WILPINJONG COAL PROJECT

APPENDIX J

Community Infrastructure Assessment

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COMMUNITY INFRASTRUCTURE ASSESSMENT

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J1 INTRODUCTION

The Wilpinjong Coal Project (the Project) is located in the western coal-fields of New South Wales (NSW) approximately 11 kilometres (km) south-east of the existing Ulan Coal Mine in the upper Goulburn River Valley which is within the Hunter Valley watershed. The Project is being developed by Wilpinjong Coal Pty Limited (WCPL). The Gulgong to Sandy Hollow railway runs through the northern part of the Project area. It is 155 km by rail to the Bayswater-Liddell rail loader and 260 km to the Port of Newcastle. The majority of land in the Project area is cleared agricultural land that has primarily been used for cattle and sheep grazing with some cropping and improved pasture.

The proposed mining operation would be approximately 3 km from the small village of Wollar in the upper Goulburn River valley which is within the administrative boundary of the Mid-Western Regional Council. The Mid-Western Regional Council was proclaimed by the NSW Government in May 2004 and comprises the former Mudgee Shire and parts of the former Rylstone and Merriwa Shires. The nearest large towns are Mudgee and Gulgong, which are both approximately 50 km by road to the south-west and west from the site respectively. Travelling time to the site from Mudgee would be expected to be shorter (approximately 30 minutes rather than 40 minutes) because there is an unsealed section on the road to Gulgong. Due to this shorter travelling time and the considerably wider range of services and opportunities for spouse employment, Mudgee is considered to be the main centre that would be affected by the development.

The Project involves the following main elements:

- development and operation of an open cut mine within the Mining Lease Application (MLA 1) area to produce coal for domestic electricity generation and export markets;
- selective highwall mining of the Ulan Seam within the MLA 1 area;
- a Coal Handling and Preparation Plant (CHPP) and mine facilities area;
- water management infrastructure including the relocation of Cumbo Creek;
- water supply bores and associated pump and pipeline system;
- placement of mine waste rock (i.e. overburden, interburden/partings and coarse rejects) predominantly within mined-out voids;
- placement of tailings within a combination of out-of-pit and in-pit tailings storages;
- development and rehabilitation of final mine landforms and establishment of woodland vegetation in areas adjacent to the Project;
- a mine access road, temporary construction camp access road, internal access roads and haul roads;
- closure of Wilpinjong Road and Bungulla Road;
- realignment of two sections of Ulan-Wollar Road (including the relocation of two road-rail crossings);
- relocation of the existing 11 kilovolt electricity transmission line;
- an on-site temporary construction camp to accommodate up to 100 people during the construction phase;
- a rail spur and rail loop;
- coal handling and train loading infrastructure;
- transportation of product coal to market via train; and
- Enhancement and Conservation Areas (ECAs).

Project employment levels are anticipated to be up to 250 people (average 200) during the construction phase of the Project involving construction of the rail loop coal loading terminal and washery. During operations the estimated workforce would be up to 162 personnel (on average 100) made up of both WCPL and contract employees.

An Environmental Impact Statement (EIS) for the Project is required under the NSW *Environmental Planning and Assessment Act, 1979*. This report is an assessment of the potential community infrastructure impacts of the Project and has been prepared as EIS supporting information, in accordance with the Director-General's Requirements for the EIS (DIPNR, 2004).

J1.1 STUDY REQUIREMENTS

The study was commissioned by WCPL and has been prepared to assess the potential impact of the proposal on community infrastructure and to address the following requirement which was outlined by the Director of the NSW Department of Infrastructure, Planning & Natural Resources (DIPNR) Assessments Branch, in the DIPNR Director-General's Requirements and more specifically in a letter prepared by the former Mudgee Shire Council (now the Mid-Western Regional Council).

> *Social Impact Assessment of the proposal. This is to include details of the proposed workforce and its impacts on the amenities, services and infrastructure … of the nearby population centres during both the construction and operational phases.*

The focus of the study brief was to assess the local towns with regard to facilities, services and housing and their ability to support a Project employing approximately an average of 100 people for an operational period of 21 years and with a construction phase in Year 1 when an average of 200 people would be employed. The majority of construction activities would be completed in the first 6 months.

