 10 years and land acquisition activities associated with the Project. A number of residents interviewed for the SIA suggested that the Bylong Valley community consists of small groups of residents, each group united as a result of different processes such as the impact of Project related property acquisition, the financial gains of historical exploration activities, or a desire to defend the Bylong Valley from resource sector expansion.

In the past community events in Bylong Valley were many and varied, and generally highly patronised by locals. The annual Bylong Mouse Races raised money for charity. Bylong Valley residents who participated in the SIA interviews spoke of '*long evenings on the village green*' socialising with neighbours each Friday night, regular tennis games and cricket matches, tours of the Christmas lights in Bylong Valley on the school bus and informal garden competitions. From the findings of SIA consultation it is apparent that all these events including the Mouses Races have ceased. Friday drinks are still held but only a small group of residents participate. The majority of residents consulted attribute the decline in occurrence of formal and informal community events to population decline and the fracturing within the community resulting from the property acquisition activities associated with historical exploration and mine development in the Bylong Valley.

Stability of Residency

The time that residents have lived in a community affects the extent to which they develop relationships and networks with other residents and build social capital. The Census provides valuable indicators of community stability by asking people where they lived one and five years ago.

Table 76 shows a relatively stable population in the Breakfast Creek SS where 72% of residents lived at the same address five years previous to the 2011 Census, and 88% of people lived at the same address one year previous to the Census. The population of Breakfast Creek SS shows a much lower level of mobility compared to all other communities of interest in the SIA Study Area. The findings of SIA consultation combined with the mobility rates described in **Table 76** indicate the presence of long-term residents in the Breakfast Creek SS.

Table 76
Stability of Residency, 2011

Location	Lived at same address (%)	
	1 Year ago	5 Years ago
Breakfast Creek SS	88	72
Rylstone UCL	85	61
Kandos UCL	85	64
Mudgee SA2	80	54
MWRC LGA	83	61
Lithgow-Mudgee	86	64
NSW	85	61

Source: ABS 2012n and 2012o

Volunteering

People volunteer for many reasons including an opportunity to extend skills for future employment, contribute to society, establish a social network, for a specific interest or to fulfil a requirement. A high rate of volunteerism can reflect a high level of community cohesion, where people in the community willingly cooperate to assist and support each other.

Table B-7 of Appendix B shows the proportion of people over 15 years who spent time doing unpaid voluntary work through an organisation or group in the 12 months prior to the 2011 Census night. It excludes work done in a family business or as part of paid employment. It also excludes people whose main reason for undertaking voluntary work was to qualify for government benefits.

Table B-7 of Appendix B shows that in 2011, all locations in the SIA Study Area had a higher proportion of people involved in voluntary work than the NSW population more broadly (17%). The smaller centres of Rylstone and Kandos had higher rates of volunteering than Mudgee. The Breakfast Creek SS had the highest rate of volunteering, with over 30% of the population over 15 years of age having volunteered in the year prior to the Census.

Anecdotal evidence gathered through SIA consultation suggests that volunteer rates in the Bylong Valley have dropped significantly since the 2011 Census due largely to the impact of property acquisition activities associated with the resource sector. The annual Mouse Races did not occur in 2014 due to a lack of interest from the Bylong Community in organising the event. The Bylong Rural Fire Service (RFS) is understood to currently only have one or two volunteers compared to five years ago when there were always people available to help (Bylong Valley RFS 2014, pers.comms., 5 August).

Manidis Roberts (2012) reported that “existing mining projects are already having an impact on the availability of volunteers [within Mudgee]”. This relates specifically to emergency services, as the shift rosters and the remote locations of mines restricts the ability of people employed in the mining industry to help respond to an emergency incident.

10.2.4 Crime and Community Safety

This section includes a discussion of the following issues relating to social order and community safety in the Bylong Valley, Mudgee and the broader MWRC LGA.

Recorded Crime Statistics

Table B-8 of Appendix B shows recorded offences in the MWRC LGA for 2009 to 2013. It can be seen that theft and robbery offences have decreased between 2009 and 2013, while cannabis and other drug offences have increased. Consultation with NSW Police (Mudgee Local Area Command (LAC)) indicates that cannabis offences in the MWRC LGA are predominantly seasonal. It is the growing ICE epidemic across the MWRC LGA that is of most concern to NSW Police (Mudgee LAC Acting Inspector 2015, pers.comm., 1 April). ICE is a popular recreation drug and it is reportedly not difficult to manufacture. NSW Police suggest that demand for ICE in MWRC LGA is associated with the prevalence of residents earning high mining wages. These residents can afford to pay for the drugs without the need to revert to crimes such as theft and robbery to fund access to the drug (Mudgee LAC Acting Inspector 2015, pers.comm., 1 April). The drug problem in MWRC LGA is considered to be no different from other rural regional communities in NSW, except that MWRC LGA does not appear to have the corresponding theft and robbery offences (Mudgee LAC Acting Inspector 2015, pers.comm. 1 April).

Consultation with NSW Police indicates that domestic violence incidents currently have the highest rate of investigation in the Mudgee LAC. For the most part this is due to a change in incident reporting procedures which has meant that NSW Police are required to take management action in relation to any potential domestic violence incident, and no longer have the power to use their discretion. The result is an increase in the number of reported domestic violence incidents. Discussion with Mudgee LAC confirms that the number of reported domestic violence incidents has increased across all rural regional towns (Mudgee LAC Acting Inspector 2015, pers.comm. 1 April). The increased reporting of domestic violence incidents has implications for crisis accommodation providers particularly providers of accommodation for women (**Section 9.2.2**).

Overall, however, the MWRC LGA has a low level of recorded offences compared to other LGAs.

Perceptions of Safety

Concern in relation to personal safety was not identified as an existing issue in the Bylong Valley by participants in the SIA interviews. A number of residents actually indicated they chose the local area due to feelings of safety, the connectedness of the community at that time and the perceived willingness of others to assist in times of need.

Personal safety in Mudgee was also not identified as a specific issue during discussions with MWRC representatives or other service providers.

One of the key goals of the MWRC Community Plan (MWRC 2013b) is a 'safe and health community'. Key strategies identified to meet the goal include working with key partners and the community to reduce crime, anti-social behaviours and improve community safety. The MWRC website described the Mudgee region as a place where:

"children can still enjoy a high degree of independence because the environment is safe and peaceful and relatively crime-free. The Mudgee Region is proud to boast one of the lowest crime rates in the state". (MWRC 2014b)

10.2.5 Community Health and Wellbeing

This section briefly outlines issues in the Bylong Valley, Mudgee and MWRC LGA relating to health and wellbeing. The recent (2011 and 2012) consultation processes to inform the development of the MWRC Community Plan (MWRC 2013b), and the preparation of the MWRC – Local Services Assessment (Manidis Roberts, 2012), provide insight into the communities' perceptions of their health and wellbeing.

Bylong Valley

It is evident from the findings of SIA consultation that the Project property acquisition process has created uncertainty for a number of residents in the Bylong Valley. The majority of residents interviewed for the SIA identified that they had experienced considerable stress and family tension due to the uncertainty around whether their property would be purchased. It was stated that the uncertainty around property acquisition also affected residents' ability to make decisions relating to property improvements and property management.

The potential changes in background noise levels and air quality conditions in the Bylong Valley and the associated impacts on human health was also a significant concern for residents of the Bylong Valley.

Mudgee and the MWRC LGA

Consultation with MWRC representatives (MWRC 2014, pers.comm., 4 December) did not identify any significant emerging health and wellbeing issues in the Mudgee community other than those attributed to servicing issues e.g. children's services, medical services.

A review of media and information from Western NSW Local Health District (2013, 2014a and 2014b) identified broader community concerns regarding the consumption of alcohol in the community, and anti-social behaviour of youth.

Discussions with MWRC representatives (MWRC 2014, pers.comm., 4 December) highlighted a growing concern within the Mudgee community in relation to road safety. Specifically, there is a perception that the risk of accidents on local road networks such as Ulan Road, Wollar Road, Lue Road and Bylong Valley Way are increasing due to a perceived combination of increased mine related traffic and the potential prevalence of fatigue amongst mine employees. This perception has recently been reinforced by an accident that occurred on Ulan Road outside Mudgee and resulted in the death of a cyclist (May 2014). The accident is widely perceived to have been fatigue related and mine related.

10.3 IMPACT ASSESSMENT AND MANAGEMENT

This section describes the potential impacts of the Project on aspects of community liveability including:

- Changes to rural amenity and village character in the Bylong Valley;
- Community sustainability and cohesion;
- Connection to land; and
- Road safety and accessibility.

10.3.1 Changes in Character and Rural Amenity

Participants in SIA interviews raised concerns in relation to the potential impacts of the Project on rural character and amenity. Concerns related specifically to:

- The visual impact of the Project on rural character;
- Potential noise, dust and vibration emissions from the Project and their resulting impact on rural amenity; and
- Potential environmental impacts which may lead to a reduction in the quality of the natural environment, ultimately impacting rural character.

Several Bylong Valley residents interviewed for the Project expressed feelings of sadness when they thought about what the Bylong Valley would look like into the future. There is a perception that the Project will have a permanent and adverse impact on the natural qualities, including scenic qualities of the Bylong Valley.

These perceived impacts and concerns are discussed in the following sections.

Visual Impacts

Bylong Valley residents expressed concern that the Project may impact the visual amenity of the Bylong Village and the greater Bylong Valley. Bylong Valley residents perceive that due to the proximity of the open cut operation to Bylong Village and the overall change in landscape from one of rural land use to mining will adversely impact visual amenity.

The landscape character of the area within the Project Boundary and the broader EIS Study Area is described in the EIS Visual Impact Assessment. Stakeholder concerns in relation to visual impacts have been considered in the EIS Visual Impact Assessment. The EIS Visual Impact Assessment describes the potential visual impacts of the Project and presents mitigation measures.

The change in visual amenity to the Bylong Valley as a result of the Project will be most noticeable during Construction Phase 1, as the rapid ramp-up to production will bring significant changes to land use and road use in a short period of time. Following the cessation of open-cut operations and the rehabilitation of the open cut mining area the visual impact of the Project on Bylong Valley is expected to improve significantly. Rehabilitation of the open cut mining area will result in the return of the landscape to its previous agricultural uses. Mine site rehabilitation and final land use is discussed in the EIS Rehabilitation Strategy.

The Project will not be visible from the Bylong Village. The impact on Bylong Valley Way will predominantly be low due to screening and lower visual effect levels. The sections of this road and Wollar Road that afford views to the WAF will experience high visual impact for a short period of time until the visual mitigation tree planting has become established.

A number of measures have been integrated into Project design to minimise the visual impact of the Project. These measures are discussed in detail in the EIS Visual Report and include:

- Adopting a progressive approach to the rehabilitation of disturbed areas within the Project Disturbance Boundary; and
- Implementing a range of on-site rehabilitation treatments to reduce the impact of the open cut operations on the rural character and amenity of the Bylong Valley.

A range of off-site rehabilitation treatments are also proposed to further reduce the impact of the open cut operations on the visual amenity of the Bylong Valley. These treatments include:

- Specific screening strategies for the Bylong Valley Way in areas that are visually exposed to views of the Project, specifically the WAF;

- Location specific screening strategies for the high sensitivity viewer locations within the Equine CIC impacted by pre-rehabilitation open cut mine works, infrastructure or other Project elements; and
- Establishing tree screens along Upper Bylong and Lee Creek Roads.

Visual impact mitigation measures will be implemented from the commencement of Construction Phase 1 to mitigate the potential impacts of the Project on Bylong Village and the surrounding landscape.

The underground mining operation will have a significantly smaller impact compared to the open cut mining operation.

Noise, Vibration and Air Quality Impacts

Near neighbours expressed concern that the Project is likely to reduce residential amenity through changes in air quality and background noise levels. Some residents of the Bylong Valley also perceive that air quality impacts may affect the health and wellbeing of residents. Near neighbours are concerned that blasting activities associated with the Project may impact on the amenity of properties in proximity to the open cut operation, particularly those properties in Bylong Village.

Noise and blasting impacts have been considered in the EIS Noise and Blasting Report. Air quality impacts have been considered in the EIS Air Quality Report.

Blasting and Vibration Impacts

Blasting at the Project has the potential to cause structural damage or human discomfort at properties surrounding the Project. The Noise and Blasting Impact Assessment concluded that blasting associated with the Project is predicted to produce ground vibration and overpressure levels well below the relevant amenity criteria at all privately owned residences and structures (Pacific Environment Limited 2015).

Noise Impacts

The determining factor for the Project specific noise levels for all residences is the intrusiveness criteria. Pacific Environment Limited (2015) predicts that with the adopted noise mitigation measures:

- Three receivers will be significantly impacted;
- Six receivers will be moderately impacted; and
- Three receivers will be impacted negligibly.

Should the Project be granted approval, the Development Consent will specify landholders where predicted amenity impacts are determined to be unacceptable in accordance with the NSW Governments *Voluntary Land Acquisition and Mitigation Policy*. In this instance these landholders will be provided the opportunity to be acquired by KEPCO if they so wish. Receivers listed in a Development Consent with the right of acquisition are said to fall within the Project Acquisition Boundary.

Properties predicted to be moderately impacted by noise impacts are likely to be eligible for at-receiver noise mitigation on request by the landholder. Should the Project be granted approval, the Development Consent will specify landholders eligible for at-receiver noise mitigation. Potential at-receiver mitigation measures may include double glazing of windows and installation of air conditioning units.

Air Quality Impacts

The assessment of air quality impacts at nearby properties indicated that there are no privately owned properties that will be impacted by exceedances of air quality criteria (Pacific Environment Limited, 2015). Consequently, the Project is not predicted to exceed relevant air quality criteria at any private receiver.

Environmental Impacts

Participants in SIA interviews raised a number of issues and concerns in relation to water, including the potential impacts of the Project on:

- Aquifers and the availability of groundwater for irrigation purposes; and
- Surface water quality and availability.

In addition, some stakeholders raised concern in relation to mine water management, particularly waste water and the potential for impacts to surface water and groundwater.

Various technical studies have been undertaken as part of the Project EIS to assess the impact of the Project on the natural environment. Some of these assessments have already been referenced in the SIA as they have been raised in the context of social issues (e.g. noise and vibration). Stakeholder concerns are addressed in the relevant EIS technical reports including:

- Surface water issues - EIS Surface Water Report;
- Mine water management - EIS Surface Water Report;
- Aquifers and groundwater - EIS Groundwater Report;
- Flora and fauna - EIS Ecological Report; and
- Hazard - EIS Hazard Analysis.

10.3.2 Community Sustainability and Cohesion

Consultation with residents of Bylong Valley indicated significant concern in relation to the ongoing viability of the Bylong Village and the community within the Bylong Valley. Bylong Valley residents interviewed perceive there may be a loss of population as a result of property acquisition and associated population displacement, leading to the gradual decline of community and loss of connections between and within communities and families. There is a perception in the existing Bylong Valley community that current and historical mining related property acquisitions in the Bylong Valley have led to social divide in the community and in turn, adversely impacted the sense of community.

A number of participants in SIA interviews expressed a desire to see the Bylong Valley community work cooperatively with KEPCO for the common good if the Project is to proceed. For example:

- A number of residents felt KEPCO was in a strong position to attract new residents to the Bylong Valley which would strengthen the community through increased population growth;
- Some residents suggested that KEPCO's social investment in the Bylong Valley could assist existing and new residents to rebuild social capital in the Bylong Valley, providing a benefit to residents and KEPCO in terms attracting and retaining local employees;
- Some residents suggested that given KEPCO's ownership of considerable land holdings in the Bylong Valley, there is an opportunity to improve land management practices and overall productivity using a long-term strategic approach, which ultimately would benefit all residents;
- A few residents suggested that having a 'major player' in the Bylong Valley might be beneficial in attracting investment and/or new agricultural industries and technologies to the area; and
- A couple of residents suggested the WAF could supplement the small range of services and facilities within the Bylong Valley if residents of the Bylong Valley were permitted to use the facilities. Potential facilities include recreation (e.g. pool) and medical services.

Property Acquisition and Population Displacement

KEPCO has acquired the majority of properties essential for the Project to effectively manage the predicted environmental impacts, e.g. noise and dust on neighbouring landholders. **Section 6.3.5** outlines the population movements that have already occurred in and adjoining the Project Boundary as a result of the Project. Additional property purchases have been non-compulsory acquisition purchases with willing vendors.

Section 6.3.5 notes that as a result of the purchase of properties by KEPCO, 14 people moved from their properties, although a net population loss of only eight has occurred, since others have moved onto those properties since. **Section 6.3.5** also describes the future property acquisitions required within the defined Project Boundary to manage Project impacts.

It is apparent from the findings of SIA interviews that the historical decline in the number of residents in the Bylong Valley together with project induced population displacement has had an impact on the sense of community in Bylong and the broader Bylong Valley. Once people moved, it is also likely that their local knowledge and skills were also a loss to their local community, resulting in decreased social capital in the area.

Section 6.3.3 describes the additional population anticipated to relocate to the Bylong Valley as a result of the Project. This additional population is anticipated to reside in existing KEPCO owned housing in the Bylong Valley. This additional population will help restore a sense of community to the Bylong Valley.

Volunteerism

It is possible that the Project may benefit volunteering in the SIA Study Area in the following ways:

- The potential for additional volunteers as the population grows; primarily through workers' partners and children;
- The introduction of a wider range of skills from the new population to add diversity to volunteering efforts;
- An incoming younger population may be able to improve the rates of volunteerism in Mudgee and reverse the dwindling volunteer labour pool in the Bylong Valley; and
- The potential for mining and resource companies to assist in resourcing volunteer organisations by supporting the release of employees for emergency service activities or providing days off for workers to volunteer.

However, the Project has the potential to adversely impact rates of volunteerism in Mudgee, in the following ways:

- Increased demands on the range of volunteer services from the new population;
- The shift patterns of mining employment may impede the ability of employees to be involved in community activities and take on volunteering roles; and
- Employees' shift patterns may also place particular strains on family members who may also be then less able to contribute their time as volunteers (Petkova et al, 2009).

While the shift pattern arrangements of mining projects may play a role in reduced volunteering, the possible future decline of community participation may also be related to a broader issue of a cultural shift towards greater individualisation and less participation in communities nationwide.

KEPCO is committed to supporting the participation of the Operations Phase workforce in volunteer roles across the MWRC LGA. Employee policies that enable emergency services personnel to be released from duties to attend emergency calls and to perform crucial volunteer actions will be developed for all phases of the Project.

Community Identity

Bylong Valley residents expressed concern that the Project will adversely impact the identity of the Bylong Valley as a result of changes in residential amenity and rural character. In addition the MWRC expressed a desire to ensure that the town of Mudgee is not perceived as a mining community by tourists and other visitors.

Bylong Valley

Throughout the Project life, Construction Phase 1 is likely to have the greatest impact on community identity in Bylong Valley. This is primarily due to the size and gender balance of the Project workforce anticipated to be residing in the Bylong Valley over a short duration (24 months) and the speed at which change from a rural landscape to a mining landscape will occur. The duration of the impact is relatively short-term (i.e. two years) and primarily associated with Construction Phase 1 and the initial operation of the WAF.

The identity of Bylong Village has already experienced change as a result of the surrounding mine exploration activities. Over the past five years, an increasing number of mine related vehicles and personnel in mine safety clothing have frequented the Bylong General Store. There is likely to be a further increase in the number of mine vehicles and mine personnel frequenting services such as the Bylong General Store as a result of Project construction. Activity in Bylong Village is likely to peak during Construction Phase 1 due to the size of the workforce and reduce substantially as the Project transitions to operations.

The Construction Phase 1 and 2 workforces will be encouraged to live in the proposed WAF, located to the north of Bylong Village. It could be expected that the Project construction workforce will generally have limited direct links or affinity to the existing community. The proximity of the Bylong General Store to the WAF suggests that residents of the WAF may frequent Bylong Village in order to access the Bylong General Store. Any interaction between the workforce and the local community is likely to occur at this venue. WAF residents are not anticipated to access sporting facilities in Bylong Village unless the Bylong Valley community decides to capitalise on the presence of the workforce and develop sporting events at the Bylong Village sporting grounds that the workforce can participate in e.g. tennis competition. However, the duration of the shift hours for both construction phases will likely limit the capacity of the workforce to participate in community activities.

The impact likely to be experienced in Bylong Village is similar to a number of remote mining towns in Australia, particularly in Queensland and Western Australia, where a large non-resident workforce moves into a relatively small existing settlement, and quickly outnumbers the existing residents (Petkova et al., 2009). Further, accommodation camps are not new to Bylong. During the 1980s when the railway was being constructed an accommodation camp existed in Bylong. During SIA interviews residents spoke about the vitality of the community when the camp was in operation, citing the benefit of having extra people for tennis games and cricket competitions or social BBQs.

It should be noted that the shift rosters for construction activities in the 1980s were much shorter than current rosters, and more easily enabled people to participate in activities outside of their work hours.

The size and operation of the railway camp in the 1980s was also very different to the proposed WAF in terms of size and management approach. Despite these differences if the WAF is carefully managed it may prove to be beneficial to the Bylong Valley community rather than perceived as purely detrimental to the identity of Bylong Village.

The workforce associated with the Project Operations Phase is considerably smaller than the Construction Phase 1 workforce. Whilst the WAF will continue to operate through to the end of Construction Phase 2, it is envisaged that all Operations Phase employees will reside permanently in the Local Area and hence there will no longer be a large concentration of mine related personnel residing within close proximity to Bylong Village. As open cut mining ceases, open cut mine rehabilitation is completed and the WAF is decommissioned the identity of Bylong Village is likely to return to a pre mining state.

In summary, the Project will have temporary impact on community identity in the Bylong Valley during the first six years of the Project. The predicted impact is associated with the operation of the WAF and the concentration of workforce located in the Bylong Valley. By the time the WAF is decommissioned it is likely that community identity will have transitioned and the arrival of residents associated with the Operations Phase of the Project will provide opportunities for new social networks, and a greater population base to underpin community organisations such as the Bylong Hall Committee and local events e.g. Mouse Races.

KEPCO proposes the following actions to support greater community cohesion in Bylong Valley and enhance long-term community sustainability:

- Assist new residents and families in the Bylong Valley to integrate into the existing community by:
 - Holding community BBQs or similar events to encourage existing residents and new residents to socialise and build social networks;

- Encouraging new residents to participate in local volunteer roles such as the Bylong RFS by providing information relating to these services, promoting the need for volunteers in the workforce and identifying key contacts in volunteer services. Indeed, Project staff are already volunteering for the Bylong RFS;
 - Encouraging new residents to participate in community groups and organisations such as the Bylong Hall Committee by promoting the existence of such groups and organisations and identifying key contacts;
 - Potentially holding open days at the Bylong Coal Mine to encourage existing residents to learn about the work conditions of new residents;
 - Requesting a local community member be responsible for welcoming new residents to Bylong and familiarising them with the local area; and
 - Ensuring the site-based Project Community Liaison Officer or HSE Officer is accountable for meeting new residents; and
- Providing funding for infrastructure upgrades and beautification works in Bylong Valley through the Interim Community Investment Fund and KEPCO's Corporate SD Fund.