Consequently the objectives of this report are to:

- characterise the existing community infrastructure environment;
- analyse the likely distribution of the non-local component of the Project workforce and flow-on employment in the study area; and
- assess the potential impacts of the Project on the housing and social infrastructure of these communities.

J1.2 METHODOLOGY AND STRUCTURE OF THE DOCUMENT

The basic methodology for carrying out the study was to analyse the existing socio-economic environment and then consider how the local region might change without the influence of the Project. Impact analysis of the proposed development was then completed.

The report contains analysis and discussion of:

- a review of the existing socio-economic environment;
- estimated spatial allocation of the work force in each phase (ie. construction and operation);
- the potential impacts of the Project on population, employment, housing, social and physical infrastructure; and
- conclusions and recommendations.

J1.3 SOURCES OF INFORMATION AND CONSULTATION WITH RELEVANT AGENCIES

The following Government and private bodies were consulted as part of the work programme:

- Mid-Western Regional Council (administering the former Mudgee Shire Council area and parts of the former Rylstone and Merriwa shires).
- NSW Department of Infrastructure, Planning and Natural Resources.
- NSW Department of Education and Training.
- NSW Department of Health.
- NSW Department of Community Services.
- Other Non Government Organisations.

- Neighbourhood Service Centres.
- Local real estate agents.
- Local motel and hotel operators.

J1.4 TERMINOLOGY

Terminology used in the subsequent sections is defined below:

- *Local Component of the Workforce*

  Existing residents of the primary study area who do not relocate to work on the Project.

- *Non-local Component*

  Those persons who move into and live permanently in the primary study area as a result of the Project.

- *Commuters and Work Week Commuters*

  Those persons who live outside the primary study area but commute on a daily or weekly basis to the site.

J2 POPULATION AND EMPLOYMENT

J2.1 INTRODUCTION

This section discusses the employment and population estimates which are used as the basis for impact assessment. It reviews the existing environment, dealing with characteristics of the regional population, projected population increases without the Project and various components of employment and economic structure.

J2.2 DEFINITION OF THE PRIMARY STUDY AREA

Over the past 15 years it has been observed in a wide range of similar projects in Australia and overseas, that the most significant variable affecting the degree of socio-economic impact of a Project on a region is the size of the introduced non-local workforce. Consequently, the definition of the primary study area is of fundamental importance to the following analysis.

The primary study area was determined by considering the likely commuting patterns of the construction and operational workforce. A trip-table (Table J-1) was developed which shows approximate distance and travelling time to the surrounding population centres (Figure J-1). This table was then considered in relation to the ability of the Project to attract workers. After research into commuter behaviour for the existing Ulan Mine, 80 km or 1 hour travelling time was considered to be the employment catchment area which coincides approximately with the most accessible areas of the former Shires of Mudgee, Rylstone and Merriwa. The former local government areas of Mudgee, Rylstone and Merriwa were therefore adopted as the **primary study area**. The local government boundary changes in 2004 have resulted in the majority of the primary study area falling into the Mid-Western Regional Council Area (Figure J-2).

Table J-1
Trip Time Table from the Project Area to Neighbouring Centres

Mine Site to:	Distance (km approx.)	Travel Time (mins. approx.)
Mudgee	50	30
Gulgong	50	40
Rylstone Via Lue	105	65
Kandos Via Lue	95	60
Wollar	3	5
Lithgow	150	100