Sub Regional Study Area

The Project is not anticipated to impact community identity at the Sub Regional Level. A number of communities in the LGA notably Gulgong, Mudgee and Kandos already have experience dealing with the temporary influx of construction workforces as a result of the Ulan, Moolarben and Wilpinjong mine construction and expansion projects. These communities are likely to have developed resilience for these kinds of changes and may be more adaptable to change.

Section 6.3 has shown that the additional population that can be expected in Mudgee, as a result of the NLHs associated with the initial year of Project Operations Phase (PY3) will be small compared to the existing size of the Mudgee population (approximately 3.6% growth). In addition, Mudgee already supports a sizeable mining workforce and the community is familiar with the shift pattern lifestyle. In this sense it is likely that Mudgee and the smaller settlements of Kandos and Rylstone can absorb the additional population without undue stress on the existing population. Additionally, KEPCO is committed to employing as many local people as possible, to reduce the size of the incoming population.

Adjusting to 'New' Neighbours and a 'New Community'

An influx of population into an existing town or locality means that both the existing and new residents need to adjust to their new neighbours and community, and the differing expectations that each group may hold about the other. The incoming population may well be different to the existing community in a number of ways, such as:

- They are employed only in the mining industry and bring a particular set of skills and attitudes to mining with them;
- They may have a different, or limited, understanding of the agricultural base of the region they are moving to;

- They may be more demographically diverse, particularly in their ethnicity, language or religion;
- They may have relocated from other areas that do not have the same characteristics and lifestyles as the rural community to which they are moving into (e.g. they may have moved from other mining towns or from cities and be familiar with rural etiquette);
- They may have differing expectations about the level and quality of the services and facilities that they hope for in their new town; and
- They may have differing expectations regarding housing prices.

For both groups, there are a number of ways of assisting the other. For the incoming residents, information about their new community and its services is important, as well as welcome programs to help integrate new workers and their families. For existing residents, well-structured and timely information about the Project, its likely workforce characteristics and their social and housing needs is also crucial. Encouraging social bridging between the existing and incoming populations is crucial.

To this end, KEPCO will take the following actions to assist new residents to integrate into their host community:

- Collaborate with the MWRC LGA and industry in the region to source or produce the following information, projects and policies:
 - Provision of information for incoming residents, regarding their new community, region, facilities and services;
 - Welcoming events or programs for new residents;
 - Information for existing residents regarding the Project, its likely workforce characteristics and their needs;
- Holding ‘family fun days’ to help new families who have relocated to meet other families in the area and on the Project; and
- Encouraging employees, through company policy, to remove their high-visibility mining jackets if they intend to visit public places in the towns and villages of the MWRC LGA before and after work.

10.3.3 Loss of Connection to Land

The change in land use from pastoral or agricultural to mining has the potential to adversely impact landholders with strong ties to the rural or farming way of life in the Bylong Valley. These landholders may experience distress adapting to the changing land use in the Bylong Valley. Many participants in SIA consultation did not identify any significant concern in relation to loss of connection to place. A number of participants indicated that they lived in the Bylong Valley for the quality of the land for pastoral and agricultural activities. Some participants in SIA consultation cited that they could “*move to any place where there was similar land*” or “*I’m here for the land not the community*”.

KEPCO has already acquired the majority of land within the Project Boundary and with the exception of three properties, all land within the predicted Project Acquisition Boundary. The Project is not predicted to adversely impact rural farming practices outside of the Project Acquisition Boundary. The impact to farming land from open-cut operations will occur during the first 10 years of the Project, following which the land will be returned to its post mining state (EIS Rehabilitation Report). Impacts to agricultural land are discussed in **Section 7.3.6** and **Section 7.3.7**.

The number of landholders predicted to experience distress in relation to the changing land use is predicted to be small. KEPCO acknowledges that some residents of the Bylong Valley may feel distressed by the introduction of mining activities into the Bylong Valley. KEPCO proposes the following actions to support ongoing agricultural production in the Bylong Valley and minimise stress to existing landholders, in addition to the actions described in the EIS Rehabilitation Report and the EIS Agricultural Impact Statement:

- Retain the services of a professional Farm Manager to oversee the use and management of all Proponent owned land in the Bylong Valley; and
- Develop a comprehensive Farm Management Plan to guide the use of all KEPCO-owned land in the Bylong Valley to facilitate the land generating an economic return and the Proponent making a valued contribution to the agricultural economy in the MWRC LGA. It should be noted work has already commenced on both of these actions, with the appointment of a full-time professional Farm Manager in 2014, who is already developing a draft Farm Management Plan for KEPCO-owned lands.

10.3.4 Road Safety and Accessibility

This section discusses the potential social impacts associated with:

- Road relocations and road closures;
- Changes in road usage and capacity; and
- Rail infrastructure impacts.

Changes in Accessibility

During SIA interviews, concerns were raised by a number of residents of Bylong Valley in relation to the decommissioning of the southern section of Upper Bylong Road, specifically:

- Property accessibility;
- Travel times to Bylong Village and locations to the north in Muswellbrook and Scone LGAs;
- Changes in accessibility to neighbouring landholders and friends;

- Impacts on farm management practices where landholders are responsible for the management of more than one property; and
- Changes in rural amenity due to road relocation and the proximity of new road infrastructure and associated traffic volumes.

A number of intersections and road upgrades will be required which will be funded by KEPCO and form part of the capital costs of the Project.

The closure of Upper Bylong Way will decrease the travels times to the north of the Bylong Valley (towards Denman in the Muswellbrook Shire LGA) for local properties to the east of the mine site and increase travel times for four landholders located to the south of the mine site.

Two options are being considered in relation to providing access for neighbouring landholders along the southern reaches of Upper Bylong Road. These options are described in the EIS Project Description Section.

The preferred option will be selected as part of the detailed engineering design phase and in close consultation with the MWRC and the local landholders within this area. Further, it is proposed that the works associated with the selected option will be completed under a separate approval to be granted by MWRC and at the cost of KEPCO.

In the event that agreements are reached with all three of the relevant landholders over compensation for the resultant loss in optionality for land access and MWRC is in agreement that neither of the two road upgrades described above is required then neither of these upgrades will be progressed.

Further information in relation to road realignment and decommissioning is available in the EIS Project Description Section.

The impact of the Upper Bylong Road realignment on rural amenity, specifically impacts associated with traffic volumes, noise and dust are considered in the respective EIS technical studies: EIS Air Quality Report; EIS Noise and Blasting Report; and EIS Traffic and Transport Report. The realigned portion of Upper Bylong Road is proposed to be designated to MWRC as a public road.

Changes in Road Usage and Capacity

Project related road traffic impacts (as distinct from road network changes) in the Project Area were of moderate concern to the majority of stakeholders interviewed from the Bylong Valley. The issues were also of interest to the MWRC, NSW Police and Emergency Service providers.

During SIA consultation stakeholders raised concerns in relation to the extent that Project induced traffic may impact road safety on Bylong Valley Way, Wollar Road and roads in and out of Mudgee. In particular, Bylong Valley residents were concerned about:

- Road safety along Bylong Valley Way particularly around the proposed access to the WAF; and
- Road safety during construction with the potential volume of heavy trucks.

In addition to the impacts discussed above, several key local and State government staff raised the issue of fatigue management for mining employees, stating that long shifts and country roads are not conducive to road safety for employees and the wider community, citing fatigue-related road accidents in the MWRC LGA (MWRC 2014, pers.comm., 4 December) (NSW Police 2014, pers.comm., 21 August).

The EIS Traffic Report includes an assessment of the impact of Construction Phase 1 (PY2) and peak Operations Phase (PY9) on road capacity, intersection performance, travel time, public transport services and rail services. The EIS Traffic Report concluded that:

- Although there is a large percentage increase in daily traffic due to Project traffic in PY2 and PY9, road capacity continues to operate at good levels of services, with ample spare capacity;
- Given the low volumes of traffic generated by the Project over a daily and peak hourly period, only minimal impacts are foreseen on the surrounding road network;
- The closure of Upper Bylong Road will increase travel times for residents to the south of the Project by up to 30 minutes, if they utilise Lee Creek Road to access Bylong Valley Way in its current state. The upgrade of Lee Creek Road or Budden Gap Road will improve travel times to Bylong Valley Way;
- No public transport impacts including impacts to school bus services are envisaged; and
- Trains to and from the Project will not travel across the level railway crossing on either Bylong Valley Way (east of Wollar Road) or the Projects underground mine access road.

Changes in Road Safety

Road safety is a significant concern for stakeholders, particularly emergency service providers, given the remote location of the Project and the anticipated residential location (Mudgee) of the majority of the workforce.

The EIS Traffic Report acknowledges that speed and fatigue are common crash risk factors across NSW (Parsons Brinkerhoff 2015).

This is particularly true for miners who tend to work long (12 hour) shifts, with many travelling up to an hour from home to attend their shift, where private vehicle travel is the only viable mode. Speed and fatigue management strategies are a key part of minimising the risk of accidents and thus the impact of mine traffic on the local road network.

Given the nature of the Project, increased traffic on roads within and surrounding the Project Boundary is unavoidable. The provision of a WAF in proximity to the Project and the operation of a bus service between the WAF and the Project during construction phases will significantly reduce the number of light vehicle trips on roads within and surrounding the Project Boundary.

KEPCO understands that road safety is a particular concern to employees and residents of the Bylong Valley and the broader MWRC LGA. The following additional measures will be implemented to further reduce the potential of the Project risks to road safety:

- Implementing a Project Fatigue Management Policy, including an education program in consultation with emergency service providers;
- Supporting carpooling initiatives between Mudgee and the Project;
- Provision of a shuttle bus service between the WAF and the Project; and
- Investigating demand for a workforce bus between Mudgee and the Project for the Project Operations Phase.

Social Impact related to changes in Rail Infrastructure

The Project will require the construction and operation of a rail loop and associated rail load-out facility and connection to the Sandy Hollow to Gulgong Railway Line to facilitate the transport of product coal. Social impacts associated with rail transport were not discussed by stakeholders during SIA consultation. However, a number of residents of Bylong Valley did raise concerns in relation to noise and air quality impacts from the train load-out facility and the increase in the volume of coal trains.

The amenity concerns raised by stakeholders have been considered in the EIS Noise and Blasting Report and the EIS Air Quality Report.

10.3.5 Community Health and Wellbeing

Health related impacts of Project shift arrangements

Long shift hours and lengthy shift rosters have the potential to give rise to employee health and wellbeing issues such as fatigue and mental health concerns. The combination of long shift hours and shift rosters, and fatigue can also impact on family functioning (Petkova et al, 2009). This impact is less common in families familiar with mine employment. However, families who are new to mining may take considerable time to adjust to employment conditions.

This in turn can increase demand for support services particularly individual and family support services e.g. counselling. Employee fatigue is likely to be one of the biggest drivers of Project related impacts on employee and family health and wellbeing.

The potential for the Project to impact employee and family health will depend significantly on the final shift rosters for the Operations Phase. The following management measures are proposed to minimise potential impacts on employee and family health and wellbeing:

- KEPCO proposes a resident workforce for the Operations Phase of the Project. All employees will be required to reside permanently within a one hour commute of the Project Boundary; and
- KEPCO proposes the following actions to minimise fatigue related incidents in the workforce:
 - Develop and implement a Project Fatigue Management Policy including an education program in consultation with emergency service providers;
 - Provide detailed information to employees and their families about managing sleep cycles and the impact of fatigue on lifestyle and relationships;
 - Identify and implement a program to encourage the Operations Phase workforce residing in Mudgee, Rylstone and Kandos to car pool for commuting to the Project;
 - In consultation with stakeholders, investigate the potential for the establishment of a driver rest area between Bylong and Mudgee. Identify a suitable lead agency to develop the rest area and consider the provision of assistance for construction of the necessary facilities, through the VPA or Corporate SD Fund; and
 - Provide a bus service between Mudgee and the Project for the Operations Phase, where demand indicates a need.

Health related impacts associated with changes in residential amenity

It is acknowledged that the potential cumulative health impacts of changes in air quality, water quality and noise levels have caused increasing concern in mining communities, particularly in the Upper Hunter Valley mining areas. Increasing focus is being given by State government to addressing these impacts at a regional level. Potential air quality impacts as a result of dust emissions were one of the most discussed issues during SIA interviews conducted for the Project. Several participants raised concerns in relation to potential health impacts from dust emissions. These issues are addressed in the EIS technical studies (EIS Air Quality Report, EIS Surface Water Report, and EIS Noise and Blasting Report) which indicate that the Project will not adversely impact the health of residents or visitors to the Bylong Valley.

10.3.6 Summary of Impacts and Management

The Project is predicted to have both positive and negative impacts on community liveability in the MWRC LGA. The negative impacts will occur largely in the Bylong Valley. However these negative impacts will be offset to some degree by the potential positive benefits of the Project.

Negative impacts of the Project on community livability in Bylong Valley relate to:

- The location of the WAF outside Bylong Village and the potential influx of a non-resident workforce;
- The potential change in the rural character and amenity of the Bylong Valley, particularly Bylong Village, and that rate at which that change is predicted to occur; and
- Potential changes in residential amenity.

Through Project induced population increase in the Bylong Valley, the Project has the potential to:

- Significantly enhance social capital e.g. by diversifying the social networking opportunities available in Bylong Valley and the introduction of new families with children;
- Increase volunteerism in the community; and
- Enhance long term community sustainability and the sustainability of valued physical assets such as the Bylong General Store and Bylong Upper PS.

Table 77 provides a summary of the strategies to be implemented by KEPCO to:

- Manage the potential impacts of the Project on community livability in the Bylong Valley; and
- Enhance the potential positive benefits for the Bylong Valley community.

Other mitigation measures that may also relate to community liveability are listed in the most relevant section of the SIA.

Table 77
Summary of Project Impacts and Management – Community Liveability

Impact	Impact Category	Management Strategies
Potential adverse changes to the character and amenity (including visual amenity) of Bylong Valley and Bylong Village.	Negative	10.1 KEPCO will negotiate a VPA with the MWRC. The VPA will include the allocation of money to a Community Investment Fund that will operate for the life of the Project.
Potential change in the identity of the Bylong Valley as a result of Project induced changes in character and amenity.	Negative	10.2 KEPCO will encourage employees, through company policy, to remove their high-visibility mining work wear if they intend to visit public places in the towns and villages of the MWRC LGA before and after work.
Potential loss of connection to rural industry as a result of changing landscape character.	Negative	10.3 Through the Interim Community Investment Fund and/or the Corporate SD Fund, KEPCO will contribute to the conduct of beautification and enhancement works at Bylong Village to enhance the attractiveness of the location as a tourist stopping point along the Bylong Valley Way.
Increase in the pool of available volunteers in the Bylong Valley and broader MWRC LGA.	Positive	10.4 KEPCO will retain the services of a professional Farm Manager to oversee the use and management of all Proponent owned land in the Bylong Valley.
Potential changes in property accessibility and accessibility to Bylong Village	Negative	10.5 KEPCO will develop a comprehensive Farm Management Plan to guide the use of all KEPCO-owned land in the Bylong Valley to facilitate the land generating an economic return and KEPCO making a valued contribution to the agricultural economy in the MWRC LGA.
		10.6 KEPCO is committed to supporting the participation of the Operations Phase workforce in volunteer roles across the MWRC LGA. Employee policies that enable emergency services personnel to be released from duties to attend emergency calls and to perform crucial volunteer actions outside of the Project Boundary will be developed for all phases of the Project.
		10.7 KEPCO will keep landholders in the Bylong Valley informed of decisions in relation to the timing of the closure of Upper Bylong Road and the proposed alternative access route.
		10.8 KEPCO will work in collaboration with the MWRC and local residents within and adjoining the Project Boundary to ensure that property access is maintained where possible and that adequate roadway is provided for servicing properties.

Impact	Impact Category	Management Strategies
Enhanced social capital in the Bylong Valley through the introduction of new residents to the Bylong Valley.	Positive	<p>10.9 KEPCO will assist new residents and families to integrate into their host community by collaborating with the MWRC LGA and industry in the region to source or produce the following information, projects and policies:</p> <ul style="list-style-type: none"> • Provision of information for incoming residents, regarding their new community, region, facilities and services; • Welcoming events or programs for new residents; • Information for existing residents regarding the Project, it's likely workforce characteristics and their needs; • Holding 'family fun days' to help new families who have relocated to meet other families in the area and on the Project; and • Encouraging employees, through company policy, to remove their high-visibility mining jackets if they intend to visit public places in the towns and villages of the MWRC LGA before and after work. <p>10.10 Specifically in relation to Bylong Village, KEPCO will assist new residents and families to integrate by:</p> <ul style="list-style-type: none"> • Holding community BBQs or similar events to encourage existing residents and new residents to socialise and build social networks; • Encouraging new residents to participate in local volunteer roles such as the Bylong RFS by providing information relating to these services promoting the need for volunteers in the workforce and identifying key contacts in volunteer services; • Encouraging new residents to participate in community groups and organisations such as the Bylong Hall Committee by promoting the existence of such groups and organisations and identifying key contacts; • Potentially holding open days at the Bylong Coal Mine to encourage existing residents to learn about the working environment of new residents; • Requesting a local community member be responsible for welcoming new residents to Bylong and familiarising them with the local area; and • Ensuring the Project Community Liaison or HSE officer is accountable for meeting new residents. <p>10.11 KEPCO will negotiate a VPA with MWRC for funding of community infrastructure and service improvements in Mudgee, the Bylong Valley and the broader MWRC LGA.</p>

Impact	Impact Category	Management Strategies
Potential for reduced road safety conditions on local and regional road networks due to Project related changes in road usage, capacity and risk of driver fatigue	Negative	10.12 KEPCO will develop and implement a Project Fatigue Management Policy including an education program in consultation with emergency service providers. 10.13 KEPCO will become a partner in the Mudgee Liquor Accord. 10.14 KEPCO proposes the following actions to minimise fatigue related incidents in the workforce:
Potential changes in employee and family health and wellbeing due to Project employment conditions i.e. shift arrangements.	Negative	<ul style="list-style-type: none"> • Develop and implement a Project Fatigue Management Policy; • Provide detailed information to employees and their families about managing sleep cycles and the impact of fatigue on lifestyle and relationships; • Identify and implement a program to encourage the Operations Phase workforce residing in Mudgee, Rylstone and Kandos to car pool for commuting to the Project; • In consultation with stakeholders, investigate the potential for the establishment of a driver rest area between Bylong and Mudgee. Identify a suitable lead agency to develop the rest area and consider the provision of funding assistance through the VPA or Corporate SD Fund for construction of the necessary facilities; and • Provide a bus service between Mudgee and the Project for the Operations Phase, where demand indicates a need. 10.15 Logistics scheduling will be conducted in a manner that ensures Project related vehicle movements during both construction and operation are undertaken to be outside school drop off and pick up periods. 10.16 A construction Traffic Management Plan will be prepared as part of pre-construction planning detailing how the traffic associated with each of the construction phases will be managed. The construction Traffic Management Plan will be prepared in consultation with and to the approval of the MWRC and the relevant roads authority.

Impact	Impact Category	Management Strategies
Potential adverse changes in residential amenity.	Negative	<p>10.17 A comprehensive stakeholder engagement plan will be prepared and implemented for the construction and operation phases of the Project. The stakeholder engagement plan will include a stakeholder grievance mechanism.</p> <p>10.18 Should the Project be granted approval, the Development Consent will specify landholders where predicted amenity impacts are determined to be unacceptable in accordance with the NSW Government's <i>Voluntary Land Acquisition and Mitigation Policy</i>. In this instance these landholders will be provided the opportunity to be acquired by KEPCO if they so wish.</p> <p>10.19 Residences identified in the Development Consent as outside the Project Acquisition Boundary but as experiencing amenity impacts will be offered at-site mitigation.</p>

11 COMMUNITY INFRASTRUCTURE ACCESSIBILITY

11.1 INTRODUCTION

This section describes the current provision of community infrastructure (facilities and services) in the SIA Study Area. This section also outlines the service issues that may be associated with the Project, and where relevant, describes strategies for future provision.

The types of community infrastructure included in this section are:

- Education facilities – primary, secondary and tertiary;
- Children’s services;
- Health services;
- Emergency services;
- Recreation, sporting and leisure services;
- Cultural facilities and cultural development;
- Social support services and community groups; and
- Commercial and retail services.

It should be noted that this section does not reference every relevant facility, service or community group in the SIA Study Area (for example each sporting facility or group in the LGA is not given). The MWRC’s online Community Directory provides comprehensive listings of these community facilities, services and groups in most of the areas of interest within the Sub Regional Study Area. It is not considered relevant to profile services and facilities located outside of the MWRC LGA.

11.1.1 Relevant Background Studies

The majority of information contained in this section is drawn from the MWRC Local Services Assessment (Manidis Roberts 2012). This report represents the most comprehensive and up-to-date source of information regarding the current supply of infrastructure and services in the MWRC LGA and future service demands. The Local Services Assessment was prepared following extensive consultation with representatives of MWRC, and local agencies and organisations. The population projections that underpin the assessment of future service demand and associated assumptions are different to those used in the Mudgee-Gulgong URS. However, the population projections contained in the Local Services Assessment do consider population growth arising from future resource projects and expansions in the MWRC LGA.

The findings of the Local Services Assessment were significant and are currently being used by MWRC and relevant government agencies when considering the key priorities and critical shortfalls in infrastructure and services up to 2019.

11.2 SETTING

11.2.1 Education Facilities and Services

Primary and Secondary Facilities

There are a number of schools in the Sub Regional Area commensurate with the size of each town and village, as shown in **Table 78**.

Table 78
School Enrolments, Selected Schools in MWRC LGA, 2011 and 2015

School	Location	Distance to Project Site (km)	Student Enrolment	
			2011	2015
Bylong Upper PS	Bylong	Within Project Site	5	0
Wollar PS	Wollar	17	9	8
Rylstone PS	Rylstone	45	98	88
Lue PS	Lue	37	21	27
Ulan PS	Ulan	37	14	15
Kandos PS	Kandos	51	203	160
Kandos HS	Kandos	51	259	247
St Matthews Catholic School	Mudgee	53	NA	630
Mudgee PS	Mudgee	54	495	578
Cudgegong Valley PS (Mudgee)	Mudgee	54	589	552
Mudgee HS	Mudgee	54	1,100	955

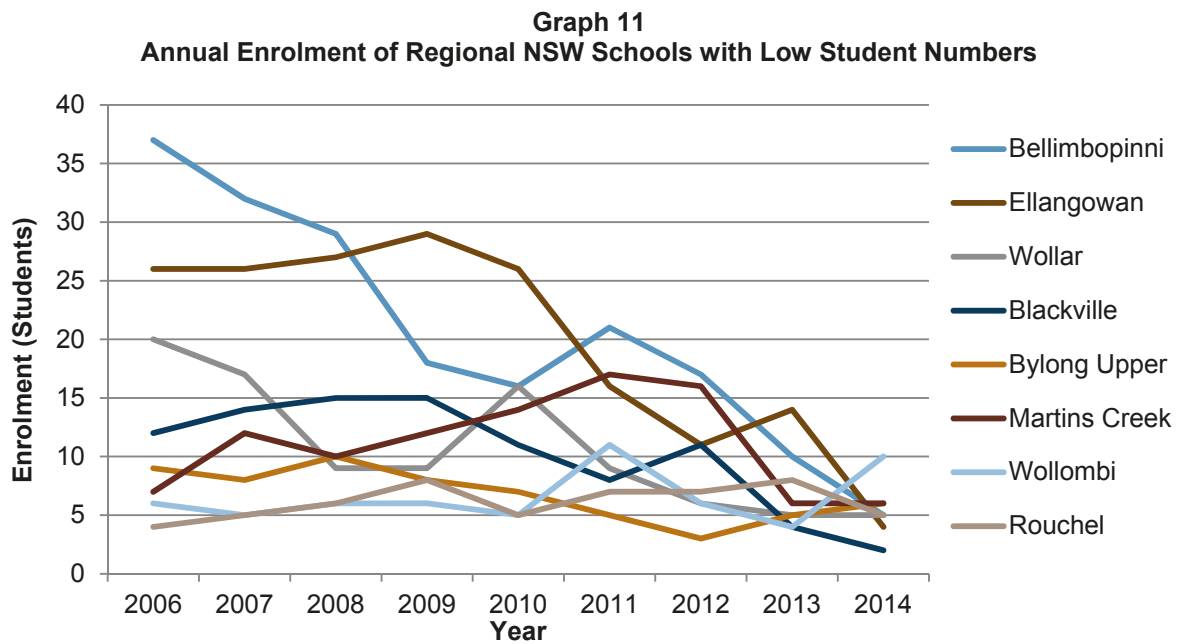
Source: DEC 2015b

Bylong Valley

Bylong Upper PS is located within the Project Boundary on Upper Bylong Road (**Figure 6**). In 2014, the school had four enrolments. In 2015, the school had no enrolments. As such, the NSW Department of Education (DoED) placed the school in temporary recess for the year, which means the school will not operate for the 2015 school year. **Graph 11** shows enrolment data for Upper Bylong PS between 2006 and 2014. It shows that enrolment numbers have declined steadily since 2006 in parallel with the anecdotal reports of population decline in the Bylong Valley (**Section 6.2.3**).

AECOM (2015) provides a detailed description of the historical provision of schools in the Bylong Valley and highlights the impact of population fluctuations on school provision. Until the opening of the Upper Bylong PS in 1927, a number of different schools operated throughout the Bylong district (AECOM, 2015). The majority of these schools closed due to poor attendance resulting from families moving away (Centenary Booklet Committee, 1984:24 in AECOM 2015).

The future of the Bylong Upper PS is currently being reviewed by the NSW DoED and may potentially be closed, along with a list of other small regional schools with low enrolment numbers. **Graph 11** shows annual enrolment numbers for a number of public schools, which are anecdotally reported to be listed on the NSW Government’s “enrolment watch list”, and therefore facing potential closure.



Source: DEC 2015b

Rylstone and Kandos

Rylstone and Kandos each have a public school with 88 and 160 students enrolled respectively. Enrolment numbers at both schools decreased between 2011 and 2015. Lue, Wollar and Ulan PS are further afield.

Kandos HS serves the eastern part of the MWRC LGA, and had an enrolment of 247 students in 2015, down from 259 in 2011. Kandos HS offers vocational education programs in metals and engineering and hospitality. These programs were initially offered due to the presence of mining operations in the region and the Kandos Cement Works. However, following the closure of the Kandos Cement Works, the hospitality program is now being promoted to engage the growing tourism market in the region.

Mudgee

There are two public primary schools in Mudgee, Cudgegong Valley PS and Mudgee PS. Cudgegong Valley PS currently has 552 students enrolled and Mudgee PS currently has 578 students enrolled.

There are two secondary schools in Mudgee, Mudgee HS and St Matthews Catholic College. St Matthews Catholic College is currently a K-11 school with Year 11 commencing for the first time in 2015. Year 12 is expected to commence in 2016 in response to enrolment demand. Mudgee HS currently has 955 enrolled students and St Matthews Catholic College has a current enrolment of 630 students.

Both Mudgee PS and Mudgee HS have strong learning support groups with specialist staff to assist students who have special needs. Anecdotal information suggests both schools are a popular choice for parents of children with intellectual disabilities. Further, people choose to move to Mudgee because of the school options available for children with intellectual disability. In 2015 there were:

- 34 students assessed as requiring a specialist learning support class at Mudgee PS. These students are accommodated in five specialised classes: two multi-categorical classes, two intellectual moderate/autism classes and one mild intellectual class; and
- 42 students assessed as requiring a specialist learning support class at Mudgee HS. These students are accommodated in five learning support classes (DEC 2015, pers.comms. 1 April).

Tertiary and Further Education Facilities

The major higher educational facilities accessible to the MWRC LGA population include;

- TAFE Western, which has 13 campuses in the Orana RDA including one in Mudgee;
- A number of Registered Training Organisations (RTOs);
- TTCs;
- Charles Sturt University (CSU), which has a campus in Dubbo delivering degree courses in nursing, education, business and social work; and
- The University of Sydney, which delivers some parts of its medical courses through the School of Rural Health in Dubbo.

TAFE

The TAFE Western Institute (TAFE Western) includes 24 colleges, one of which is located in Mudgee, and more than 60 associated centres (TAFE Western 2014). Analysis of Annual Reports for TAFE Western Institute highlights significant growth over the last eight years. The 2013 enrolment at TAFE Western was 36,823 students compared to 34,177 in 2005 (Manidis Roberts, 2012).

TAFE Western also offers TAFE Western Connect which provides on-line training and assessment options for a number of courses.

TAFE Western operates Mudgee College, including the Mudgee College Skills Centre (MSC). Mudgee College provides a range of certificate and diploma level courses in general education, aged care, agriculture, business, computing, engineering trades, hospitality and viticulture. Mudgee College has targeted courses in mining and provides training as part of mining apprenticeships. Mudgee College operates out of two sites: Bombira and Mudgee central.

The MSC was established in 2011 and operates as a commercial business providing apprenticeship programs to businesses and organisations. The MSC specifically targets the mining sector in the MWRC LGA. Since the establishment of the Skills Centre in 2011, the demand for apprenticeship training through the Skills Centre has nearly doubled (TAFE Western 2014). To service this increased demand for trade training TAFE Western has undertaken significant upgrades to the MSC. As a result of these upgrades Electro-Technology, Metal Fabrication, Welding and Fitting and Machining Apprentices can now get the skills they need locally without having to travel to Dubbo or Orange. *“The upgrades allow TAFE Western to provide a higher level of training to meet the local industry and community and support the local economy.”* (TAFE Western 2014).

TAFE Western operates a Business Capability Unit which provides customised training to meet the needs of businesses and employers in Western NSW. The Institute is able to conduct an on-site analysis and identify skill gaps whilst developing flexible training strategies including recognition of prior learning, online and distance learning, as well as workplace delivery. TAFE Western has established ongoing partnerships with many businesses and organisations in the MWRC LGA including Glencore, Moolarben Coal and Centennial Coal.

Universities

The nearest university to Mudgee is CSU, with campuses at Bathurst and Orange. A strong partnership between CSU and TAFE Western has resulted in a number of student-centred and targeted programs being developed to increase enrolments in higher education, increase Indigenous enrolments and further improve retention rates of all students.

Registered Training Organisations

There are a number of RTOs who deliver traineeships and apprenticeships within the MWRC LGA. The expansion in the resource sector in the LGA has driven demand for certificate level training in skill sets relevant to the mining industry. Many RTOs are capitalising on demand by diversifying the range of training programs delivered and/or specifically targeting skill sets in high demand. RTOs servicing Mudgee include Central West Community College, Skillset and the MSC.

Trade Training Centres

The federally funded Cudgegong TTC includes locations at Gulgong, Kandos and Mudgee HSs. The TTCs in Schools Program provides opportunities for students to stay in school and either commence on a pathway to employment in skill needs areas or, after completing school, continue further education and/or training. The Cudgegong TTC provides equipment for students to develop skills which meet Certificate I and II requirements in hospitality, construction and metal engineering.

Current and Future Needs

Primary and Secondary Education

Discussions conducted with the DEC to inform the SIA confirm that public schools and high schools in the MWRC LGA have adequate capacity to expand in the event of future population increase and subsequent enrolment demand (DEC 2015, pers.comm., 1 April). Based on the outcomes of the 2015 DEC school census there are currently spare permanent classrooms at Mudgee HS. There are no spare classrooms at Mudgee PS and Cudgegong Valley PS.

The DEC responds to increased service demand through the provision of demountable buildings on school sites. Demountable buildings are already provided at both Mudgee PS and Cudgegong Valley PS. All schools in Mudgee have capacity to accommodate additional demountable buildings. In the case of Mudgee HS, the provision of additional classrooms has the potential to reduce the available sport and recreation area at the school due to land constraints. Mudgee HS is located opposite Victoria Park and the DEC is considering negotiating an agreement with MWRC in relation to the use of the park for school sports and recreation (DEC 2015, pers.comm. 1 April).

The DEC conducts internal population modelling to determine the need for capital investment at State government schools across NSW. Population modelling conducted by the DEC for the MWRC LGA predicts the following population trends between 2016 and 2031:

- A very stable population of primary school age children; and
- A stable (with some growth) population of secondary school aged young people.

On the basis of the population modelling the DEC considers it unlikely that the NSW government would provide a new primary school in Mudgee into the future, or that there would be a need for a new high school. This is further reinforced by current government actions in relation to school sizes which indicates a move towards significantly larger schools e.g. high schools of 2,000 enrolments and primary schools of 1,000 enrolments, rather than the previous position of substantially smaller schools.

Further, in relation to secondary education, the extension of St Matthews Catholic College to include years 11 and 12 will relieve some of the anticipated future demand for secondary student places in Mudgee.

The DEC's demography unit continually monitors regional population for trends in population growth. The DEC also reviews the annual DP&E population projections and conducts a school census twice a year. The DEC releases primary and secondary school enrolment projections annually with a five year projection.

Special Needs Facilities

It is unknown how many students are currently (2015) on waiting lists for learning support classes at Mudgee PS and Mudgee HS. The DEC does not project enrolment figures for learning support classes. Demand is assessed on a year by year basis.

Manidis Roberts (2012) reports a significant increase in demand for access to disability classes at Mudgee HS since 2005. The school's ability to provide additional places in classes catering for people with a disability is limited by the availability of specialist teachers to cater for students with disability (such as a hearing-related disability). The Local Services Assessment (Manidis Roberts 2012) predicts that approximately 38 students would be waitlisted for the mild intellectual disability class by 2030.

Tertiary and Further Education

TAFE Western is unable to meet the training demands generated by the region and as a result, a large amount of training is occurring on-line or on the job (Manidis Roberts, 2012). Discussions with a representative from MSC (MSC 2015, pers.comm., 24 March) suggests that the establishment and recent expansion of the facility has enabled TAFE Western to respond to the growing demand for mining related training in the MWRC LGA. Department of Education, Employment and Workplace Relations (DEEWR) (former) (2013) notes that there is *significant potential to capitalise on mining and agriculture, the two business strengths of the [Orana RDA] region, by expanding existing tertiary education facilities or establishing new ones.*

With the increasing focus on mine related skilling in MWRC LGA, there is a need to ensure education and training providers continue to deliver programs in non-mining skills sets that are applicable to the wider economy. In the MWRC LGA this is an important component of securing ongoing economic diversity and essential to ensuring the non-mining sector has ready access to skilled labour.

11.2.2 Children's Services

The following preschools and early childhood services are available in the communities of interest within the MWRC LGA:

- Mudgee Preschool;
- Rylstone-Kandos Preschool;
- Imaginations Early Learning Centre;
- Squeakers Long Day Care Centre;
- Puggles Child Care Centre; and
- Mid-Western Regional Family Day Care Scheme.

Preschool Services

The Mudgee Preschool is a non-profit community care centre which has operated in the township for over 50 years. The preschool has two campuses, one on Perry Street and a smaller campus on Church Street in Mudgee. Its standard operating hours are from 9am to 3pm, but a limited number of extended hours' places are available to working parents. The preschool also offers discounted rates to low-income and Indigenous families. Mudgee Preschool currently has 23 part-time and three full-time staff and a licensed capacity of 180 children per day.

Rylstone-Kandos Preschool has operated in Kandos for over 30 years, and is licensed for 30 children per day. The preschool has three full-time and four part-time staff, and operates from 8:45am to 3:15pm during the week. This preschool is the closest centre to the Project.

Both pre-schools have long waiting lists, particularly for the three to four year old age groups (i.e. the two years before school)

Family Day Care Centres

Imaginations Early Learning Centre is an early education preschool and long-hours day care centre which operates from 7:30am to 6.00pm. Imaginations ELC employs 22 permanent staff and a number of casuals, based on need. The centre is licenced for 63 children a day and consultation with staff indicated that this number was reached most days.

Puggles Child Care Centre is located in Mudgee and is licensed for 46 children. The centre is open from 7:45am to 5:45pm during the week, and is currently at capacity. Puggles Child Care Centre has 15 staff, with a mix of casual and permanent part-timers. Squeakers is also located in Mudgee and provides long-hours day care for children aged from six weeks to six years.

The Mid-Western Regional Family Day Care coordinates home-based day care for the region. There are approximately 26 family day carers in the MWRC LGA, each with a licence for four children per day. Ten of these carers are located within Mudgee, and the operating times of these services vary from carer to carer.

Table 79 summarises preschool and early childhood services in the communities of interest in the MWRC LGA.

Table 79
Children's Services – Mudgee, Rylstone and Kandos

Centre	Location	Licensed Capacity (children per day)	Wait List
Mudgee Preschool	Mudgee – two campuses	180	40 children in 2015, waitlist for 2016
Imaginations Early Learning Centre	Mudgee	63	80 children
MWRC Family Day Care	MWRC LGA	104	15-20 children for 10 places in Mudgee
Squeakers Long Day Care	Mudgee	Not publicly available	Not publicly available
Puggles Childcare Centre	Mudgee	46	Yes, number unknown
Rylstone-Kandos Preschool	Kandos	30	3-4 children on Wednesdays and Fridays

Source: SIA Consultation conducted with Service Providers

Out of Hours School Care and Vacation Care

After school care and vacation care in Mudgee is provided by the Mudgee PCYC. The PCYC has 30 places available for after school care and vacation care. The PCYC does not provide before school care due to a lack of ongoing demand. Aside from Family Day Care (of which there are understood to be eight operating in Mudgee), the PCYC is the only provider of after school care services. Current demand for after school care experienced by the PCYC suggests that the PCYC service is adequate at this point in time and no additional service is required.

Children's Services – Current and Future Needs

The literature review and consultation undertaken for the SIA indicated that child care and preschool services in the MWRC are under significant strain. At the time of writing, all children's services consulted for the SIA were operating at capacity and reported long wait lists (**Table 79**).

Mudgee Preschool is the largest preschool in the MWRC LGA, and reported a long waitlist for 2015, as well as a waitlist for 2016. The preschool also reported that even for those children who were able to secure a place, the preschool was unable to offer the number of days or hours that were requested.

In December 2013, the MWRC reported that there were “*just over 330 pre-school spots for the region’s 1400 eligible children*” and further “*most local children [in MWRC LGA] only receive around a third of pre-school hours nationally recommended*” (ABC, 2013). This appears to remain the case in 2015 as recent discussions with MWRC representative (MWRC 2014. pers.comm., 4 December) indicated that there are still children commencing school in Mudgee who were unable to access preschool education in the year preceding the start of school due to a lack of preschool places.

MWRC has been proactively working with local childcare providers and relevant government agencies to address the critical shortage of early childhood places in the MWRC LGA and the lack of a dedicated early childhood intervention service. In April 2014, MWRC was awarded \$1 million by Infrastructure NSW as part of the Cobbora Transition Fund. This money is to be used to fund the development of a new early childhood education and care service in Mudgee to address the shortage of these services in the region. Once operational, the new facility will cater for 40 children per day, providing up to 200 additional preschool places in Mudgee (Mudgee Guardian 2015). It is anticipated that the new facility will address the existing shortage of early childhood education places in Mudgee (MWRC 2014. pers.comm., 4 December). The new facility is currently under construction.

Family day care centres in Mudgee are also largely operating at capacity with part of the overflow being absorbed by long day care (Manidis Roberts, 2012). In response to high demand for childcare services in the region, a new private childcare centre has recently been approved by the MWRC. This centre is proposed by the operators of Jenny’s Kindergarten and Early Learning, and will be opening in 2016 (Paine 2014).

In addition to meeting demands for preschool and child care places, the Local Services Assessment highlighted the need to develop an early childhood intervention service to deliver both the necessary therapy and preventative support that children require. This area of need was confirmed during discussions with MWRC representatives to inform the SIA. At the time of drafting the Local Services Assessment there were no dedicated early childhood intervention service in MWRC LGA for children with disabilities and long waiting lists to receive services including from the NSW Department of Ageing, Disability and Home Care (ADHC). It is understood that there are also lengthy delays for accessing services through the public health system. Only those people that can afford to pay for private therapists are receiving assistance for their children (Manidis Roberts 2012).

11.2.3 Youth Services

Youth services in Mudgee are primarily provided through the PCYC as there is no dedicated youth facility in Mudgee. The findings of SIA consultation (PCYC 2015, pers.comm., 13 March) suggest that many young people in Mudgee congregate at the library primarily due to the free WIFI and the availability of mobile device charging stations. The PCYC is seeking to establish a drop-in centre in Mudgee to provide similar facilities to the library with the additional options of sport and recreation. However, significant capital infrastructure investment is required. It is understood that the PCYC once provided a youth outreach service to Rylstone and Kandos, however this service no longer exists.

The PCYC also provides a range of sport and recreation programs including archery, basketball, gym and fitness classes. It also runs a Traffic Offenders Intervention Program.

The MWRC coordinates a Youth Council. The purpose of the Youth Council is to provide an opportunities for young people in the region to have a voice in helping determine MWRC's priorities and highlight issues that need addressing, particularly programs and services relating to youth.

Barnardos runs the Kandos Loft, a drop-in centre targeting young people aged 8 to 16 years. Kandos Loft is run out of the Kandos Community Centre two afternoons a week during the school term. Between one and three holiday programs are also provided during school holidays. Barnardos reports a lack of 'free' activities for young people in Kandos, particular if young people are not interested in sport or clubs such as Scouts (Barnardos 2015 pers.comm., 25 March). Young people attending Kandos Loft generally come from Kandos, nearby Charbon and Rylstone. According to Barnardos there is an overwhelming need for youth services in Mudgee and Kandos, particularly services that target lower socio-economic families (Barnardos 2015, pers.comm., 25 March).

11.2.4 Health Services

Regional Health Service Provision

The MWRC LGA is located within the Western NSW Local Health District (LHD). This LHD services a population of approximately 271,468 people based on 2011 Census ERP (Western NSW LHD 2013).

There are three major referral hospitals in the Western NSW LHD:

- Dubbo - located 126 km from Mudgee;
- Bathurst - located 123 km from Mudgee; and
- Orange - located 200 km from Mudgee.

Neither Dubbo nor Bathurst hospitals are readily accessible by public transport from Mudgee.

There are four district hospitals (Parkers, Forbes, Cowra, Mudgee) and 30 rural hospitals in the Western NSW LHD.

There are three public health services within the MWRC LGA, all within the Western NSW LHD:

- Rylstone Multipurpose Service (MPS);
- Mudgee Health Service; and
- Gulgong MPS.

Rylstone and Mudgee services are the closest health services to the Bylong Valley. The health services provided at these centres are discussed in more detail in the section which follows.

Health Facilities in MWRC LGA

Rylstone MPS

Rylstone MPS is the closest medical facility to the Project. Rylstone MPS is a small rural hospital and health service that provides 26 beds, including eight acute/sub-acute beds and 18 residential aged care beds. Services include 24 hour emergency services, acute and sub-acute medical inpatient services and low and high care residential aged care services. HealthOne Rylstone is collocated with the MPS providing General Practitioner (GP) services. Regular outreach clinics are held at HealthOne for including a paediatric outreach clinic and Rural Flying Doctor Service and women's health GP (Western NSW LHD 2014a).

Mudgee Health Service

Mudgee is a district health service and procedural hospital with a built capacity of 52 beds. Mudgee Hospital is currently operating with a 20 bed general ward, an emergency department, a maternity ward including two labour rooms, and a theatre with one operating room and one endoscopy room. The hospital is staffed by GPs who hold visiting medical officer positions.

The health service provides 24 hour emergency care supported by:

- Critical Care Advisory Services (Sydney Based) who coordinate transfers to tertiary referral facilities for critically ill people through the Aero Medical Referral Unit. This referral service includes a specialised referral consultation service with a camera located in the emergency department enabling local medical consultation with senior medical specialists in tertiary referral hospitals;

- NSW Ambulance Services;
- NSW Police Services; and
- Local Community and Allied Health Services (Western NSW LHD 2014b).

The health service includes:

- Acute and sub-acute inpatient services including medical, surgical and maternity, rehabilitation, respite and palliative care;
- A range of surgical procedures;
- Diagnostic services including radiology and pathology;
- Outreach services from Dubbo Health Service including renal dialysis and oncology; and
- A range of primary and community health care services including outreach to surrounding towns, cancer care services, renal dialysis and diagnostic services.

General surgery waiting times in Mudgee Hospital were recorded at twice the national average in 2010/11, and are expected to increase to three times the national average by 2031 (MWRC 2012).

There is also a Health Council in Rylstone and Mudgee which:

- Brings local health needs and issues to the attention of the Health Service;
- Participates in service planning and delivery;
- Promotes and improve the health of the local community in partnership with the Health Service and other; and
- Develops and strengthens their networks and links within the community.

Gulgong Multi Purpose Service

The Gulgong MPS and HealthOne facility is the closest health facility to the mining operations of Moolarben, Wilpinjong and Ulan and is a new service commissioned in late 2014. Gulgong MPS provides 24 hour emergency care, sub-acute inpatient services including rehabilitation, respite and palliative care and residential aged care services. Gulgong HealthOne is a fully integrated 'one-stop-shop' providing local access to a range of primary health care services including GPs, community health services, allied health and emergency care services. Gulgong Primary and Community Health offers a range of community-based health services to the Gulgong community with outreach clinics held at Cooks Gap and the Gulgong Men's Shed.

Primary and Community Health in MWRC LGA

The MWRC LGA is located within the Western NSW Medicare Local. Western NSW Medicare Local is a coordinating body for primary care (out of hospital) services, gathering information about the health needs of the region, and connecting local services.

Primary and community health care services provided in Mudgee include child and family health nursing, aboriginal health, social work, physiotherapy, health education and promotion, community nursing, women's health, mental health and drug and alcohol counselling.

General Practitioners

There are two private medical centres in Kandos and two in Mudgee. There are two full-time GPs operating in Kandos and a number of part-time GPs. The Mudgee medical centres currently employ approximately 18 GPs, half of whom are employed on a part-time basis.