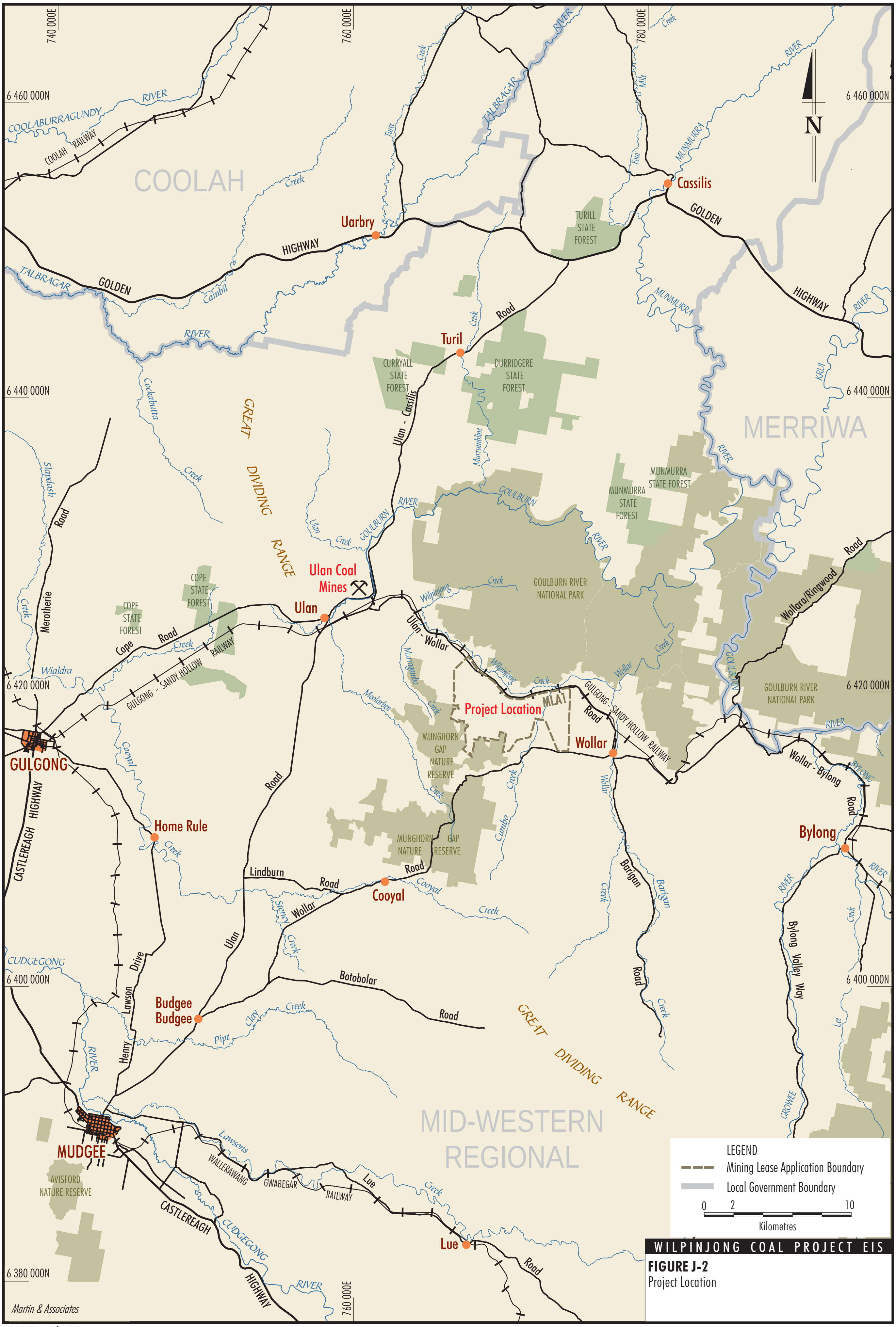
Figures J-1 and J-2 show the location of the neighbouring centres (outlined in Table J-1) which define the study area.

The towns and associated areas within the primary study area have been considered for employment potential in this study. The Project is located in the newly created Mid-Western Regional Council which has an economic base comprised of grazing and extensive farming properties (livestock), wine and other resource based industries. The three previous shires of Mudgee, Rylstone and Merriwa which make up the primary study area were all economies which traditionally depended on rural and resource based industries.

WILPINJONG COAL PROJECT EIS

FIGURE J-1
Regional Location

WIL-04-01 ComInf_002D



WILPINJONG COAL PROJECT EIS

FIGURE J-2
Project Location

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This has been changing in recent years with both Mudgee and (to a lesser extent) Rylstone gaining importance in the tourism and recreational industries. There is also a significant growth in residential second homes and country estate, hobby farm markets due to the decreasing travelling times to Sydney. The wine industry in Mudgee has helped this trend with a strong emphasis on tourist promotion. Rylstone has played a smaller role in this promotion but is also increasing its recreation base and promoting its natural environment as its primary tourist resource. Merriwa has tended to continue its traditional emphasis on agriculture, with a very stable population. The former Merriwa Shire has also been influenced by the long term presence of the Ulan Coal mine which is located to the west of the Project. There are other significant mining industries in the primary study area including the Australian Portland Cement works at Kandos and associated limestone quarry as well as Charbon Colliery and fertiliser works near Kandos, in the former Rylstone Shire.

In the wider Central West Region, there are also the significant mining centres of Lithgow and Orange.

J2.3 POPULATION

J2.3.1 Primary Study Area Trends

The focus of the present study is the combined area of the former Mudgee, Rylstone and Merriwa Shires (the primary study area). The total population of the primary study area in 1976 was 17,827 and increased to 23,695 in 2001. Using the Census figures, the long term growth rate for the period 1976 to 2001 was 1.14% per year for the primary study area in total and in Mudgee Shire was 1.75% with the other two former Shire areas either stable or slightly declining. Using the trends shown over the past six Census periods (Table J-2), baseline population projections were carried out for the years 2006, 2011, 2016 and 2021. The projection was carried out using linear regression and Chart 1 charts this data and projection. The projected growth rate from the regression analysis for the primary study area was 1.03% per year for the period 2001 to 2021.

Table J-2
Population Primary Study Area 1976 to 2001
and Projections to 2006, 2011, 2016 and 2021 Using Past Trends

	Based on Actual Census Figures from 1976 to 2001						Projections to:			
	1976	**1981**	**1986**	**1991**	**1996**	**2001**	**2006**	**2011**	**2016**	**2021**
Mudgee LGA	11,451	13,118	14,122	16,685	17,074	17,682	19,581	20,883	22,186	23,488
Rylstone LGA	4,124	4,068	3,653	3,674	3,734	3,674	3,498	3,406	3,313	3,221
Merriwa LGA	2,252	2,330	2,248	2,339	2,257	2,339	2,325	2,334	2,342	2,351
Total Primary Study Area	**17,827**	**19,516**	**20,023**	**22,698**	**23,065**	**23,695**	**25,404**	**26,622**	**27,841**	**29,060**