There are also visiting specialists and a range of allied health practitioners in Mudgee. There is no dedicated Aboriginal health service in Mudgee. GPs in Mudgee provide annual assessments for Aboriginal residents and also provide strong referral networks (Western NSW Medicare Local 2013).

Consultation with the Mudgee Health Council (MHC) (MHC 2015, pers.comm., 24 March) indicates the waiting time to see a GP of choice is approximately two weeks.

Mental Health Services in MWRC LGA

Western NSW LHD provides Mental Health and Drug and Alcohol Services (MHDA Services) to the MWRC LGA based out of the Dubbo and Orange MHDA Centres. A small MHDA team is based in Mudgee and supports the Rylstone, Coolah, Dunedoo and Gulgong communities.

MHDA Services include a health promotion prevention and early intervention team, dedicated Infant, Child, Youth and Family (ICYF) MHDA Team, an Adult Mental Health Team, specialist mental health services for older people and drug and alcohol services and a dedicated mental health adult acute care unit in Orange.

There is a community mental health team based in Mudgee servicing Coolah, Dunedoo, Gulgong and Mudgee. Community Mental Health services are also offered out of Rylstone Community Health Centre. Community health service provision across the Western NSW LHD is hampered by difficulties in attracting suitably qualified practitioners.

In 2014, Western NSW LHD completed a Mental Health Review (Hallwright and Chiplin 2014) of services in the area and identified the following key issues:

- Under servicing at the community level potentially due to high vacancy rates;
- Lack of responsiveness to the needs of Aboriginal populations; and
- A clear perception amongst stakeholders that drug and alcohol service delivery and community based infant, child and youth service delivery are the two greatest areas of unmet need for the Western NSW LHD population, and particularly for Aboriginal people and youth.

Family and Community Services in MWRC LGA

The ADHC provides services to persons with disability including supported accommodation, early intervention, therapy, day programs and home care services (Manidis Roberts 2012). Consultation with ADHC to inform the Local Services Assessment indicated that ADHC expects to meet anticipated future demand in the MWRC LGA without shortfall - taking into account anticipated growth in some areas due to mining and other ventures. It is understood that the NSW governments Stronger Together 2011-2016 Program will assist in meeting future demands.

Further consultation conducted with other disability service providers by Manidis Roberts in 2012 identified an increase in demand, some of which has come from mining families moving into the region. Some service demands were related to enquiries regarding recreational and employment opportunities for young adults with a disability.

Mudgee Disability Support Services Inc. and Lifeskills Plus Inc. are the two peak service providers in Mudgee providing support to participants in the NSW Department of Family and Community Services (FCS) Community Participation program. The Community Participation program is designed to help people with a disability develop the skills they need to work towards their goals.

Mudgee Community Services Centre

The Mudgee Community Services Centre is part of the NSW FCS and services disadvantaged individuals, families and communities in the MWRC LGA. Consultation conducted by Manidis Roberts in 2012 found that the centre did not have sufficient human resources to service the community and cannot respond appropriately to the number of reports regarding children at risk.

Home and Community Care (HACC) in MWRC LGA

A range of Home and Community Care (HACC) services are available in the MWRC LGA. Home care includes meals on wheels, home nursing, respite care, assistance with self-care, body movement or communication services. HACC services are supported and coordinated by the MWRC predominantly through the Carmel Croan Community Centre.

Public Health Capital Works Program

In February 2015, the existing NSW Government announced an election promise of \$ 60 M for upgrades to the Mudgee Hospital. The works would include an expansion and reconfiguration of inpatient and ambulatory care services (ABC News 2015). The upgrade to Mudgee Hospital will deliver substantial benefits for the Mudgee region in the form of improvements to and diversification of service delivery and greater accessibility for the public to a range of health services. Importantly, the upgrades will provide an opportunity for health service delivery to be diversified to target specific needs of the local industries such as the mining industry.

The following major capital works programs have recently been completed or are currently underway in the Western NSW LHD major referral hospitals:

- Renovation and new construction of Bathurst Hospital, with sections commissioned in 2008 and mid-2011;
- Construction of a new, larger acute hospital in Orange on the same Bloomfield campus as the existing mental health facilities;
- The Orange Health Service campus was commissioned in mid-2011; and
- Renovation and expansion of Dubbo Hospital, with the first of four stages scheduled for completion in 2015. The redevelopment will secure Dubbo as the major referral centre and acute care hospital for specialty services.

Key Issues in Service Provision

Meeting Population Health Needs

The population of the Mudgee and Rylstone Health Service Areas is characterised by a high proportion of people aged over 65 years and an even higher proportion less than 14 years of age. These characteristics, when combined with the predicted growth in the resource sector and the unique needs associated with the industry workforce, present significant challenges for the delivery of health care services to the population.

The town of Mudgee has experienced significant population growth in the past five years and MWRC forecasts further population growth due to proposed expansions in the mining sector. In 2012, Manidis Roberts reported continuing concerns in relation to community health service provision in the MWRC LGA. The MWRC Community Plan (MWRC 2013b) also identifies health as a key issue of concern for the community.

There are mixed opinions between health service providers and the MWRC as to the need for a new hospital in Mudgee. Manidis Roberts (2012) concludes that growth in demand for NSW Health services in the MWRC LGA is likely to require an upgrade of the Mudgee Hospital facility and additional GP services.

In contrast and based on the *Western NSW LHD Health Needs Assessment, 2013* (Health Needs Assessment) (Western NSW LHD et al 2013), Western NSW LHD et al (2013) determined that there was little to no need for expanded inpatient capacity across the LHD.

As discussed previously, the current NSW Government made an election promise to fund an upgrade to the Mudgee Hospital if successful in the recent State election.

Provision of General Practitioner Services

The Local Services Assessment identified the need for a further 31 GPs in the MWRC LGA to service estimated demand by 2030 (Manidis Roberts 2012). The majority of these GPs would be required in Mudgee based on the geographical distribution of the anticipated population.

Access to private GPs has been an ongoing issue in Mudgee and the broader MWRC LGA for a number of years and was exacerbated as a result of population growth associated with mining sector expansion in 2012. The issue is further compounded by the fact the many of the GPs are aging and will need to be replaced in the distant future (MHC 2015, pers. comm., 24 March). The attraction and retainment of GPs in rural areas of Australia is an ongoing issue for health service providers.

Between 2012 and 2013, the MWRC undertook the following actions to improve local access to doctors and attract and retain doctors for the region:

- Entered into a partnership with three local partners, contributing land to the value of \$15,000 to develop a purpose built housing in Mudgee to accommodate visiting medical students completing 12 month clinical placements;
- Continued to maintain a house purchased in 2010 which was renovated to accommodate a doctor in Rylstone; and
- Continues to offer a rental subsidy towards accommodation for a doctor in Gulgong (MWRC, 2014a).

In addition, Glencore committed \$525,000 over five years to assist with the attraction, recruitment and retainment of more doctors to the MWRC LGA (Glencore 2015). Through this funding the Mudgee4Doctors Program was established. The program aims to attract doctors to the Mudgee area, specifically Mudgee and Gulgong.

The combination of these actions has assisted in improving accessibility to GP services, particularly in Mudgee. However, moderate levels of demand still remains in Mudgee and the broader MWRC LGA (MHC 2015. pers.comm., 24 March).

Other Health Services

Consultation conducted by Western NSW Medicare NSW with Mudgee Health Service representatives, to inform the *2013 Medicare Local Needs Assessment* (Western NSW Medicare Local 2014) identified the following key issues in health service delivery in Mudgee:

- Lack of visiting medical specialist and allied health services. MHC (MHC 2015, pers.comm., 25 March) notes that this is exacerbated by the absence of an airport in Mudgee. Visiting health specialist are required to drive from Dubbo;
- Inadequate psychiatry and mental health services;
- Accessibility and affordability of health services;
- Severe lack of allied health particularly speech therapist, occupational therapists, dieticians, social workers and psychologists;
- Pressure on child and family nurses due to increased population from mining sector growth; and
- Lack of Aboriginal health staff.

11.2.5 Emergency Services

The MWRC LGA is serviced by the District Emergency Management Office based at Dubbo which comes under the jurisdiction of the Central West Emergency Management District. Dubbo is the regional headquarters for the Ambulance Service of NSW, State Emergency Service, Fire and Rescue NSW and NSW Police Force.

NSW Police

The Project is located within the Mudgee LAC of the NSW Police Service. The Mudgee LAC comprises the MWRC and Warrumbungle LGAs.

There are four police stations in the MWRC LGA, namely Rylstone, Kandos, Gulgong and Mudgee Police Stations. The central office of the Mudgee LAC is located in Mudgee, with approximately 30 officers for Mudgee Township and a further 13 officers for management, high-way patrol, criminal investigation and specialist staff who cover the entire command. Rylstone and Kandos Police stations are staffed by two officers each, and jointly service the Bylong area. Each of these stations has a single vehicle, and the response time from these stations to Bylong Township is approximately one hour.

Ambulance Service of NSW

The Ambulance Service of NSW has stations in Kandos and Mudgee. In addition, several non-commercial transport services operate in the LGA including Mudgee Community Transport, which provides an alternative means for isolated residents to access medical services for non-emergency health related purposes.

NSW Ambulance Greater Sydney Area Helicopter Medical Service (NSW GSAHEMS) has a base in Orange and provides a 24 hour rescue helicopter service to the Central West Region. The GSAHEMS transfers patients to Orange Health Service or specialist treatments in Sydney.

NSW Rural Fire Service

MWRC LGA is covered by Cudgegong Rural Fire District (RFS). Consultation reported that there are approximately 1,400 volunteers in the Cudgegong Rural Fire District and six full-time staff at the Mudgee RFS office coordinating the efforts of the District.

There is an RFS Brigade at Bylong, which is understood to currently comprise of between one and five volunteers and a number of vehicles. Rylstone RFS provides back-up services to Bylong RFS. Due to the distance to the nearest back-up for the Bylong RFS, in the event of a fire in the Bylong area, the Cudgegong RFS in Mudgee will call Bylong RFS to the site and dispatch the Rylstone RFS Brigade at the same time as a secondary measure. Once the Bylong RFS arrives on site and assesses the situation, the Rylstone RFS team will be notified whether to proceed to the site of the emergency (Barrett, G., 2014, pers.comm., 21 August).

State Emergency Service

The MWRC LGA is served by the Macquarie Region of the State Emergency Service (SES), with volunteer units at Rylstone and Mudgee.

Emergency response time for outer lying areas such as Bylong can be negatively affected by difficult access caused by rugged terrain and prevailing road conditions, which worsen in wet conditions. The Westpac Rescue Helicopter Service (Westpac RHS) based in Tamworth and Newcastle, provides search and rescue services to the MWRC LGA. The Westpac RHS operates four helicopters from its two bases.

Issues in Service Delivery

The key issue for service delivery in volunteer-based organisations such as the NSW RFS is the availability of volunteers. The Local Services Assessment identifies that existing mining projects in the MWRC LGA are already having an impact on the availability of volunteers:

“An increasing number of volunteers are employed in the mining industry and at times their ability to respond to an emergency incident is restricted by the shift they work, as well as the remote locations of the mines in which they work” (Manidis Roberts 2012).

In the village of Wollar the local RFS has disbanded due to a severely dwindling volunteer pool, the result of a significant reduction in the population of the town of Wollar. In the Bylong Valley historical population decline (**Section 6.2.3**) has resulted in a significant reduction in the available volunteer pool, particularly of trained long-term volunteers.

The findings of the Local Needs Assessment and consultation to inform the SIA identified the attraction and retention of staff to the Mudgee LAC as the most significant servicing issue for the NSW Police. These issues can be attributed to:

- The increased cost of housing in Mudgee. Housing is more expensive in Mudgee than other areas such as Dubbo and Orange; and
- Competition for labour from the mining sector. NSW Police is unable to compete with the salaries offered by the mines in the MWRC LGA.

11.2.6 Recreation, Leisure and Sporting Facilities

Bylong Village

There is a children's playground, tennis court and sporting oval in Bylong Village at the site of the Bylong Public Hall (**Figure 4**). There is also a small overnight camping area with toilets and coin operated showers located behind the Bylong Public Hall. This operates on an honesty box system.

Broader MWRC LGA

The MWRC maintains a number of recreational facilities across the LGA, including:

- Sportsgrounds, passive regional neighbourhood parks in the main centres of Mudgee, Gulgong, Rylstone and Kandos;
- Various playgrounds and undeveloped reserves in the main centres described above and in smaller villages such as Lue and Ulan;
- Three pool facilities, located at Mudgee, Gulgong and Kandos; and
- The Glen Willow Regional Sporting Complex at Mudgee which caters for a variety of sports and events and including the Glen Willow Regional Sports Stadium which opened in 2012 with a 10,000 capacity stadium and 1,000 seat undercover grandstand; a \$2 million netball complex with 20 courts and amenities; and four full size fields for multi-use with flood lights for night time play and amenities buildings (MWRC 2013c).

Recent investments by MWRC in sport and recreation in the MWRC LGA include:

- The provision of financial support for the upgrade of the Gulgong and Mudgee skate parks;
- Major expansion of the existing Lawson Park in Mudgee;
- Significant investment in walking paths and cycleways in a number of communities; and
- Upgrades of all three pool facilities in the MWRC LGA.

There are also a range of private recreation facilities in Mudgee, Rylstone and Kandos such as bowling clubs, golf clubs and gyms.

In 2013 the MWRC completed a Recreation Strategy (MWRC 2013c). The preparation of the Recreation Strategy was informed through a survey of local trends in recreation and participation in sport. Consultation conducted to inform the Recreation Strategy identified:

- High levels of satisfaction with sport and recreation facilities across the MWRC LGA; and
- No widespread belief within the community that the area requires a specific new sporting facility.

Approximately 72% of respondents were supportive of a plan to have one key regional sporting complex at Glen Willow and that Council's focus should be on the maintenance and embellishment of existing facilities and the continued development of Glen Willow (MWRC 2013c). Consultation to inform the Recreation Strategy identified the following two future strategic planning initiatives:

- Open space walking track between Lawson Park and Walkers Oval; and
- Policy for the development of parks in new release areas (MWRC 2013c)

The Project is not predicted to adversely impact recreation, leisure and sporting facilities in the MWRC LGA given the current and capacity supply of existing facilities.

11.2.7 Religious and Cultural Facilities

Bylong Village

St Stephen's Anglican Church and the former Our Lady of the Sacred Heart Catholic Church are located in the Bylong Village and Upper Bylong, respectively. St Stephen's Anglican Church in Bylong Village is not currently in use (AECOM, 2015a). The former Catholic Church in Upper Bylong is also not currently in use, however it is understood railway workers temporarily squatted at the location in 2012 (AECOM, 2015a).

MWRC LGA

There are a number of religious and cultural facilities in the MWRC LGA. Facilities are provided in Mudgee, Rylstone and Kandos commensurate with the size of each urban settlement.

The key facility in Mudgee is the Mudgee Town Hall which includes the Library, Town Hall Theatre, Town Hall Cinema and additional rooms. The Mudgee Town Hall is a multi-function cultural space capable of hosting live theatre, meetings, exhibitions and movies.

The Kandos Bicentennial Museum in Kandos is a significant cultural facility in the MWRC LGA. MWRC intends to transfer ownership of the Museum to the Incorporated Association.

Cultural Development

The vision for culture in the MWRC LGA is to preserve and build on the strong cultural foundations in the region and foster diversity and creativity by:

- Promoting centres and programmes of excellence;
- Encouraging maximum community participation and enjoyment;
- Seeking economic support from various sources to ensure sustainability of cultural activities, and
- Supporting optimum economic development.

Orana Arts Inc. works at a regional and state level to develop vibrant and sustainable communities through arts and cultural activities. MWRC is a member along with Dubbo City Council, Warrumbungle Shire Council, Narromine Shire Council and Gilgandra Shire Council.

There are various festivals and events held in the MWRC LGA throughout the year including the Mudgee Wine and Food Festival held over several weeks in September/October of each year and the Mudgee Readers Festival held in mid-August.

Cultural development in the MWRC LGA was not identified as an area of need or priority in the Community Plan, the Local Services Assessment or during SIA consultation. The Project is not predicted to adversely impact cultural development services and facilities in the MWRC LGA.

11.2.8 Social Support Services and Community Groups

There are a range of social support services and community groups located in the SIA Study Area that are typical of the sizes of the urban settlements that each of them service.

In Mudgee, the Carmel Croan Community Support Centre hosts the following services:

- Community Transport – discussed in **Section 10.2.1**;
- Host Family Respite Care Service – offers a respite care service to families caring for a child or adult with a disability;
- Meals on Wheels – delivers at-cost meals to frail aged and disabled persons; and
- Home Modification and Maintenance – subsidises home modification costs for frail aged persons and younger disabled persons and their families (MWRC 2014b).

The following community services operate in Rylstone and Kandos:

- Rylstone/Kandos Meals on Wheels Association Inc.; and
- VIEW is a nationwide, women's organisation run by the Smith Family. VIEW, which stands for Voice, Interests and Education of Women, was established to give women a network of support.

11.2.9 Commercial and Retail Facilities

There is one retail service in Bylong – namely the Bylong General Store. The Bylong General Store provides a variety of goods and services including groceries, takeaway meals and tourist information. It is also an outlet for Australia Post.

Mudgee is well-serviced by retail businesses and has Aldi, Coles and Woolworths supermarkets, and several large chain stores such as:

- Best and Less;
- Target;
- Harvey Norman; and
- Toy World.

Mudgee also has approximately 90 smaller retail businesses including banks, bookstores, sports stores, gifts and homewares as well as optometrists, a pet shop and food outlets.

Rylstone has the following retail and commercial businesses:

- Hardware store;
- Supermarket and bottle shop;
- Service station;
- Bakery;
- Two hotels;
- Veterinarian; and
- Commonwealth Bank.

Kandos has a larger number of retail and commercial businesses than Rylstone, but these are still limited and include:

- Hotel;
- Butcher;
- Supermarket;
- Newsagency;
- Service station;
- Two takeaway restaurants;
- Bakery;
- Variety store;
- Hairdresser;
- Post office;
- Two banks;
- Cafes; and
- Gifts and homewares stores.

11.3 IMPACT ASSESSMENT AND MANAGEMENT

This section describes the likely impacts of the Project on a range of community infrastructure and services located in the MWRC LGA and presents mitigation measures for these impacts.

The main drivers of potential Project impacts on community infrastructure and services are changes in employment and population and the spatial location of these changes. Potential population changes arising from the Project have been discussed previously (**Section 6.3**).

During EIS and SIA consultation stakeholders raised a number of issues in relation to the impact of the Project on community infrastructure and accessibility to services and facilities. These issues included:

- Physical impacts to Upper Bylong PS and potential impacts on school viability;
- Potential increases in demand for children's services particularly preschool and child care services which are already constrained;
- Potential increases in demand for health services; and
- Potential increases in demand for primary and secondary education services.

Stakeholders were also interested in the potential training and skilling opportunities the Project may bring to the region, particularly opportunities for young people.

Following an analysis of service provision in Mudgee, Rylstone and Kandos, discussions with service providers and the findings of SIA consultation, Project induced population growth in the MWRC LGA is predicted to impact service demand and supply in the following key areas:

- Health services;
- Primary and secondary education services;
- Further education and training services;
- Children's services;
- Youth Services; and
- Emergency services.

For the most part increased demand for community infrastructure and services will be incremental and able to be absorbed by the natural growth of these services. This is particularly true for education services and confirmed in consultation with the DEC.

11.3.1 Health Services and Facilities

There are a range of health related impacts and issues that may be expected as a result of the introduction of the Project workforce and subsequent increase in population in the MWRC LGA. These impacts will be different for each phase of the Project. Potential impacts are described by Project phase in the following sections.

Construction Phase Impacts

The Project's construction workforce and its associated population are predicted to have a short-term impact on health service provision in the MWRC LGA. There could be an additional population of 585 people in PY1 and 720 people in PY2 (**Section 6.3.2**). The majority of the NLH construction workforce could be expected to live in the proposed WAF, with the local workforce and their families living in the remainder of the SIA Study Area. If the majority of the construction workforce resides in the proposed WAF, the largest impact on health services is expected to be on the closest health facility to the WAF i.e. Rylstone MPS and Mudgee Health Service.

To minimise the demands of the Construction Phase workforces on health services in the Local Area, KEPCO will seek to provide a health service at the WAF. The nature of this service is still to be determined, however it is likely to be similar to a nurse led practice.

Operations Phase Impacts

Project induced population growth in the MWRC LGA (**Table 33**) is predicted to increase demand for a range of health services in the MWRC LGA. The extent to which specific health services are impacted will depend on the demographic characteristics of the additional population (described in **Section 6.3.7**). The working patterns of the workforce (long working hours and a rostering system) may have physical, mental and social impacts generating unique service demands. Impacts are predicted to focus predominantly on health care services in Mudgee as this is where the majority of the Operations Phase workforce will reside.

Project induced population growth in the MWRC LGA is predicted to increase demand for the following health services:

- Emergency health services and primary health care providers (both GPs and hospitals). The increase in demand is likely to arise from two sources – one as a result of mining accidents or work related illness, and the other as a result of a general increase in population;
- Men's health services particularly primary health and mental health care. An increase in the number of males, especially young males, may necessitate an increased focus on men's health;
- Dental services;
- Private physiotherapy and a range of allied health services; and
- Children's health services.

In addition to the impacts described above, labour force demand from existing and future mines, combined with an inability of NSW Health to compete with mining salaries, and local housing costs may result in difficulties attracting and retaining all levels of health sector employees in the MWRC LGA.

Continual monitoring will be critical in assessing the exact nature of these impacts and informing management actions to be taken by KEPCO.

MWRC projects a population increase in Mudgee of 2,981 people between 2011 and 2026 (**Table 22**). The Project induced population growth at PY11 (2026) is equal to approximately 16% of the total population growth anticipated to occur in Mudgee between 2011 and 2026. Improvements in health service delivery will need to occur in Mudgee to service the projected increase in population even in the absence of the Project.

The impact of the Project's Operations Phase on health services in the MWRC LGA will be most apparent in Mudgee as this is where the majority of Project induced population is predicted to reside.

KEPCO will undertake the following actions to minimise impacts to health services arising from Project induced population growth:

- Provide regular information in relation to Project timing and changes in Project workforce numbers to the Western NSW LHD and Mudgee and Rylstone Health Services. This will assist key health service providers to plan for future growth;
- Through the Community Needs Assessment, identify in consultation with key stakeholders potential strategies to encourage the attraction and retention of medical staff, particularly GPs in Mudgee and Rylstone Health Service areas. It is envisaged that these strategies could be funded through the Community Investment Fund established under the VPA; and
- Encourage the construction workforce to undertake mine safety health checks and general medical appointments at their place of residence and not at private health clinics in Mudgee, Rylstone or Kandos. This is to reduce demand for general practitioner services in the MWRC LGA.

Cumulative Impacts

The cumulative effects of mining and resource projects in the SIA Study Area (as described in **Section 6.3.8**) will have a more significant impact on the provision of primary health care services than the Project on its own. This is because the projected cumulative population growth (**Table 38**) will be substantially larger than Project induced population growth. The extent of the cumulative population increase resulting from mining sector growth in the MWRC LGA is described at **Section 6.3.5**. The geographical distribution of this cumulative population growth is predicted to have the greatest impact on health services in Mudgee, and to a lesser extent Gulgong.

The cumulative impacts of the incoming workforces and their accompanying families on health services will need to be monitored closely by relevant authorities. KEPCO will meet regularly with the Mudgee and Rylstone Health Councils and representatives of the Mudgee Health Service to remain informed of key issues in local health service delivery and potential issues directly attributable to the Project. KEPCO will take action in consultation with Mudgee Health Services and other stakeholders to address issues arising in health service delivery that are related to the Project.

11.3.2 Primary and Secondary Education

Bylong Upper Public School

Bylong Upper PS is located within the Project Boundary in the area of disturbance. The site of the open cut mine includes the site of the Bylong Upper PS. As discussed in **Section 11.2.1**, the Bylong Upper PS is currently in recess due to a lack of enrolments for the 2015 school year. The Bylong Upper PS was also identified by participants in SIA consultation as being a physical and social asset of significant value to the Bylong community (**Section 5.2.1**).

KEPCO acknowledges the value of the Bylong Upper PS to the Bylong community and recognises the value of the school in attracting a resident workforce to the Bylong Valley. KEPCO is in ongoing discussions with the NSW Department of Education and Communities (DEC) in relation to the potential relocation of the Bylong Upper PS. To this end, a Memorandum of Understanding (MoU) has been drafted and provided to DEC for consideration. The Project is unlikely to have a negative impact on the long term viability of Bylong Upper PS. Project induced population growth predicted to occur in the Project Area has the potential to underpin long term sustainability of Bylong Upper PS.

Mudgee and Kandos Education Facilities

Construction Phase Impacts

The impacts on education facilities in Mudgee and Kandos as a result of the construction workforce are expected to be negligible, as the workforce profile is likely to be predominantly single men without families, the majority of whom will reside in Bylong at the WAF.

Operations Phase Impacts

An increase in families and therefore school aged children in the MWRC LGA is likely to be experienced as a result of Project induced population growth associated with the Operations Phase.

Applying the existing age structure of persons under the age of 18 in the MWRC LGA, an approximate age structure of incoming children can be derived. **Table 80** describes the number of young people that are expected to form part of the additional population associated with the Project's NLH Operations Phase workforce at PY9 and PY13.

Table 80
Number of Young People in Project Induced Population

Age Cohort	Project Year 9			Project Year 13		
	Bylong Valley	Mudgee	MWRC LGA	Bylong Valley	Mudgee	MWRC LGA
5-12 Years	8	144	158	5	84	92
13-18 years	6	110	122	4	64	71

Notes:

1. The numbers presented in Table 80 represent the additional population that is associated with the Project's direct NLH Operations Phase workforce.

The additional school age population will increase local public and private school enrolments in Mudgee, Kandos and at Bylong Upper PS, initially during PY3 with ongoing demand to PY9. These impacts are likely to be most obvious in Mudgee and at Bylong Upper PS given the predicted residential base locations of the workforce.

Across the Project life, the largest impact on education services in Mudgee will occur at PY3 with the first influx of the Project population. Demand will increase again between PY7 - PY10 during dual operations. Project induced demand for education services in Mudgee will reduce significantly as the Project transitions to a single underground operation.

During EIS consultation, the DEC did not report significant strain on facilities in Mudgee as a result of current enrolments. Given the predicted demographic structure of the additional population, there is likely to be increased demand across all secondary school year levels potentially generating a need for additional staff. The rapid increase in demand at the commencement of open cut operations in PY3 will require forward planning by local schools in order to accommodate new students.

An increase in enrolments will also generate demand for the range of educational programs and opportunities that are offered at the primary and secondary schools in Mudgee. It may also result in an increased demand for places in the special needs learning programs at both Mudgee PS and Mudgee HS. This may have a cumulative impact on demand, given that the existing services have wait lists.

It is also possible that the relative difference in wages between school administrative, maintenance, support and teaching staff and similar roles in the mining industry may encourage some existing staff to move to the mining workforce, further exacerbating staffing arrangements in the face of increasing enrolments.

The cumulative impacts of population increase in Mudgee will have a far greater impact on education services than the Project on its own. It is essential that the DEC conducts significant forward planning to ensure that future population increases in the MWRC LGA can be adequately accommodated within the existing education setting, or with the provision of additional services.

KEPCO will endeavour to undertake the following actions to reduce the potential Project impact on education services:

- Establish a relationship with primary and secondary schools in Mudgee and Kandos and engage in regular communication in relation to workforce numbers and the changing levels of service demand as the Project's Operations Phase progresses;
- Establish a line of communication with Mudgee PS and Mudgee HS to monitor Project related demand for places in the special needs classes at each school; and
- Conduct an assessment of education service priorities via the Community Needs Assessment to inform investment decisions under the VPA and the Corporate SD Fund;
- The provision of funding for specific education programs and strategies in Mudgee and Kandos that respond to Project related demands will be considered in the Community Needs Assessment. The implementation of actions to address identified education priorities could be funded through the VPA Community Investment Fund and/or the Corporate SD Fund.

11.3.3 Tertiary and Further Education

To increase the employment opportunities for local residents in the SIA Study Area during the Construction Phase, there is an immediate need for construction skills training to be appropriately delivered.

KEPCO has a strong preference to employ local labour (where this does not impact on labour supply in the non-mining sector). The impact of the Project will be varied, depending on the level of training required locally to skill local employees.

The Project is predicted to result in positive impacts for local training providers servicing the MWRC LGA in terms of commercial opportunities. Many RTOs operate as commercial businesses offering targeted training programs to the mining industry. Discussions with MSC (MSC 2015, pers.comm., 25 March) indicate not only a willingness to tender for training services but also a keenness to match training services with client needs even if it requires expanding existing services. Increased demand for training and skilling services may in turn result in the expansion of existing services and a diversification in the range of services offered. This would ultimately benefit everyone in the MWRC LGA, not just potential mine employees.

However, the cumulative impacts of the increasing mining and resources sector workforce in the SIA Study Area (as described at **Table 3**) will have the largest and most crucial impact on tertiary education facilities, particularly if the growth of workforces at different companies occurs concurrently. The cumulative impact will also increase demand for appropriate tertiary education and training opportunities delivered through local schools.

This presents a strong challenge for KEPCO and other mining and resource companies to assist education and training providers in increasing the range and size of their programs, both in the mining sector and in wider skills sets that support the mining industry.

KEPCO proposes the following actions to support Project workforce training and skills development in the MWRC LGA, and to enhance the provision of training and skilling opportunities for the non-mining sector:

- Engage further with key training providers in MWRC LGA including TAFE Western Mudgee College, MSC and Cudgegong TTC to define available training resources and capacity;
- Develop a Recruitment and Training Plan for the Project that documents the approach to workforce training and skilling for all phases of the Project and identifies required skill sets and key partners for the delivery of training; and
- Where key training and skilling needs are identified, liaise with MWRC to support the delivery of key actions through the VPA.

11.3.4 Increased Demand for Children's Services

Construction Phase Impacts

The impacts on children's services in the MWRC LGA as a result of the construction workforce are expected to be negligible, as the workforce profile is likely to be predominantly single men without families, the majority of whom will reside in Bylong at the WAF.

Operations Phase Impacts

An increase in families and therefore preschool aged children is likely to be experienced as a result of the population increase caused by the incoming Operations Phase workforce. Applying the existing age structure of persons under the age of 18 in the MWRC LGA, an approximate age structure of incoming children can be derived. **Table 81** describes the number of young children that are expected to form part of the additional population associated with the Project's NLH Operations Phase workforce at PY9 and PY13.

Table 81
Number of Children Aged 0-4 Years in the Project Induced Population

Location	Project Year 9	Project Year 13
Bylong Valley	5	3
Mudgee	95	55
MWRC LGA	96	56

Notes:

1. The numbers presented in **Table 81** represent the additional population that is associated with the Project's direct NLH Operations Phase workforce.
2. The number of families predicted to relocate to Bylong Valley and MWRC LGA is calculated based on the 2011 ABS Census breakdown of families for the MWRC LGA.
3. The number of families predicted to relocate to Mudgee is calculated based on the 2011 ABS Census breakdown of families for the Mudgee SA2.

This increase in young people associated with the Project is expected to have the following implications for children's services in Mudgee:

- Increased preschool enrolments;
- Increased demand on child-care centres;
- Increased demand on before and after school care and informal childcare arrangements;
- Increased demand for playgroups and activities for pre-school children; and
- Increased the use of children-specific recreational and cultural activities – e.g. attractive and safe playgrounds, library readings, music appreciation classes etc.

The exact number of places required at the various children's services in the MWRC LGA over the life of the Project is difficult to determine. However, it can be expected that the need particularly for child-care places will be influenced by:

- The number of full-time female employees with children that will be part of the workforce;
- The number of part-time female employees with children that will be part of the workforce;
- The number of families where both parents are employed in shift work such as mining;
- The proposed shift work nature of employment; and
- The locations and distance from the Project that employees reside.

The increased demand for childcare is anticipated to occur from PY3 when an additional 156 employees and their families relocate to Mudgee. According to the MWRC, approximately 70% of children under five years of age are enrolled or on a waiting list for a child care centre in the Mudgee. The majority of this demand is understood to come from the 4-5 year age cohort as parents seek preschool equivalent education for their children in the absence of spaces at the existing Mudgee Preschool centre.

If 70% of the new incoming children under five years of age were to require placement in 2014, this would result in an approximate 25% increase in waiting lists. However, the number of young children incoming to Mudgee is anticipated to remain at less than ten children per year until the commencement of open cut mining operations in PY3 (~2018), and therefore will occur in a different service context.

The new early childhood education and care service currently under construction in Mudgee will address existing and future demands (including Project induced demands) for preschool places. In addition, MWRC has recently approved a new child care centre in Mudgee. Once constructed, this child care centre will also respond to existing and future demands, including Project generated demands.

Anecdotal evidence from the Hunter Valley indicates that child care places are always in demand across the region, and are particularly crucial for mining families where both parents may work alternating shift patterns and do not have the nearby support of family and friends. The number of factors influencing the demand for child care, results in the need for ongoing consultation with service providers, facilitated through the MWRC LGA, to determine local needs as the population increases.

KEPCO is currently negotiating a VPA with the MWRC. KEPCO will liaise with MWRC regarding the need to potentially allocate funds from the VPA Community Investment Fund to support the following actions:

- The provision of an annual scholarship fund for locally based students to study a child care related course as well as sponsoring a school-based traineeship program for child care workers; and
- The provision of financial support for the delivery of early interventions services as identified through discussions with MWRC LGA and children's service providers.

In addition, KEPCO will conduct ongoing engagement with the MWRC and children's service providers in Mudgee to monitor service demand and inform any future decisions regarding investment by KEPCO in children's services.

11.3.5 Youth Services

Construction Phase Impacts

The impacts on youth services in the MWRC LGA as a result of the construction workforce are expected to be negligible, as the workforce profile is likely to be predominantly single men without families, the majority of whom will reside in Bylong at the WAF.

Operations Phase Impacts

An increase in young people across the MWRC LGA is likely to be experienced as a result of Project induced population growth during the Operations Phase. **Table 80** describes the number of young people that are expected to form part of the Project induced population at PY9 and PY13.

Project induced population growth in the 13-18 year age cohort in Mudgee is expected to:

- Increase demand on recreation, activities and entertainment for young people, particularly after school and during school holidays, when parents are likely to still be at work;
- Increase the demand on locations for young peoples' activities i.e. age appropriate recreation; and
- Increase the number of young people available and/or willing to be trained and employed in the mining industry.

Youth services in Mudgee, Kandos and Rylstone are predominantly limited to sporting groups and a number of interest groups such as Scouts. Whilst there are a range of recreation facilities provided, there are very few free activities available to young people. KEPCO acknowledges the limitations of the existing youth services and recognises that the Project will potentially increase demands for these services. KEPCO will conduct further engagement with youth service providers in the MWRC LGA including the MWRC, Barnardos and PCYC as part of the Community Needs Assessment, to identify key priorities in youth service provision in Mudgee and Kandos for potential funding through the VPA.

11.3.6 Emergency Services

Discussions with emergency service providers have indicated that the following impacts are likely to be experienced by the various providers as a result of the incoming Project workforces and accompanying population.

NSW Police and NSW Ambulance

The following impacts are likely on the NSW Police and NSW Ambulance services as a result of the Project:

- Project induced population growth together with cumulative population growth will increase demand for police and ambulance resources. This impact will be exacerbated by the difficulties already being experienced in the recruitment and retention of staff;
- The operation of the WAF may increase demand on the Rylstone Police service given there is no emergency service based in Bylong (aside from RFS). The travel time between Rylstone and Bylong would result in the removal of one or more police officers for several hours from the Rylstone Police station to respond to an issue at the WAF; and
- During the operations phase a combination of increased road usage and driver fatigue may increase the risk of accidents on the local road network increasing demands on emergency service providers.

In addition, KEPCO will need to consider the impact of road closures and realignments on emergency response times particularly as a result of the closure of Upper Bylong Road.

NSW Rural Fires Service and Emergency Services

The Project will have both positive and negative impacts on the Cudgegong RFS and the SES. Positive impacts relate to the population growth, particularly in the Bylong Valley as a result of the Project and the potential increase in the pool of volunteers available to both services.

The negative impacts relate to:

- The increased risk of incidents and accidents as a consequence of the increase in population, particularly from an increase in road usage and accidental ignition e.g. cigarette disposal; and
- For the RFS, potential increases in fire risk as a result of previously managed landscape (i.e. agricultural) to a disused land (such as buffers to mine sites), although this will be mitigated by implementation of a Bushfire Management Plan developed for the Project.

The Project is likely to have a positive impact on rates of volunteerism in the Bylong Valley RFS due to the presence of the workforce and the WAF. KEPCO will encourage employees who are residents of Bylong Valley to volunteer for the Bylong RFS Brigade and will develop employee policies that enable emergency services personnel to be released from duties to attend to emergency calls. There are already Project employees who volunteer for the RFS in the Bylong Valley.

The Project has the potential to increase demand for emergency services. To minimise these demands and manage potential impacts KEPCO will:

- Engage with the NSW Police and NSW Ambulance in relation to the timing of Project induced road closures and the design and location of any new roads to ensure minimal impact on emergency service response times.
- Provide a 24 hour security service at the WAF to reduce demands on the Mudgee LAC, particularly the Rylstone based command.
- Through KEPCO's SD Fund provide financial and or in-kind support to the RFS, NSW Ambulance Service and other valued community services in the MWRC LGA where need is identified through a targeted Community Needs Assessment, to be conducted for the Project.
- KEPCO will make contributions to the Westpac RHS consistent with industry practice.

11.3.7 Social Support Services and Community Organisations

The Project and the introduction of the Project workforce and their associated families to the MWRC LGA has the potential to indirectly place additional demands on the wide range of social support services and community organisations in the Project Area.

Workers who are suitability qualified to work in the mining industry generally earn a middle to high income and are considered less likely to access specific community support services such as housing and welfare services. However, there may be some impact on local social services if the presence of the mine attracts job seekers who are currently unemployed and/or unqualified to secure employment. These individuals or families may place additional demands on specific social support services such as social housing providers and welfare agencies while they wait to secure a job.

Some of these services may currently be provided locally and may require assistance to expand the level of service provision at these local offices; while other services are outreach services, particularly from Dubbo or Orange, and may need to be expanded into the local area.

Further, the Project workforce will increase demand for housing in Mudgee. There is potential for local residents from lower-socio economic groups to be displaced from housing as the rental market responds to increased housing demand. This situation occurred in Mudgee during the 2011-2012 mining boom and placed considerable strain on social service providers, particularly housing services (Barnardos 2015, pers.coms., 12 March). MWRC has conducted forward planning and is in a position to ensure the timely release of serviced land for residential development. Consequently, the Project is not anticipated to adversely influence house prices and rents in Mudgee providing that the recommendations of the Mudgee-Gulgong URS are implemented.

The growth in population expected in the Sub Regional Study Area as a result of the Project's Operations Phase workforce should contribute to an increase in the number and range of community groups operating in the MWRC LGA. However it is acknowledged that mining work rosters can often have a negative effect on the availability of volunteers to fill positions in local community groups.

The cumulative population growth associated with the expected mining and resources projects in the SIA Study Area will have a greater impact on social support services and organisations than the Project alone. As many of these services are not-for-profit services they will require ongoing support as they grow and adapt to meet future demand.

11.3.8 Summary of Impacts and Management

Project induced population growth will generate demand for a range of community facilities and services across the MWRC LGA. For the most part demand will generally be incremental and able to be absorbed by the 'natural' growth of impacted services.

The following community infrastructure and services in the MWRC LGA are predicted to experience the most pronounced impacts from the Project:

- Health services and facilities – During Construction Phase 1, the health facilities in Rylstone may experience an increase in demand from the construction workforce. Rylstone is the closest urban centre to the Bylong Valley and the proposed WAF. The Operations Phase workforce will generate demand for a range of health services in Mudgee, including general practitioner services and emergency care;
- Children's Services – Project induced population growth has the potential to increase demand for child care services and youth services in Mudgee;
- Education services - Project induced population growth has the potential to increase enrolments at primary and secondary schools in Mudgee necessitating additional service provision in the form of staffing and infrastructure; and

- Training and skill development – The workforces associated with all phases of the Project will increase demand for skills training in relevant fields of occupation in the MWRC LGA.

Discussions with service providers in Mudgee confirms that the majority of impacts on individual services including health services, children’s services, and primary and secondary education services will generally be incremental and able to be absorbed by the ‘natural’ growth of those services.

The primary mechanism for managing the potential impacts of the Project on Community Infrastructure and services is the VPA and the associated Community Investment Fund (**Section 12.2.1**). Prior to the commencement of construction and the implementation of the VPA, an Interim Community Investment Fund will be established (**Section 12.2.3**), with investment under the Fund guided by the key priorities highlighted in the initial Community Needs Assessment.

Table 82 provides a summary of the additional strategies to be implemented by KEPCO to manage the potential impacts of the Project on community infrastructure and services in the MWRC LGA.

Table 82
Summary of Project Impacts and Management – Community Infrastructure

Impact	Impact Category	Management Strategies
Temporary increase in demand for medical services in Rylstone from the Construction Phase 1 workforce.	Negative	11.1 Engage with Western NSW LHD and Mudgee Heath Service to identify a suitable strategy to meet the health needs of the workforce accommodated in the WAF. 11.2 Where practicable, encourage the construction workforce to undertake mine safety health checks and general medical appointments at their place of residence and not at private health clinics in Mudgee. This is to reduce demand for GP services in the MWRC LGA.
Increased demand for child care services	Negative	11.3 Complete a Community Needs Assessment to define the key priorities for investment in community infrastructure and services. 11.4 Engage further with MWRC LGA in relation to the provision of early intervention services at the proposed new preschool service. Where specific needs are identified through the Community Needs Assessment these may be considered for funding through the VPA, in consultation with MWRC. 11.5 Conduct ongoing engagement with the MWRC and Mudgee children's service providers to monitor service demand and to inform any future decision regarding potential investment by KEPCO in children's services.
Potential increase in demand for primary education in the Bylong Valley	Positive	11.6 Finalise an MOU with the NSW DEC in relation to the future management of the Bylong Upper PS.
Increased demand for primary and secondary education in Mudgee and to a lesser extent Kandos and Rylstone.	Negative	11.7 Establish relationships with primary and secondary schools in Mudgee and Kandos and engage in regular communication related to the changing levels of service demand as the Project Operations Phase progresses. 11.8 Conduct an assessment of education service priorities via the Community Needs Assessment to inform future investment decisions under the VPA. 11.9 Establish a line of communication with Mudgee PS and Mudgee HS to monitor Project related demand for places in the special needs classes at each school.
Potential increase in demand for training and skilling services in Mudgee	Negative and Positive	11.10 Engage further with key training providers in MWRC LGA including TAFE Western Mudgee College, MSC and Cudgegong TTC to further define available training resources and capacity.

Impact	Impact Category	Management Strategies
Potential increase in demand for children's health services	Negative	11.11 Provide information to new employees about the available health services in Mudgee and Rylstone.
Potential increase in demand for youth services in Mudgee	Negative	11.12 Through the Community Needs Assessment conduct further engagement with youth service providers in the MWRC LGA including the MWRC, Barnardos and PCYC to identify key priorities in youth service provision in Mudgee and Kandos to guide potential investment under the VPA and the Corporate SD Fund.
Increased demand for GP, emergency and family health services in Mudgee	Negative	11.13 In consultation with key stakeholders, explore opportunities to support the attraction and retention of medical staff in the MWRC LGA. 11.14 Partner with health agencies in promoting healthy lifestyles and disease prevention to the Project workforce. 11.15 Provide regular information in relation to Project timing and changes in Project workforce numbers to the Western NSW LHD and Mudgee and Rylstone Health Services to assist key health service providers to plan for future growth. 11.16 Meet regularly with the Mudgee and Rylstone Health Councils and representatives of the Mudgee Health Service to remain informed of key issues in local health service delivery and potential issues directly attributed to the Project.
Potential increase in demand for policing resources due to increased traffic volumes on the road network.	Negative	11.17 Provide a 24 hour security service at the WAF to reduce potential demands on Rylstone Police and the Mudgee LAC.
Potential increase in demand for emergency services due to: <ul style="list-style-type: none"> • Increased resident population in MWRC LGA; and • The remote location of the mine in the Bylong Valley. 	Negative	11.18 Engage with the NSW Police and NSW Ambulance in relation to the timing of Project induced road closures and advise of the location of any new roads to ensure minimal impact on emergency service response times. 11.19 Through the Corporate SD Fund, provide financial support and/or in-kind support to the RFS, NSW Ambulance Service and other valued community services in the MWRC LGA where need is identified through a targeted Community Needs Assessment. 11.20 Encourage employees who are residents of Bylong Valley to volunteer for the Bylong RFS Brigade. Develop employee policies that enable emergency services personnel to be released from duties to attend emergency calls and to allow release of employees to perform crucial volunteer actions outside of the Project Boundary. 11.21 KEPCO will make contributions to the Westpac RHS consistent with industry practice.

12 MANAGEMENT MONITORING AND REPORTING

12.1 INTRODUCTION

KEPCO acknowledges the potential social impacts associated with the Project and surrounding mining developments on the local community and has developed a number of measures to mitigate these potential impacts. In addition to the mitigation strategies outlined in the SIA, KEPCO will continue to maintain its social licence to operate by continuing to engage with its community through a proactive stakeholder engagement program.

KEPCO will endeavour to further enhance its relationship with MWRC LGA and community groups through the ongoing provision of information to assist the MWRC LGA to prepare for the commencement and operation of the Project.

12.2 KEY MANAGEMENT COMMITMENTS

12.2.1 Voluntary Planning Agreement

KEPCO is currently negotiating a VPA with the MWRC and has made a VPA offer to the total value of \$7.25 M. The VPA offer to the MWRC includes a(n):

- \$2.75 M contribution consisting of an initial payment of \$1.5 M upon granting of Development Consent and KEPCO's approval to proceed, and a further \$1.25 M (to be CPI adjusted post 1 July 2017) at the commencement of open cut operation; and
- A payment of \$0.05 (to be CPI adjusted post 1 July 2017) per railed tonne of coal for the life of the Project, toward a Community Investment Fund.