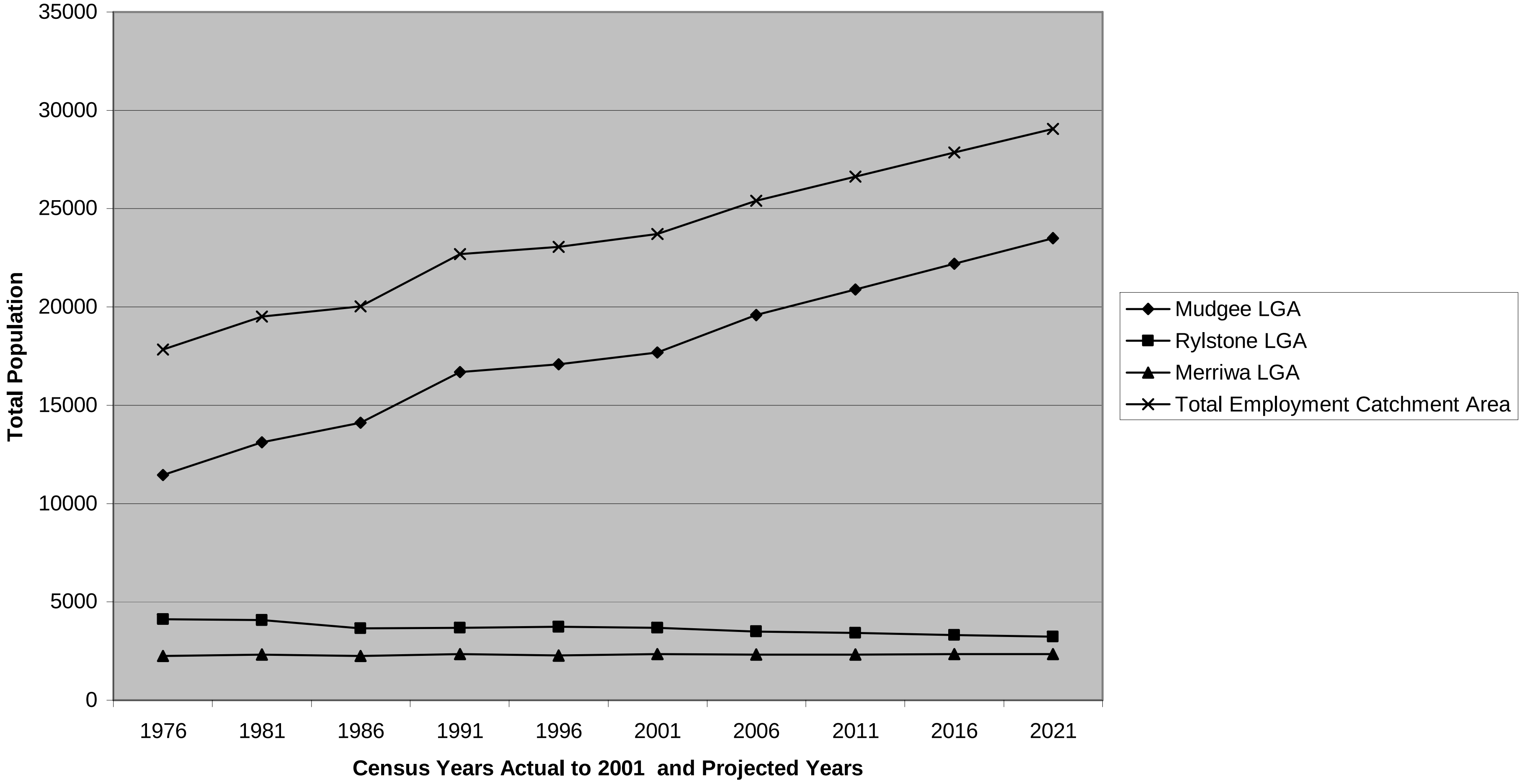
ABS Census Data 1976-2001 and Martin Associates Projections

As shown in Chart J-1, assuming the long term trend for the years 1976 to 2001 continues, the population in the primary study area without the Project would continue to increase to 25,404 in 2006 and reach up to 29,060 by 2021.

In October 2003, Leyshon Consulting P/L projected that by the year 2021, the Mudgee Shire population (ie. excluding Rylstone and Merriwa Shires) would range between 19,810 (slow growth scenario) and 21,322 (continuation of past trends scenario) (Mudgee Shire Rural Residential, Industrial and Residential Strategy, 2003). Both of these scenarios now appear to be slightly low due to the lower trend growth rate assumption of 0.85% per year. As discussed above, the long term growth rate for the past 25 years was 1.75% per year for Mudgee Shire.

In the last Census year (2001) the population in the Mudgee Shire was 17,682 persons with a population distribution of 8,619 (48.7%) people in Mudgee, 2,018 (11.4%) in Gulgong and a further 7,045 (39.8%) in small villages and rural areas in the Shire. In 2001, the population in Rylstone Shire was 3,674 and in Merriwa Shire the population was 2,339.

Chart J-1
Baseline Population Projection



J2.3.2 Age and Other Characteristics of the Population

The age and family type distribution in the primary study area are provided in Tables J-3 and J-4. There are some marked differences in the population characteristics of the three former local government areas. Mudgee has a younger population and a larger household size compared to both Rylstone and Merriwa. Mudgee also has higher median personal and family income and people in Mudgee are paying more for mortgage payments (Table J-5), reflecting the generally higher housing and land values. One person households rates are similar between the three areas.