The allocation of funds under the Community Investment Fund will be facilitated by the results of a Community Needs Analysis being undertaken by KEPCO as part of the Social Impact Management Plan (SIMP) process if planning approval is granted. The preparation of the Community Needs Analysis will include consultation with key community groups and government agencies. The outcomes of the Community Needs Assessment will guide discussions with MWRC regarding the potential distribution of the VPA payments.

12.2.2 Corporate Sponsorship and Donations Fund

KEPCO has established a Corporate SD Fund for the Project. The Corporate SD Fund will support small-scale investment across the MWRC LGA and will operate for the life of the Project. Investments under the Corporate SD Fund will be guided by the key priorities identified through the Community Needs Assessment to be conducted by KEPCO.

12.2.3 Interim Community Investment Fund

KEPCO will also establish an Interim Community Investment Fund which will operate from 2015 to the commencement of Project Construction Phase, at which point in time the VPA will commence. Similar to the Corporate SD Fund, investments under the Interim Community Investment Fund will be guided by the key priorities identified through the Community Needs Assessment.

12.2.4 Local Content Plan

KEPCO is developing a Local Content Plan and Indigenous Participation Plan to encourage the participation of local and under-represented groups in the Project's workforce and supply chain.

The Local Content Plan will provide a detailed analysis of existing local enterprise and the skills / education base of local residents. Wherever possible, Project supply and workforce requirements will then be 'matched' with existing capabilities in the local community. The Plan will also identify strategies to build local capacity where this is lacking, or does not meet Project needs. This may involve training, mentorship, recruitment and development programs which focus on local and regional communities as a first priority.

Similarly, the Indigenous Participation Plan will map details of existing Indigenous businesses and identify regional 'pockets' of potential Indigenous labour supply (e.g. those areas with high levels of Indigenous unemployment). This will build off the Local Labour Market Analysis completed as part of the SIA. The Indigenous Participation Plan will aim to identify particular job positions and supply work packages that will be targeted for Indigenous inclusion, and appropriate training and development programs will be outlined to support this objective.

KEPCO is committed to optimising local labour supply to the Project wherever feasible. The Local Content and Project recruitment planning process will give due consideration to the following actions:

- Preparation of a targeted Recruitment and Training Plan for the Project;
- Provision of a range of employment opportunities – potentially including school based traineeships, apprenticeships, graduate programs and mature aged placement programs;
- Offering part-time and/or flexible employment opportunities where practicable to encourage a higher rate of labour force participation, especially in relation to women;
- Exploring opportunities to enhance existing mining related skill development programs at local high schools in Kandos and Mudgee; and

- Exploring opportunities related to mentoring and career development services to secondary schools in MWRC LGA to promote employment and career development pathways in the mining industry.

12.2.5 Social Impact Management Plan

A SIMP will be prepared for the Project following granting of Development Consent. The SIMP will guide implementation of the management strategies and actions described in the SIA and will also detail responsibilities, timing, performance indicators and targets and a regime for monitoring potential impacts.

12.2.6 Closure Planning

KEPCO will undertake a closure-related SIA for the mine five years prior to the envisaged closure date. The SIA will assess the potential impacts associated with mine closure and include a strategy for managing these impacts. The SIA will be conducted in consultation with the MWRC and relevant stakeholders.

12.2.7 Stakeholder Engagement Plan

A comprehensive stakeholder engagement plan will be prepared and implemented for the construction and operation phases of the Project. The stakeholder engagement plan will include a stakeholder grievance mechanism.

12.3 SUMMARY OF MANAGEMENT MEASURES

In addition to the key management commitments identified above, KEPCO proposes a number of additional actions to enhance the positive benefits of the Project and manage potential impacts. A summary of the proposed management commitments is provided in **Table 83**.

Table 83
Summary of Management Commitments

Ref	Mitigation and Management Measures
Population and Demographics	
1.	A WAF will be constructed in the Bylong Valley and operated from PY1 to the end of underground construction in ~ PY6. The WAF will accommodate all NLHs associated with the Project.
2.	KEPCO will support the MWRC in seeking that the NSW Government to produce population projections for the MWRC LGA that more reasonably reflect the mining resource development activities within the LGA. This could facilitate the MWRC in applying for further funding for physical and social infrastructure and potentially enable improved forward planning for the LGA.
3.	KEPCO will provide the MWRC with an annual workforce report for the Project for the years PY1 to PY13. The biannual workforce report will detail the current and anticipated workforce numbers for the Project. This will enable the MWRC to plan proactively for anticipated population changes.
4.	KEPCO will assess which Project-owned houses in the Bylong Valley are of a standard suitable for habitation.
5.	KEPCO will make existing proponent owned housing in the Bylong Valley available to the workforce associated with the Project Operations Phase where residential amenity requirements can be met.
6.	KEPCO will consider developing and implementing an Employee Incentive Scheme which will detail a range of incentives to encourage re-location to the Bylong Valley and Mudgee.
7.	KEPCO will encourage all NLHs associated with the Project's Operations Phase to locate permanently with their families to Mudgee and other areas in the MWRC LGA.
Economic Vitality	
8.	KEPCO will encourage all NLHs associated with the Project's Operations Phase to locate permanently to Mudgee and other areas in the MWRC LGA.
9.	Projects that support the economic diversity of the MWRC LGA may be suitable for funding under the VPA Community Investment Fund, acknowledging the valuable contributions other industries in the MWRC LGA make to the economic stability of the LGA.
10.	KEPCO is committed to returning appropriate areas within the Project Disturbance Boundary to agricultural land use practices as soon as possible following achievement of rehabilitation goals.
11.	KEPCO will retain the services of a professional Farm Manager to oversee the use and management of all KEPCO owned land in the Bylong Valley.
12.	KEPCO is developing a comprehensive Farm Management Plan to guide the use of all proponent owned land in the Bylong Valley. The Farm Management Plan identifies methods to generate an economic return from the agricultural land as KEPCO is committed to making a valued contribution to the agricultural economy in the MWRC LGA.
13.	Through the Interim Community Investment Fund and/or the Corporate SD Fund, KEPCO will contribute to the conduct of beautification and enhancement works at Bylong Village to enhance the attractiveness of the location as a tourist stopping point along the Bylong Valley Way.
Labour Market Dynamics	
14.	KEPCO will encourage all NLHs to relocate permanently to Mudgee and the broader MWRC LGA with their families.

Ref	Mitigation and Management Measures
15.	In consultation with MWRC, KEPCO will encourage the provision of education and training opportunities in the non-mining sector through initiatives established under the VPA.
16.	KEPCO will monitor local labour supply and will investigate adjusting local labour recruitment practices and rates accordingly.
17.	As a component of the Community Needs Assessment KEPCO will engage with Kandos and Mudgee SHS and St Matthews Catholic School in Mudgee and the Cudgegong TTC to identify potential opportunities for supporting the delivery of existing training programs targeting open cut and underground mining skill sets and other non-mining related skill sets in demand in the MWRC LGA e.g. childcare.
18.	The Local Content and Project recruitment planning process will consider a workforce recruitment and training model that could potentially include the development of school based traineeship and apprenticeship opportunities at Kandos and Mudgee HS
19.	KEPCO will prepare a targeted Recruitment and Training Plan for the Project which will include a range of employment and training options for the MWRC LGA residents.
20.	The Project will seek to provide part-time and/or flexible employment opportunities to encourage a higher rate of labour force participation, particularly among disadvantaged groups. This will be done wherever possible based on an assessment of each position and its association with achieving 24/7 productions.
21.	As a component of the VPA, KEPCO will encourage MWRC to establish an annual scholarship program offering financial support to local students seeking to study a university degree in a primary industry related course.
22.	<p>KEPCO will investigate opportunities for mentoring and career development services to secondary schools in MWRC LGA to promote:</p> <ul style="list-style-type: none"> • Employment in the mining industry; • Project specific pathways to employment; and • Employment opportunities for women.
Housing and Accommodation	
23.	KEPCO will construct the WAF at the commencement of Construction Phase 1 and extend its operation to the end of Construction Phase 2 to minimise the impact of the Construction Phase workforces on short-term accommodation provision in the MWRC LGA, particularly Mudgee.
24.	KEPCO will encourage NLHs associated with the Operations Phase to use the WAF while they transition to permanent housing, if the local short-term accommodation market is experiencing high demand due to the cumulative impacts of projects.
25.	KEPCO will keep the MWRC informed of the Project schedule, any changes to the size of the Project workforce and anticipated recruitment periods. KEPCO will proactively engage with the MWRC both prior to the commencement of the Construction Phase and throughout the Construction and Operations Phases to enable the MWRC to make informed decisions regarding land and housing availability to meet Project generated demand.
26.	KEPCO will monitor housing affordability and availability in the MWRC LGA and report in the regulatory Annual Review.
27.	KEPCO will seek to monitor workforce size, obtain information regarding the workforce's previous and current residential location (where possible), local housing demand and supply, housing prices and affordability.
28.	Further engagement in relation to the provision of crisis housing will be conducted with key stakeholders such as Housing Plus, Barnardos and the MWRC as part of the preparation of a Community Needs Assessment

Ref	Mitigation and Management Measures
29.	Actions to address the reported crisis housing deficit in the MWRC LGA will be discussed for funding as a component of the VPA, in consultation with MWRC.
Community Liveability	
30.	KEPCO will encourage employees, through company policy, to remove their high-visibility mining work wear if they intend to visit public places in the towns and villages of the MWRC LGA before and after work.
31.	Through the Interim Community Investment Fund and/or the Corporate SD Fund, KEPCO will contribute to the conduct of beautification and enhancement works at Bylong Village to enhance the attractiveness of the location as a tourist stopping point along the Bylong Valley Way.
32.	KEPCO will retain the services of a professional Farm Manager to oversee the use and management of all Proponent owned land in the Bylong Valley.
33.	KEPCO will develop a comprehensive Farm Management Plan to guide the use of all KEPCO-owned land in the Bylong Valley to facilitate the land generating an economic return and KEPCO making a valued contribution to the agricultural economy in the MWRC LGA.
34.	Employee policies that enable emergency services personnel to be released from duties to attend emergency calls and to perform crucial volunteer actions outside of the Project Boundary will be developed for all phases of the Project.
35.	KEPCO will keep landholders in the Bylong Valley informed of decisions in relation to the timing of the closure of Upper Bylong Road and the proposed alternative access route.
36.	KEPCO will work in collaboration with the MWRC and local residents within and adjoining the Project Boundary to ensure that property access is maintained where possible and that adequate roadway is provided for servicing properties.
37.	<p>KEPCO will assist new residents and families to integrate into their host community by collaborating with the MWRC LGA and industry in the region to source or produce the following information, projects and policies:</p> <ul style="list-style-type: none"> • Provision of information for incoming residents, regarding their new community, region, facilities and services; • Welcoming events or programs for new residents; • Information for existing residents regarding the Project, it's likely workforce characteristics and their needs; • Holding 'family fun days' to help new families who have relocated to meet other families in the area and on the Project; and • Encouraging employees, through company policy, to remove their high-visibility mining jackets if they intend to visit public places in the towns and villages of the MWRC LGA before and after work.

Ref	Mitigation and Management Measures
38.	<p>Specifically in relation to Bylong Village assist new residents and families to integrate by:</p> <ul style="list-style-type: none"> • Holding community BBQs or similar events to encourage existing residents and new residents to socialise and build social networks; • Encouraging new residents to participate in local volunteer roles such as the Bylong RFS by providing information relating to these services promoting the need for volunteers in the workforce and identifying key contacts in volunteer services; • Encouraging new residents to participate in community groups and organisations such as the Bylong Hall Committee by promoting the existence of such groups and organisations and identifying key contacts; • Potentially holding open days at the Bylong Coal Mine to encourage existing residents to learn about the working environment of new residents; • Requesting a local community member be responsible for welcoming new residents to Bylong and familiarising them with the local area; and • Ensuring the Project Community Liaison or HSE officer is accountable for meeting new residents.
39.	KEPCO will develop and implement a Project Fatigue Management Policy including an education program in consultation with emergency service providers.
40.	KEPCO will become a partner in the Mudgee Liquor Accord.
41.	<p>KEPCO proposes the following actions to minimise fatigue related incidents in the workforce:</p> <ul style="list-style-type: none"> • Develop and implement a Project Fatigue Management Policy including an education program in consultation with emergency service providers; • Provide detailed information to employees and their families about managing sleep cycles and the impact of fatigue on lifestyle and relationships; • Identify and implement a program to encourage the Operations Phase workforce residing in Mudgee, Rylstone and Kandos to car pool for commuting to the Project; • In consultation with stakeholders, investigate the potential for the establishment of a driver rest area between Bylong and Mudgee. Identify a suitable lead agency to develop the rest area and consider the provision of funding assistance through the VPA or Corporate SD Fund for construction of the necessary facilities; and • Provide a bus service between Mudgee and the Project for the Operations Phase, where demand indicates a need.
42.	Logistics scheduling will be conducted in a manner that ensures Project related vehicle movements during both construction and operation are undertaken to occur outside school drop off and pick up periods.
43.	A construction Traffic Management Plan will be prepared as part of pre-construction planning detailing how the traffic associated with each of the construction phases will be managed. The construction Traffic Management Plan will be prepared in consultation with and to the approval of the MWRC and the relevant roads authority.
44.	Should the Project be granted approval, the Development Consent will specify landholders where predicted amenity impacts are determined to be unacceptable in accordance with the NSW Government's Voluntary Land Acquisition and Mitigation Policy. In this instance these landholders will be provided the opportunity to be acquired by KEPCO if they so wish or at-site mitigation within terms negotiated and agreed by both parties.

Ref	Mitigation and Management Measures
45.	Residences identified in the Development Consent as outside the Project Acquisition Boundary but as experiencing amenity impacts will be offered at-site mitigation
Community Infrastructure Accessibility	
46.	Engage with Western NSW LHD and Mudgee Heath Service to identify a suitable strategy to meet the health needs of the workforce accommodated in the WAF.
47.	Where practicable, encourage the construction workforce to undertake mine safety health checks and general medical appointments at their place of residence and not at private health clinics in Mudgee. This is to reduce demand for GP services in the MWRC LGA.
48.	Complete a Community Needs Assessment to define the key priorities for investment in community infrastructure and services.
49.	Engage further with MWRC LGA in relation to the provision of early intervention services at the proposed new preschool service. Where specific needs are identified through the Community Needs Assessment these should be considered for funding through the VPA, in consultation with MWRC.
50.	Conduct ongoing engagement with the MWRC and Mudgee children's service providers to monitor service demand and to inform any future decision regarding potential investment in children's services through the VPA.
51.	Finalise an MOU with the NSW DEC in relation to the future management of the Bylong Upper PS.
52.	Establish relationships with primary and secondary schools in Mudgee and Kandos and engage in regular communication related to the changing levels of service demand as the Project Operations Phase progresses.
53.	Conduct an assessment of education service priorities via the Community Needs Assessment to inform investment decisions under the VPA.
54.	Establish a line of communication with Mudgee PS and Mudgee SHS to monitor Project related demand for places in the special needs classes at each school.
55.	Engage further with key training providers in MWRC LGA including TAFE Western Mudgee College, MSC and Cudgegong TTC to further define available training resources and capacity.
56.	Provide information to new employees about the available health services in Mudgee and Rylstone.
57.	Through the Community Needs Assessment conduct further engagement with youth service providers in the MWRC LGA including the MWRC, Barnardos and PCYC to identify key priorities in youth service provision in Mudgee and Kandos to guide potential investment under the VPA and the Corporate Sponsorship and Donation Fund.
58.	In consultation with key stakeholders, explore opportunities to support the attraction and retention of medical staff in the MWRC LGA.
59.	Partner with health agencies in promoting healthy lifestyles and disease prevention to the Project workforce.
60.	Provide regular information in relation to Project timing and changes in Project workforce numbers to the Western NSW LHD and Mudgee and Rylstone Health Services to assist key health service providers to plan for future growth.
61.	KEPCO will meet regularly with the Mudgee and Rylstone Health Councils and representatives of the Mudgee Health Service to remain informed of key issues in local health service delivery and potential issues directly attributed to the Project.

*Bylong Coal Project
Social Impact Assessment
for WorleyParsons Services Pty Ltd*

*2 July 2015
Page 226*

Ref	Mitigation and Management Measures
62.	Provide a 24 hour security service at the WAF to reduce demands on Rylstone Police and the Mudgee LAC.
63.	Engage with the NSW Police and NSW Ambulance in relation to the timing of Project induced road closures and advise of the location of any new roads to ensure minimal impact on emergency service response times.
64.	Through the Corporate SD Fund, provide financial support and/or in-kind support to the RFS, NSW Ambulance Service and other valued community services in the MWRC LGA where need is identified through a targeted Community Needs Assessment.
65.	Encourage employees who are residents of Bylong Valley to volunteer for the Bylong RFS Brigade. Develop employee policies that enable emergency services personnel to be released from duties to attend emergency calls and to allow release of employees to perform crucial volunteer actions outside of the Project Boundary. Indeed, Project staff and family members are already volunteering for the Bylong RFS.
66.	KEPCO will make contributions to the Westpac RHS consistent with industry practice.

12.4 MONITORING AND REPORTING

The SIMP will include a social impact monitoring program, incorporating key performance indicators and a review and reporting protocol, including reporting in the Annual Report.

13 CONCLUSIONS

This SIA has been informed by a thorough examination of qualitative and quantitative data, as well as a tailored consultation process designed to incorporate and consider stakeholder responses to the Project. The SIA has assessed the impacts of the Project on the Project Area (Bylong Valley), the Sub Regional Area (MWRC LGA) and the Regional Area (Lithgow-Mudgee Region).

KEPCO proposes the construction and operation of a combined open cut and underground mine in the Bylong Valley. The Project will have a peak workforce of 800 FTE during Construction, 470 FTE during dual operations (when open cut and underground mining occur simultaneously) and 275 FTE during the underground only operation.

The SIA has assessed the impacts of the Project based on the following workforce hiring assumptions:

- Construction Phase - 10% of the workforce will be local hires and 90% NLHs; and
- Operations Phase - 15% of the workforce will be local hires and 85% will be NLHs, with 90% of these NLHs anticipated to reside in Mudgee as permanent residents.

The Project is located in the Bylong Valley, near the small village of Bylong in the MWRC LGA. The Project geographical area is relatively remote from major towns with the nearest major towns to the Project being Mudgee and Muswellbrook, both currently over an hour away. The MWRC has secured Resources for Regions funding from the State government for an upgrade to Wollar Road between Bylong Valley Way and the township of Wollar. The upgrade of Wollar Road will reduce the travel time between the Project Boundary and Mudgee to less than one hour.

Bylong retains its character as a rural village and the Bylong General Store forms the 'heart' of the main village area. The Bylong Valley has an estimated population of 100 people, with seven people currently residing in the village of Bylong. Bylong Valley Way runs through the Bylong Valley, and connects the Golden Highway near Sandy Hollow to the Castlereagh Highway near Ilford. Whilst coal mining is relatively new to the Bylong Valley, coal exploration has been occurring in the Valley for more than 15 years.

Coal mining is a key industry in NSW and in the MWRC LGA. In 2011, the mining sector was the largest employer in the MWRC LGA and accounted for almost 50% of economic output in the MWRC LGA. Expansion in the mining sector has driven significant population growth across the MWRC LGA in the last five years, particularly in Mudgee. Household incomes have risen substantially as has the number of families living in Mudgee (HillPDA, 2014). The development of the mining industry in the MWRC LGA has provided the LGA with income, investment employment and infrastructure. However, difficulties have been experienced by the private and public sector in the timely delivery of supporting social infrastructure particularly children's services and medical services.

The positive impacts of the Project on the Bylong Valley relate to:

- The potential growth in resident population during the Project operations phase and resulting benefits for community capital, infrastructure sustainability and the availability of volunteer labour;
- The potential for improved local social capital, skills and capabilities through training and development undertaken for the Project as part of the Local Content Plan and Indigenous Participation Plan;
- The potential for improved local infrastructure and services due to the community investment contributions made by KEPCO; and
- The opportunity for a strategic approach to land management and land improvement across the Bylong Valley due to a significant portion of the land being in the ownership of a single entity.

The MWRC LGA will also likely benefit from the Project through:

- Investment in community infrastructure and services, made possible through the Project VPA and supplemented with funding from KEPCO's Corporate SD Fund;
- Direct and indirect employment generation. During dual operations (PY9) the Project is anticipated to generate demand for 470 FTE direct jobs and 521 indirect jobs in the MWRC LGA;
- Direct and indirect population growth. By PY3 the Project has the potential to attract up to 460 new residents to the MWRC LGA, of which up to approximately 415 are anticipated to reside in Mudgee. Between PY3 and PY9 a further approximate 540 people could potentially relocate to the MWRC LGA, of which up to approximately 490 are predicted to reside in Mudgee;

- Significant economic benefits during construction. The total average annual impact of the peak year of construction (PY2) on the economy of the MWRC LGA is estimated at up to:
 - \$297 M in annual direct and indirect regional output or business turnover;
 - \$104 M in annual direct and indirect regional value added; and
 - \$55 M in annual direct and indirect household income.
- Significant economic benefits during operations. The Project is estimated to make up to the following total average annual contribution to the NSW economy for 23 years:
 - \$624 M in annual direct and indirect regional output or business turnover;
 - \$378 M in annual direct and indirect regional value added; and
 - \$72 M in annual direct and indirect household income.
- Improved local business opportunities associated with Project related procurement; and the potential for increased business viability, profitability and capability; and
- Investment in training and skills development by the Project, particularly in the youth sector.

The negative socio-economic impacts of the Project on the Bylong Valley relate principally to the change of land use from agriculture to mining and the associated property acquisition process. In particular, stakeholders' perceived potential impacts could include:

- Loss of rural character in the Bylong Valley near the village of Bylong;
- Adverse changes in rural amenity particularly in relation to noise, vibration, dust and visual impacts;
- Change in local and regional perceptions of community identity;
- Loss of long-term landholders and their knowledge and skills from the Bylong Valley with resulting impacts on social capital;
- Changes in property accessibility and local road network accessibility impacting travel times and property management regimes;
- Temporary changes to local demography and character as a result of the temporary influx of population associated with the operation of the WAF;
- Changes in road usage and impacts on road safety;
- Stress and anxiety resulting from uncertainty around the location, timing and potential impacts of coal mining in the Bylong Valley; and
- Impacts to economic viability of existing landholdings due to adverse changes in groundwater and surface water conditions.

*Bylong Coal Project
Social Impact Assessment
for WorleyParsons Services Pty Ltd*

*2 July 2015
Page 230*

The EIS and the SIA presents a suite of strategies designed to mitigate or manage the potential negative impacts of the Project and enhance the opportunities it presents. The SIA key strategies include:

- Negotiation of a VPA with MWRC. KEPCO has made a VPA offer to the total value of \$7.25 M, to the MWRC. The VPA offer to the MWRC includes a:
 - \$2.75 M contribution consisting of an initial payment of \$1.5 M upon granting of Development Consent and KEPCO's approval to proceed, and a further \$1.25 M at the commencement of open cut operation; and
 - Payment of \$0.05 cents per railed tonne of coal for the life of the Project, toward a Community Investment Fund.
- Establishment of a Corporate SD Fund, and an Interim Community Investment Fund that will operate until the VPA commences;
- Preparation and implementation of a Local Content Plan and Indigenous Participation Plan to encourage the participation of local and under-represented groups in the Project's workforce and supply chain;
- Preparation of a SIMP;
- Conduct of a Mine Closure SIA five years prior to scheduled mine closure; and'
- Implementation of a comprehensive stakeholder engagement plan for the construction and operation phases of the Project.

* * *

for

HANSEN BAILEY



Bronwyn Pressland
Principal Social Planner



James Bailey
Director

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2 July 2015
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for WorleyParsons Services Pty Ltd*

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Page 238*

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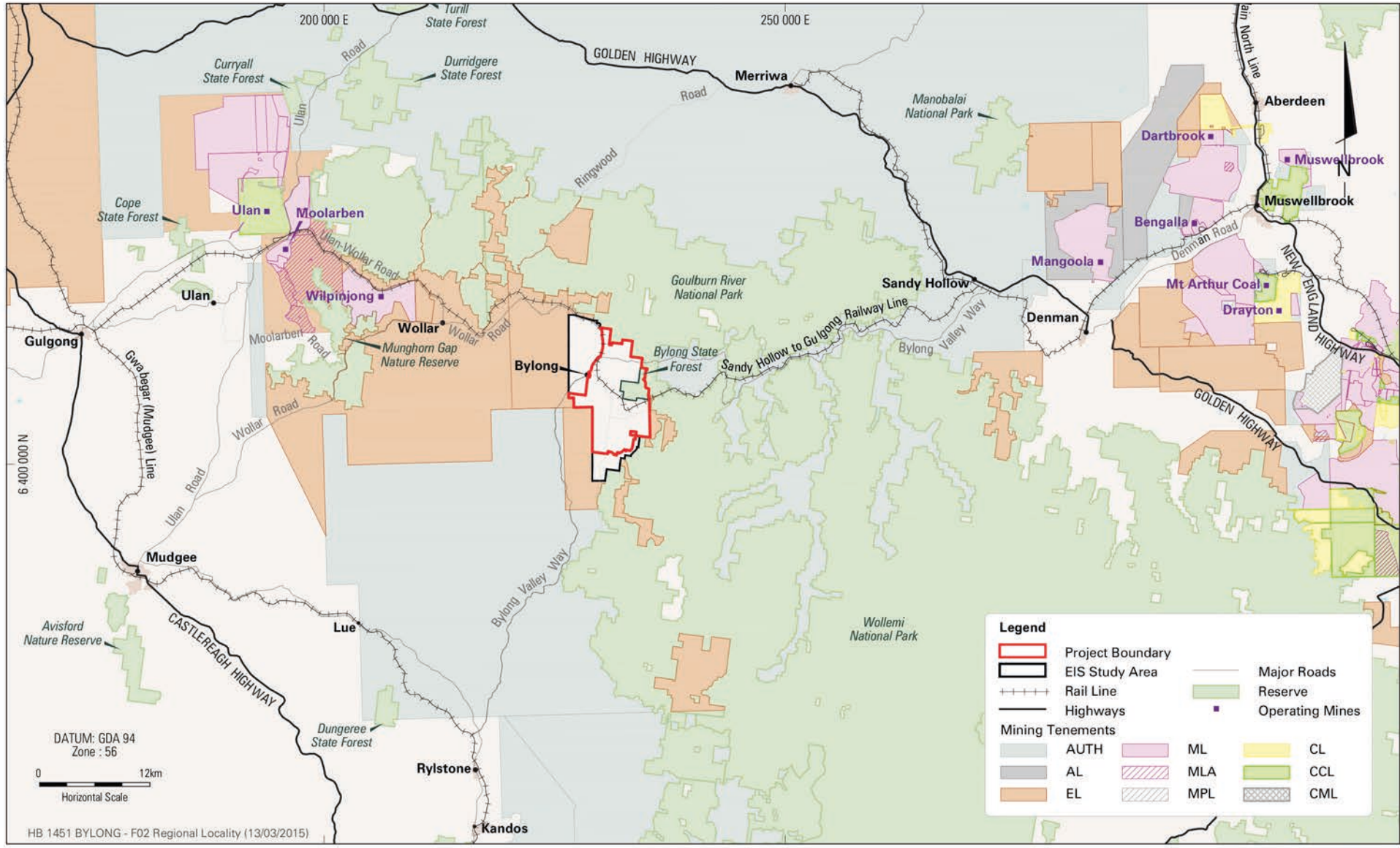
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FIGURES