Table J-3
Age of the Population - Primary Study Area 2001

Age Category	***Mudgee Shire***		***Rylstone Shire***		***Merriwa Shire***	
0-15 years	4,159	23.52%	741	20.17%	493	21.08%
15-19 years	1,138	6.44%	204	5.55%	155	6.63%
20-24 years	786	4.45%	143	3.89%	104	4.45%
25-29 years	940	5.32%	152	4.14%	121	5.17%
30-34 years	1,175	6.65%	226	6.15%	117	5.00%
35-39 years	1,326	7.50%	238	6.48%	150	6.41%
40-44 years	1,281	7.24%	253	6.89%	175	7.48%
45-49 years	1,196	6.76%	266	7.24%	166	7.10%
50-54 years	1,242	7.02%	274	7.46%	166	7.10%
55-59 years	1,088	6.15%	287	7.81%	168	7.18%
60-64 years	904	5.11%	254	6.91%	152	6.50%
65-69 years	732	4.14%	213	5.80%	113	4.83%
70-74 years	627	3.55%	167	4.55%	106	4.53%
75-79 years	478	2.70%	120	3.27%	65	2.78%
80-84 years	309	1.75%	87	2.37%	38	1.62%
85 years and over	276	1.56%	39	1.06%	44	1.88%
Overseas visitors	25	0.14%	10	0.27%	6	0.26%
Total	**17,682**	100.00%	**3,674**	100.00%	**2,339**	100.00%

ABS Census Data 2001 Census

Table J-4
Household Type - Primary Study Area 2001

Household Type	**Mudgee**		**Rylstone**		**Merriwa**	
	Number	**%**	**Number**	**%**	**Number**	**%**
Family households	4,611	72.2%	1,039	70.9%	620	73.4%
Non-Family households*	1776	27.8%	427	29.1%	235	26.7%
Lone person household	1,620	25.4%	396	27.0%	210	24.9%
Group household	156	2.4%	31	2.1%	15	1.8%
Total	6,387	100.0%	1,466	100.0%	845	100.0%

ABS Census Data 2001 * made up of lone person and group households

Table J-5
Comparative Population Income and Household Indicators
Primary Study Area 2001

	Mudgee	Rylstone	Merriwa
Median age	37	42	40
Median monthly housing loan repayments	$800-$999	$600-$799	$600-$799
Median weekly rent	$100-$149	$100-$149	$50-$99
Median weekly individual income	$300-$399	$200-$299	$200-$299
Median weekly family income	$700-$799	$600-$699	$600-$699
Median weekly household income	$600-$699	$400-$499	$600-$699
Mean household size	2.6	2.4	2.5

ABS Census Data 2001

J2.4 EMPLOYMENT

J2.4.1 Employment Structure

Even though the size of the economy in the primary study area measured in employment terms increased from 8,600 to 9,200 between 1996 and 2001, the economy was remarkably stable with little change in the relative share of industries providing employment. The one industrial group which increased considerably in absolute and in relative terms in both Mudgee and Rylstone was Agriculture, Forestry and Fishing. This shift is indicative of an increase in smaller rural properties using more intensive cropping methods such as wine and olive production to support commercial and "lifestyle" objectives. Merriwa was very stable in all categories. Of note is the fact that the service industries in the same period show little response to this increase which indicates a considerable amount of excess capacity in the service sector generally and also the role of larger regional centres such as Dubbo, Bathurst and Orange, which would provide some higher level service functions.

Table J-6 provides a comparison between the economic structure of the former Shires and the combined primary study area. Mudgee Shire is larger and considerably more diverse in most sectors. The dominance of agriculture in Rylstone and Merriwa Shires and the sub regional service role of Mudgee are also apparent from the data presented in Table J-6.