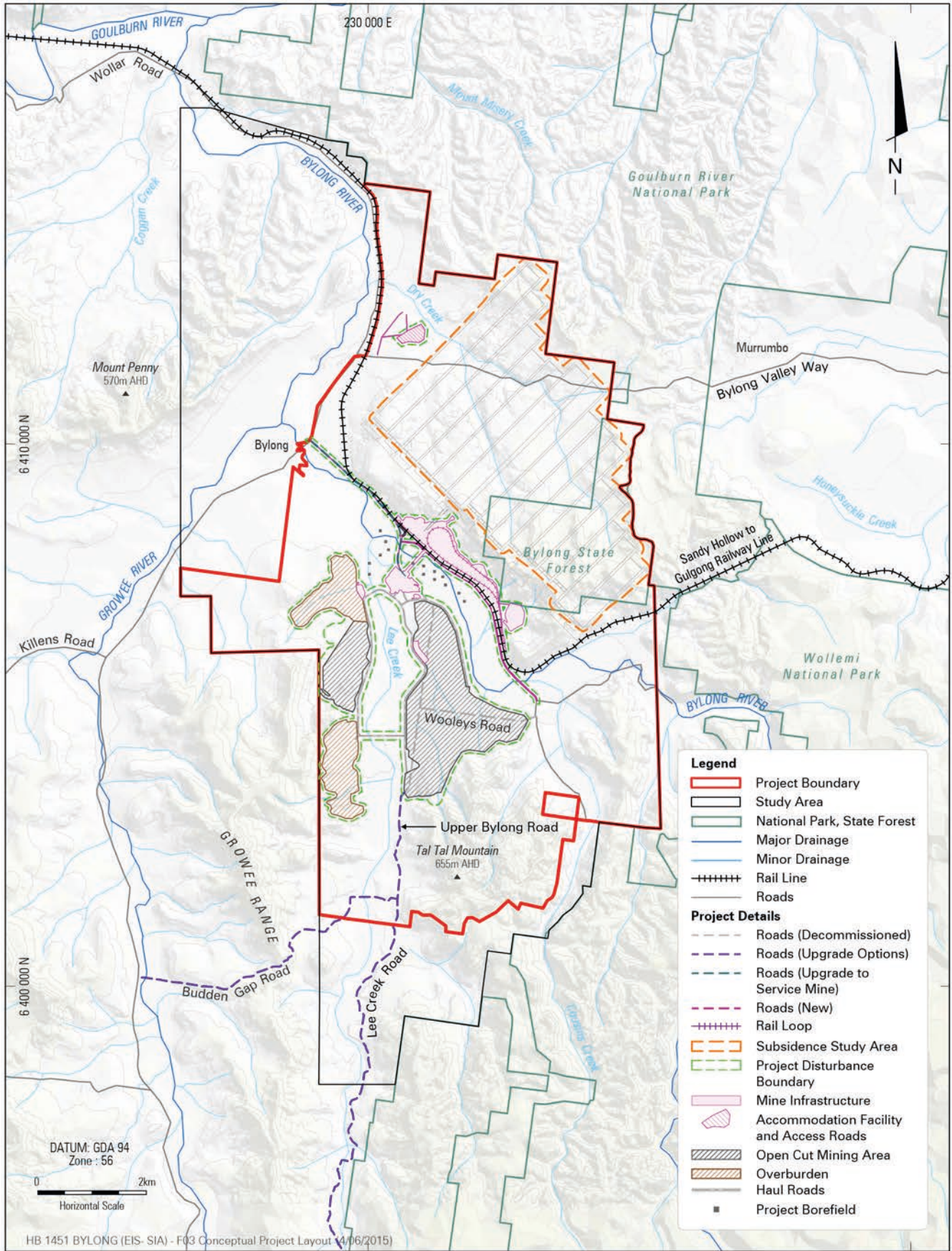
BYLONG COAL PROJECT



BYLONG COAL PROJECT

Regional Locality

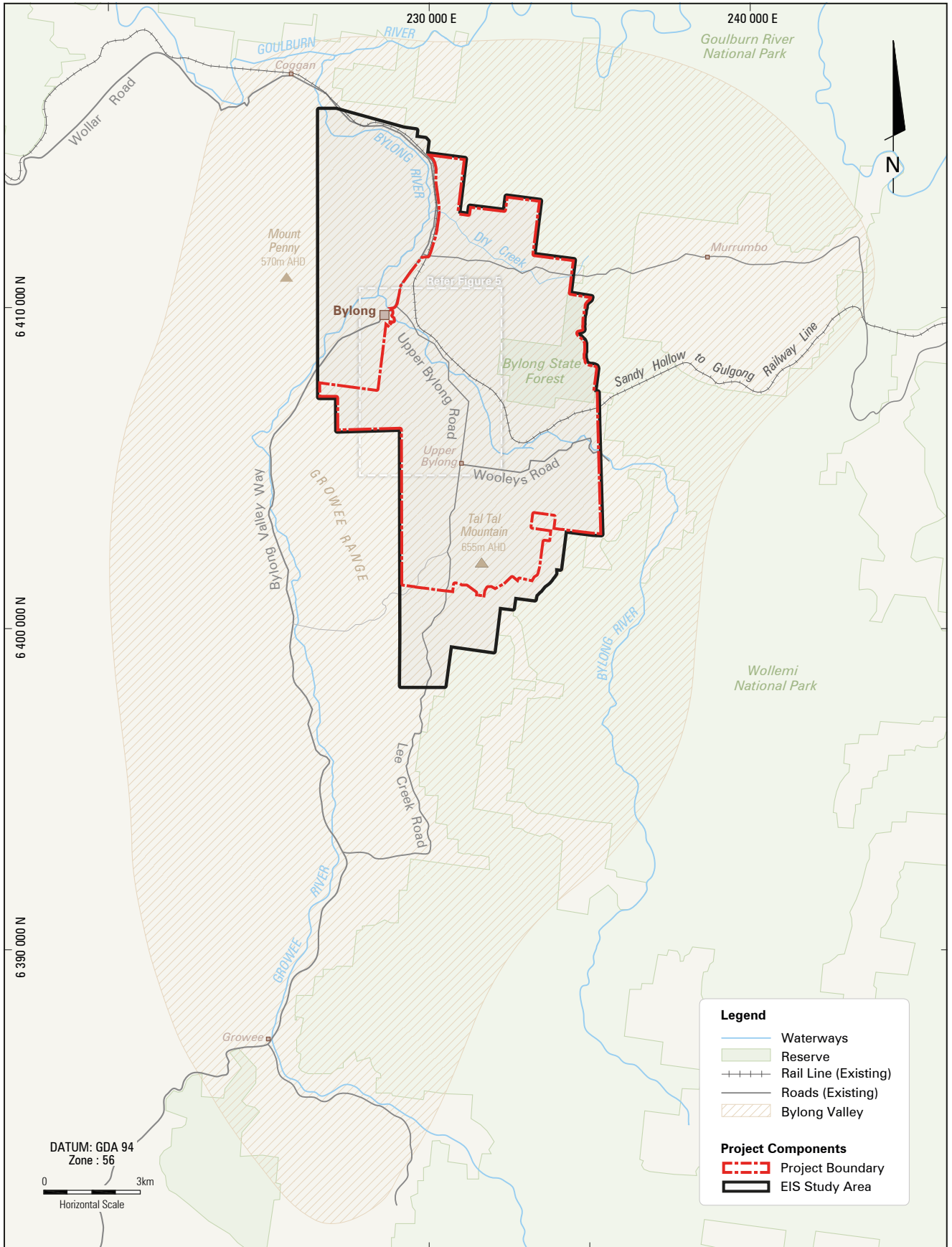
FIGURE 2



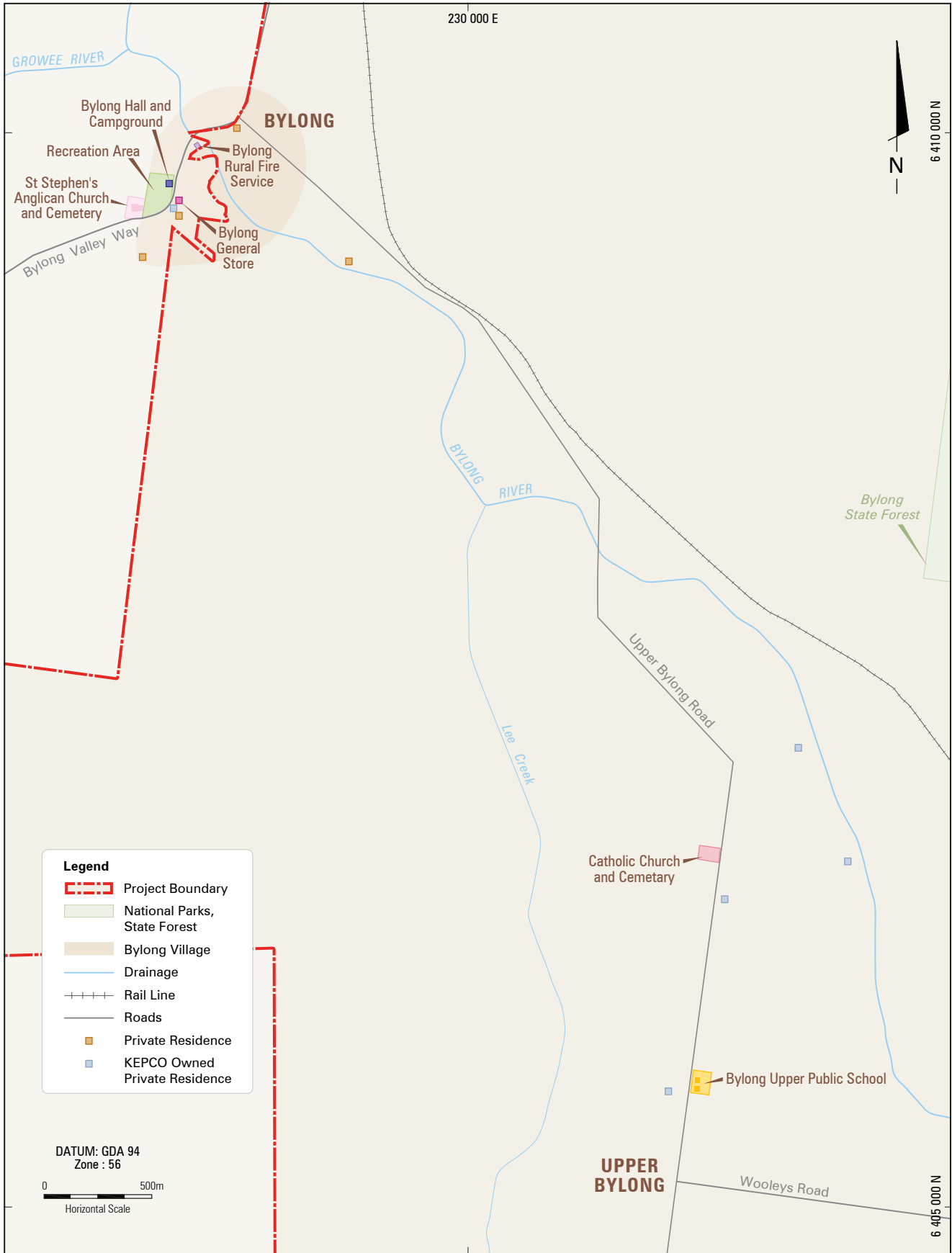
BYLONG COAL PROJECT

Conceptual Project Layout

FIGURE 3



BYLONG COAL PROJECT



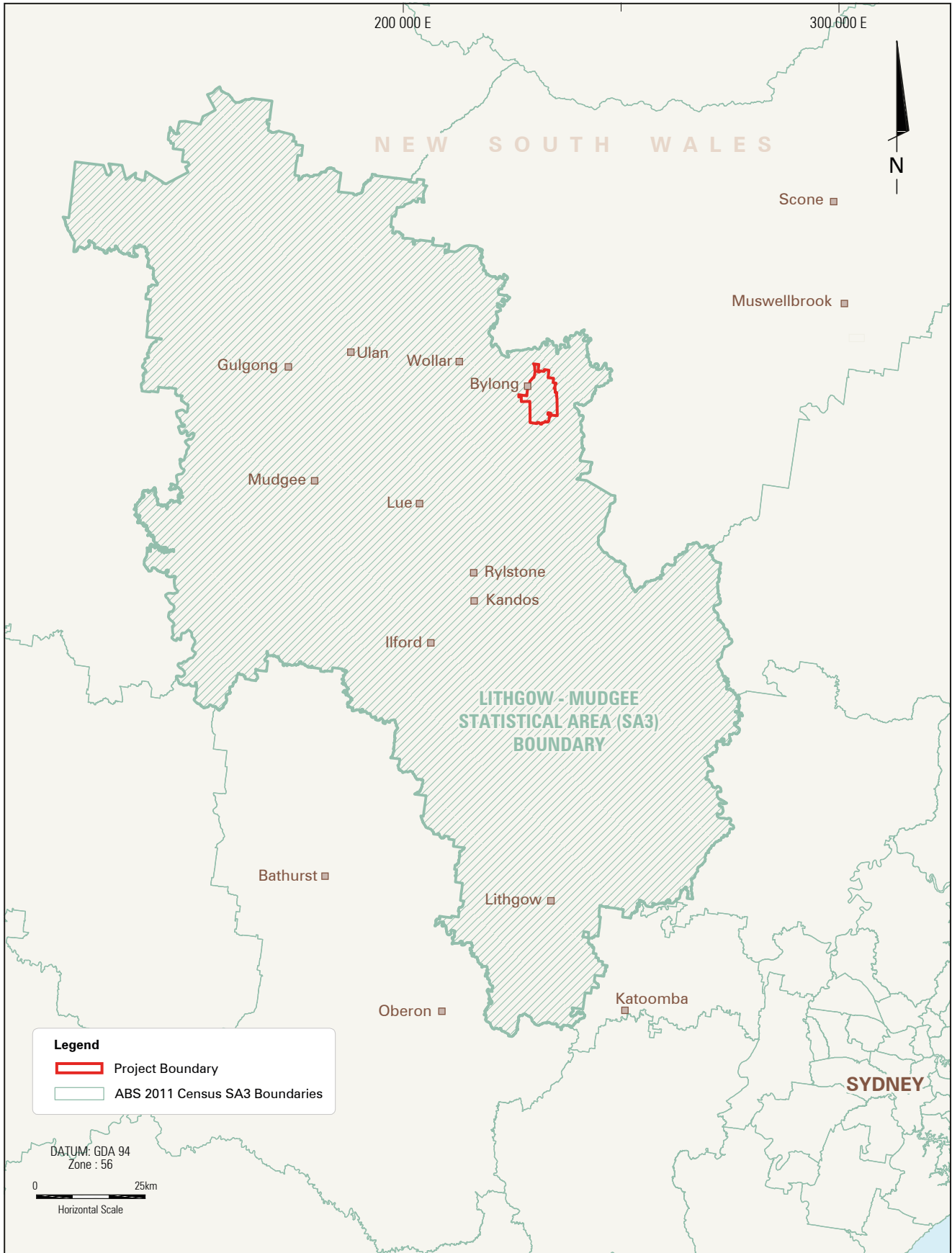
BYLONG COAL PROJECT



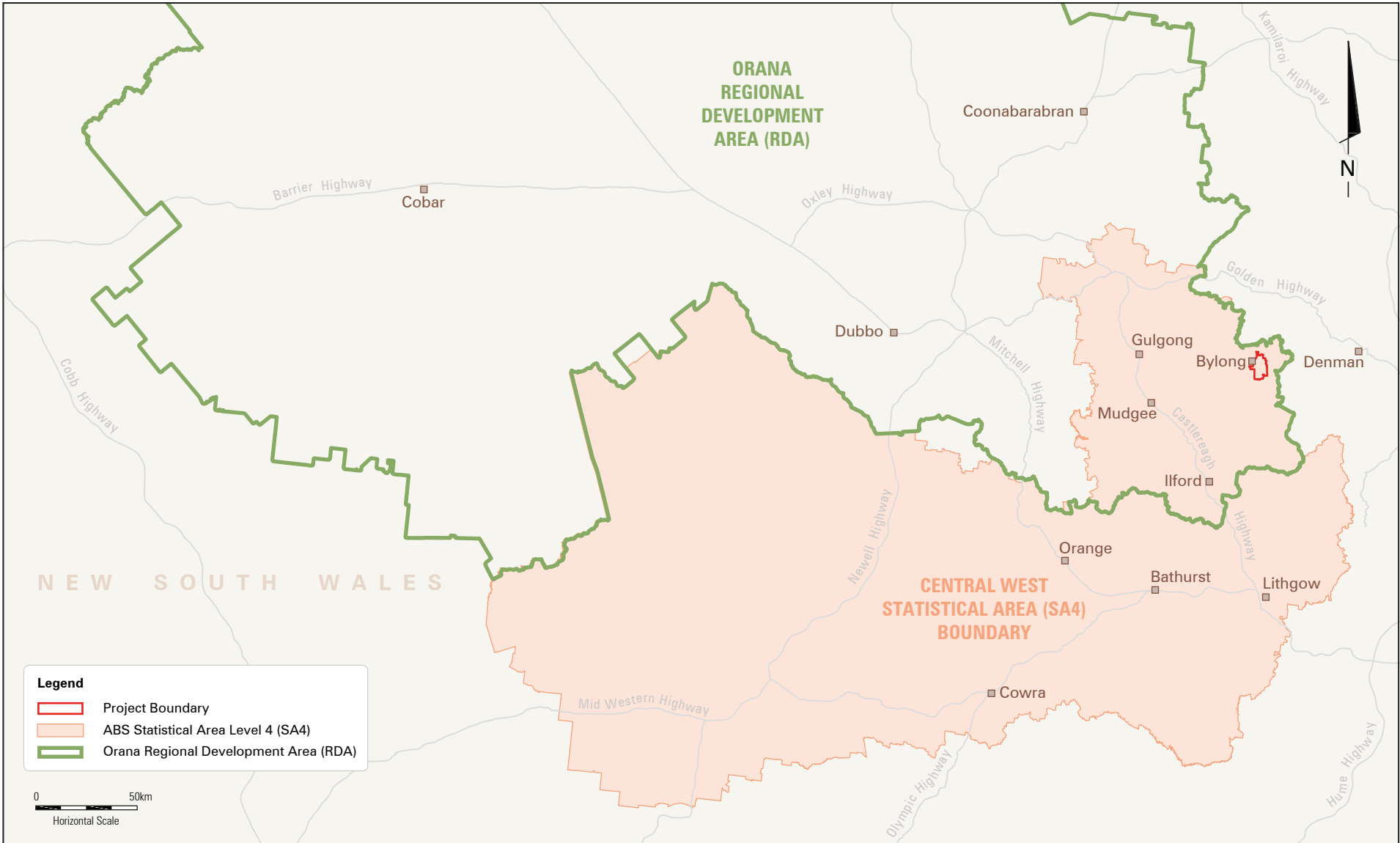
BYLONG COAL PROJECT

Sub Regional Study Area

FIGURE 6



BYLONG COAL PROJECT

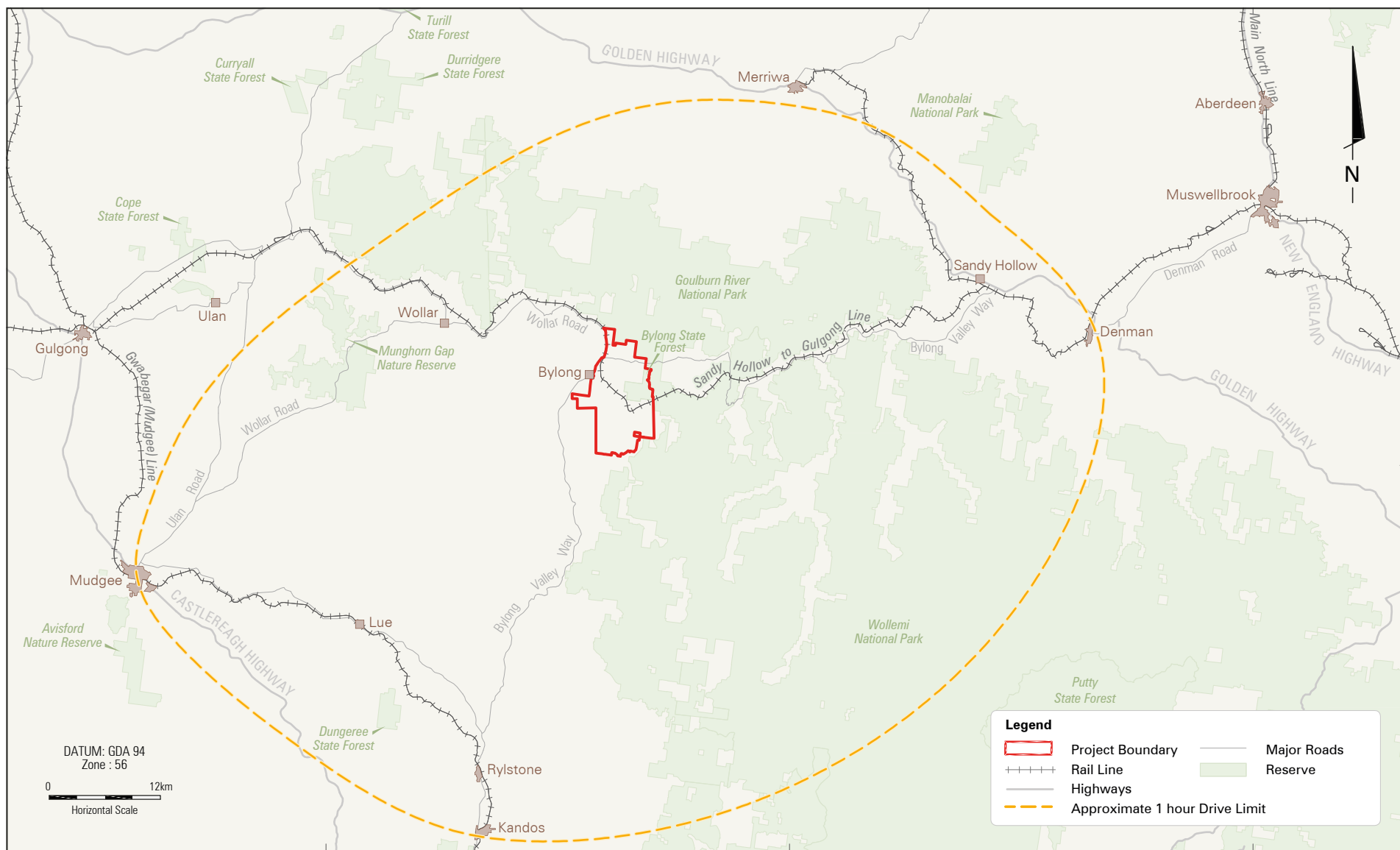


BYLONG COAL PROJECT

Other Geographical Areas

FIGURE 8



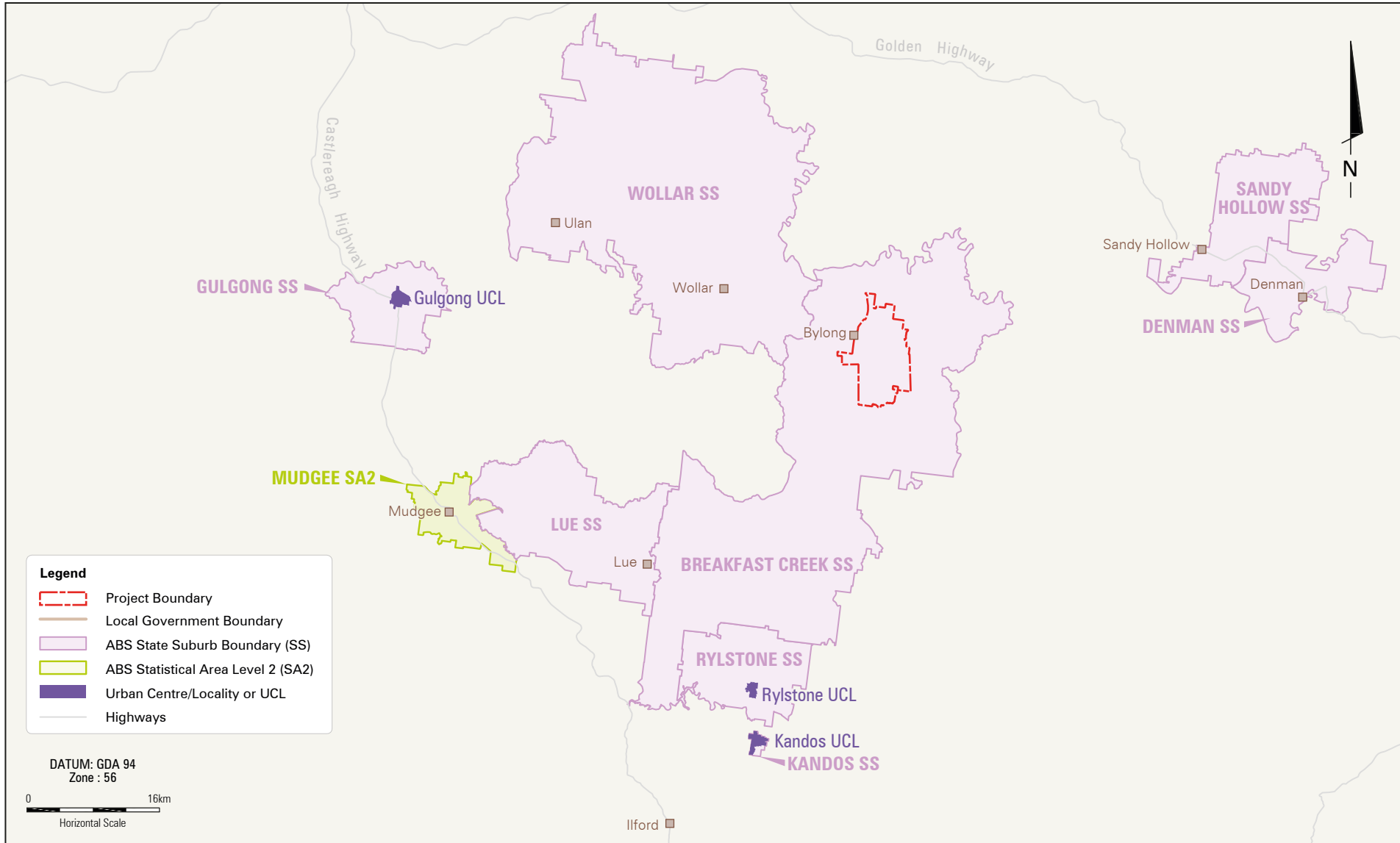


BYLONG COAL PROJECT

Local Area

FIGURE 9





BYLONG COAL PROJECT

2011 ABS Census Boundaries

FIGURE 10

APPENDIX A

Secretary's Environmental Assessment Requirements

**Table A-1
Secretary's Environmental Assessment Requirements Relevant to Social Impacts**

Requirement	Section Addressed in SIA or other documents
Department of Planning and Environment	
An assessment of the likely social impacts of the development (including perceived impacts), paying particular attention to any impacts on Bylong village	Sections 5-12 of the SIA
An assessment of the likely economic impacts of the development paying particular attention to: <ul style="list-style-type: none"> • The significance of the resource; • Economic benefits of the Project for the State and region; and • The demand for the provision of local infrastructure and services 	Section 7 of the SIA EIS Economic Impact Assessment
During the preparation of the EIS, you must consult with relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. The EIS must describe the consultation that was carried out, identify the issues raised during this consultation, and explain how these issues have been addressed in the EIS.	Section 3 and Sections 5-12 of the SIA EIS Consultation Section
Mid-Western Regional Council	
<u>Temporary Workers Accommodation</u> Address Part 6.3 of Council's Development Control Plan 2013 - Amendment 1 (DCP 2013) in relation to the proposed TWA which includes the following issues:	
<ul style="list-style-type: none"> • Detailed Social Impact Assessment (SIA) which should include but is not limited to: <ul style="list-style-type: none"> – Identification and an in-depth analysis of social impacts of the proposal 	Sections 5-12 of the SIA
<ul style="list-style-type: none"> – Outline the process of community consultation and address issues raised by the community 	Section 3 and Sections 5-12 of the SIA EIS Consultation Section
<ul style="list-style-type: none"> – Consideration of cumulative impacts, intergenerational equality, impacts on the provision of services and identify ways to address these impacts 	Section 3 and Section 11 of the SIA
<ul style="list-style-type: none"> – The results of consultation with relevant service providers including police and health providers 	Sections 5-12 of the SIA
<ul style="list-style-type: none"> – Identification of a strategy to mitigate impacts, encourage integration with the community, and permanent relocation to the area, timeframe for the implementation of the strategy and a monitoring program 	Sections 5-12 of the SIA
<ul style="list-style-type: none"> – Identify and implement provisions that will address the needs identified by the SIA and the demands generated by the development in a way that will not adversely impact upon the existing community. 	Sections 5-12 of the SIA
<ul style="list-style-type: none"> • Details of transportable buildings to be used including evidence 	EIS Project

Bylong Coal Project
Social Impact Assessment
for WorleyParsons Services Pty Ltd

2 July 2015
Page A-2

Requirement	Section Addressed in SIA or other documents
demonstrating that the transportable buildings to be used can be permanently fixed to the site by footing that comply with the requirements in accordance with the National Construction Code and associated Engineer's Certification.	Description Section
<ul style="list-style-type: none"> Details demonstrating that the buildings comply with the Access to Premises standard. 	EIS Project Description Section
<ul style="list-style-type: none"> The density of the development (Council limits such facilities to 100 beds per hectare). 	EIS Project Description Section
<ul style="list-style-type: none"> Details of the facilities and services provided to residents in the TWA. 	EIS Project Description Section
<ul style="list-style-type: none"> Details of traffic and parking arrangements. 	EIS Project Description Section
<ul style="list-style-type: none"> A Landscaping Plan complying with the requirements of Council's DCP 2013. 	EIS Project Description Section
<ul style="list-style-type: none"> A Plan of Management for the facility covering all relevant provisions in Part 6.2 of Council's DCP 2013. 	EIS Project Description Section
<ul style="list-style-type: none"> A Decommissioning Plan which addresses: <ul style="list-style-type: none"> When the facility shall be decommissioned; Any works or facilities that will remain in place after decommissioning; Details of the clean-up and rehabilitation of the site; The proposed use after decommissioning; The transfer to public ownership of any legacy infrastructure. 	EIS Project Description Section
There may be potential for the life of the Project to extend beyond the currently proposed 29 year life estimate. Having regard to this potential it is considered opportune that further investigation be undertaken regarding the permanent expansion of the town of Bylong rather than total reliance on the TWA	EIS Project Description Section
<u>Local Services Assessment</u> <ul style="list-style-type: none"> Confer with MWRC in determining the likely domicile of the workforce having due regard to the Mid-Western Comprehensive Land Use Strategy and Council's Development Servicing Plans and strategies for the provision of water and sewer services 	Section 11 of the SIA
<ul style="list-style-type: none"> Address the impact the development may have on local services and infrastructure in the LGA. This should include, but is not limited to, impact on water and sewer, local housing supply, health care services, child care facilities, education and local businesses and include measures to mitigate any identified impacts. 	Section 11 of the SIA
Department of the Environment	
<u>Economic and Social Matters</u>	

Requirement	Section Addressed in SIA or other documents
<ul style="list-style-type: none"> • The economic and social impacts of the action, both positive and negative, must be analysed. Matters of interest may include: <ul style="list-style-type: none"> – Details of any public consultation activities undertaken, and their outcomes; – Details of any consultation with Indigenous stakeholders – Projected economic costs and benefit of the Project, including the basis for their estimation through cost/benefit analysis or similar studies – Employment opportunities expected to be generated by the Project (including construction and operational phases) 	<p>Sections 5-12 of the SIA EIS Aboriginal Archaeology Report EIS Historic Heritage Report</p>
<ul style="list-style-type: none"> • Economic and social impacts should be considered at the local. Regional and national levels. 	<p>Section 5-12 of the SIA EIS Economic Impact Assessment</p>
<ul style="list-style-type: none"> • Details of the relevant cost and benefits of alternative options to the proposed action, should also be included 	<p>EIS Project Description Section</p>

APPENDIX B

Supporting Data Tables

Table B-1
Unemployment by Age and Gender, 2006 - MWRC LGA

Age (Years)	Unemployed	Labour Force	Unemployment Rate (%)	Unemployed	Labour Force	Unemployment Rate (%)
	Male			Female		
15-19	73	381	19	45	344	13
20-24	40	392	10	39	294	13
25-34	67	828	8	54	666	8
35-44	62	1,190	5	83	1,053	8
45-54	76	1,183	6	53	1,010	5
55-64	50	863	6	29	592	5
65-74	3	228	1	0	120	0
75+	0	53	0	0	26	0
Total	371	5,118	7	303	4,105	7

Note: Count of employed persons aged 15 years and over
Source: ABS 2007b

Table B-2
Unemployment by Age and Gender, 2011 - MWRC LGA

Age (Years)	Unemployed	Labour Force	Unemployment Rate (%)	Unemployed	Labour Force	Unemployment Rate (%)
	Male			Female		
15-19	56	365	15.3	39	324	12.0
20-24	47	465	10.1	31	330	9.4
25-34	50	922	5.4	47	689	6.8
35-44	47	1,187	4.0	58	1,061	5.5
45-54	63	1,263	5.0	46	1,145	4.0
55-64	47	924	5.1	28	668	4.2
65-74	0	302	0.0	5	191	2.6
75+	0	65	0.0	0	29	0.0
Total	310	5,493	5.6	254	4,437	5.7

Note: Count of employed persons aged 15 years and over
Source: ABS 2012f

Bylong Coal Project
Social Impact Assessment
for WorleyParsons Services Pty Ltd

2 July 2015
Page B-2

Table B-3
Labour Supply and Demand, 2006, MWRC LGA

Age (years)	People whose place of work is in MWRC LGA	Residents of MWRC LGA who are employed	Labour surplus	Working residents as a % of workforce
15-19	549	607	58	111
20-24	551	607	56	110
25-34	1,300	1,373	73	106
35-44	1,907	2,098	191	110
45-54	1,894	2,064	170	109
55-64	1,258	1,376	118	109
65-74	324	345	21	106
75+	73	79	6	108
Total	7,850	8,549	699	109

Note: Count of employed persons aged 15 years and over
Source: ABS 2012r

Table B-4
Labour Supply and Demand, 2011, MWRC LGA

Age (years)	People whose place of work is in MWRC LGA	Residents of MWRC LGA who are employed	Labour surplus	Working residents as a % of workforce
15-19	544	594	50	109
20-24	657	717	60	109
25-34	1,403	1,514	111	108
35-44	1,977	2,143	166	108
45-54	2,155	2,299	144	107
55-64	1,402	1,517	115	108
65-74	468	488	20	104
75+	88	94	6	107
Total	8,694	9,366	672	108

Note: Count of employed persons aged 15 years and over
Source: ABS 2012r and REMPLAN 2014

Table B-5
Industry of Employment, 2011

Industry	Breakfast Creek SS	Rylstone	Kandos	Mudgee	MWRC	Lithgow-Mudgee Region	NSW
	% of employed persons						
Agriculture, forestry & fishing	42.3	2.4	1.5	2.7	9.5	7.3	2.9
Mining	4.9	17.0	15.3	14.9	13.8	12.8	1.6
Manufacturing	4.9	8.1	7.8	5.4	6.0	6.2	11.5
Electricity, gas, water & waste services	0.0	1.2	0.9	1.0	1.2	2.6	1.6
Construction	4.1	7.3	5.4	8.0	7.8	6.8	11.9
Wholesale trade	4.1	0.0	0.0	3.0	2.5	2.3	5.3
Retail trade	7.3	11.3	9.9	12.9	11.3	10.6	8.3
Accommodation & food services	4.9	8.1	11.1	10.5	8.2	8.2	5.8
Transport, postal & warehousing	4.9	7.7	3.6	3.0	3.3	4.4	7.2
Information media & telecommunications	0.0	1.2	0.0	1.1	0.9	0.7	2.5
Financial & insurance services	0.0	1.6	1.5	1.3	1.2	1.4	4.6
Rental, hiring & real estate services	0.0	2.4	1.2	1.5	1.3	1.1	1.5
Professional, scientific & technical services	0.0	2.0	3.3	3.9	3.6	3.3	8.1
Administrative & support services	0.0	0.0	3.6	2.1	2.2	2.7	3.0
Public administration & safety	5.7	4.9	4.8	4.7	4.2	6.1	6.6
Education & training	12.2	6.1	12.6	6.9	7.3	6.9	4.5
Health care & social assistance	0.0	15.4	9.6	9.7	9.2	10.0	4.7
Arts & recreation services	2.4	1.6	0.0	0.7	0.7	0.9	1.5
Other services	0.0	1.6	5.7	4.9	3.8	3.7	4.0
Total employed persons	123	247	334	4,611	9,364	17,968	3,138,330

Source: ABS 2012h

Bylong Coal Project
Social Impact Assessment
for WorleyParsons Services Pty Ltd

2 July 2015
Page B-4

Table B-6
Industry of Employment, 2006

Industry	Breakfast Creek SS	Rylstone	Kandos	Mudgee SS	MWRC LGA	NSW
	% of employed persons					
Agriculture, forestry & fishing	31.7	3.3	4.4	7.3	13.1	2.7
Mining	5.0	14.2	10.9	10.3	6.9	0.7
Manufacturing	5.0	11.7	20.2	10.7	8.5	9.6
Electricity, gas, water & waste services	0.0	1.3	0.0	1.1	1.1	1.0
Construction	7.5	4.6	4.4	14.0	7.2	7.3
Wholesale trade	2.5	1.3	2.6	3.8	2.8	4.7
Retail trade	4.2	10.0	9.4	13.8	13.4	11.1
Accommodation & food services	0.0	8.8	10.3	7.3	8.3	6.5
Transport, postal & warehousing	0.0	6.7	2.3	5.3	3.3	5.0
Information media & telecommunications	0.0	0.0	0.9	1.1	0.8	2.4
Financial & insurance services	0.0	1.3	0.9	0.9	1.2	5.0
Rental, hiring & real estate services	2.5	1.3	0.9	1.5	1.2	1.7
Professional, scientific & technical services	8.3	5.0	0.9	3.8	3.9	7.3
Administrative & support services	0.0	3.3	1.8	1.4	1.8	3.1%
Public administration & safety	7.5	5.4	4.4	5.1	4.3	6.0
Education & training	13.3	8.3	10.9	4.2	7.2	7.6
Health care & social assistance	7.5	8.8	9.1	1.9	8.4	10.5
Arts & recreation services	0.0	0.0	1.8	0.7	0.8	1.4
Other services	2.5	0.0	2.1	3.6	3.2	3.8
Total employed persons	120	240	341	1,979	8,549	2,909,441

Source: ABS 2007c

Bylong Coal Project
Social Impact Assessment
for WorleyParsons Services Pty Ltd

2 July 2015
Page B-5

Table B-7
Unpaid Work - Voluntary Work for an Organisation or Group, 2011

Volunteer Status	Not a volunteer	Volunteer	Not stated	Total applicable persons
Breakfast Creek SS	61.0	31.2	7.8	231
Rylstone	66.0	26.2	7.7	530
Kandos	72.9	21.0	6.1	1,032
Mudgee	71.0	19.4	9.5	8,219
MWRC LGA	69.8	21.1	9.1	17,795
Lithgow-Mudgee Region	70.4	19.7	9.9	35,341
NSW	74.8	16.9	8.4	5,585,147

Source: ABS 2012g

Notes: Count of persons aged 15 years and over
% is of total valid respondents to question

Table B-8
Offences MWRC LGA 2009-2013

Offence	Number of incidents					LGA Rank (141)
	2009	2010	2011	2012	2013	
Murder	1	2	1	0	0	NA
Assault - domestic violence related	98	119	109	125	90	71
Assault - non-domestic violence related	153	180	193	178	153	34
Sexual assault	14	25	22	27	24	22
Indecent assault, act of indecency and other sexual offences	38	19	15	30	38	NA
Robbery without a weapon	4	7	4	1	5	71
Robbery with a firearm	0	0	0	1	0	NA
Robbery with a weapon not a firearm	0	2	1	0	1	NA
Break and enter dwelling	141	115	124	105	78	92
Break and enter non-dwelling	127	67	84	88	59	67
Motor vehicle theft	73	34	25	38	38	81
Steal from motor vehicle	94	94	135	134	109	84
Steal from retail store	51	63	44	52	47	61
Steal from dwelling	122	107	85	103	98	49
Steal from person	7	5	6	4	7	82
Fraud	64	48	54	53	102	51
Malicious damage to property	467	399	482	428	346	36
Harassment, threatening behaviour and private nuisance	156	169	168	195	267	NA
Possession and/or use of cannabis	63	55	74	88	82	NA
Other drug offences	27	11	31	23	47	NA
Trespass	75	69	86	63	93	NA
Offensive conduct	23	26	44	34	39	NA
Offensive language	25	29	37	48	29	NA
Criminal intent	11	9	8	11	5	NA
Liquor offences	89	102	135	99	71	NA

Source: NSW Bureau of Crime Statistics and Research 2014