Table J-6
Employment Distribution by Industry - Primary Study Area 1996 and 2001

Industry	Mudgee		Rylstone		Merriwa		Primary Study Area	
Year	**1996**	**2001**	**1996**	**2001**	**1996**	**2001**	**1996**	**2001**
Agriculture, Forestry and Fishing	870	1,034	272	319	373	383	1,515	1,736
Mining	470	315	136	81	20	11	626	407
Manufacturing	639	808	237	182	32	47	908	1,037
Electricity, Gas and Water Supply	62	58	10	7	6	0	78	65
Construction	288	380	43	71	35	61	366	512
Wholesale Trade	224	461	25	39	21	33	270	533
Retail Trade	1,017	1,086	98	112	67	85	1,182	1,283
Accommodation, Cafes and Restaurants	374	432	71	46	43	49	488	527
Transport and Storage	205	208	44	30	36	27	285	265
Communication Services	97	63	27	17	13	6	137	86
Finance and Insurance	117	91	18	11	19	6	154	108
Property and Business Services	329	394	52	50	20	26	401	470
Government Administration and Defence	224	199	76	40	62	47	362	286
Education	424	483	99	100	61	57	584	640
Health and Community Services	557	544	86	93	49	45	692	682
Cultural and Recreational Services	77	120	3	18	6	6	86	144
Personal and Other Services	152	172	18	26	10	18	180	216
Non-classifiable economic units	66	16	29	6	17	12	112	34
Not stated	140	136	32	32	30	25	202	193
Total	**6,332**	**7,000**	**1,376**	**1,280**	**920**	**944**	**8,628**	**9,224**

ABS Census 1996 and 2001

J2.4.2 Unemployment Characteristics and Trends

The labour market area covered by Mudgee based employment agencies includes Mudgee, Gulgong, Rylstone and Kandos. Local employment agencies also have indicated they have some registrations from people seeking to move into the primary study area from other locations if local employment is available.

There are approximately 1,100 people currently registered as unemployed within the four Mudgee employment agencies. Of these, 30% to 40% were described as being long term unemployed. This leaves approximately 700 workers available for employment in the study area. The breakdown of skill types available in the two larger employment agencies is shown in Table J-7.

Table J-7
Percentage of Different Skill Types Available
In Two Mudgee Employment Agencies

Central West Recruitment	**% of Registered Applicants**
Managerial/professional	2
Clerical	10
Skilled trades: construction	5
Semi-skilled: machinery operators, clerical	53
Unskilled	30
Centrelink	
Managerial/professional	4
Skilled trades: construction	10
Semi-skilled: machinery operators, clerical	18
Unskilled	68

Source: Interview Survey, June 2004

Unemployment in the primary study area has been consistently above the NSW level over the year to December 2003 (Table J-9). The Mudgee unemployment data of around 1,100 registered people reported by the agencies can be compared to the regional labour market unemployment data calculated from ABS monthly employment surveys and workforce data which is shown in Tables J-8 and J-9. The total number of unemployed reported in Dec 2003 for the three former Shire areas was 711 or 6.9% of the official workforce. The discrepancy could be the result of people from outside the area registering. It could also be due to the long term unemployed who are not registered for benefits but who choose to register with local employment agencies. The Commonwealth Department of Employment and Workplace Relations has suggested that in rural NSW, an unemployment rate of 4.5% would be approaching a full employment situation when very persistent long-term unemployed groups are taken into account. It is clear that there are substantial numbers of labour in semi-skilled and unskilled categories that could potentially be available for the Project.

Table J-8
Number of Unemployed by Local Government Area
and Primary Study Area

Shire	**Dec - 02**	**Mar-03**	**June-03**	**Sept-03**	**Dec-03**	**Total Workforce**
Mudgee	441	488	485	508	514	7,976
Rylstone	133	151	148	148	140	1,574
Merriwa	66	60	57	50	57	1,061
Total	**610**	**699**	**690**	**706**	**711**	**10,611**

Source: Australian Department of Employment and Workplace Relations

Table J-9
Rate of Unemployment (%) by Local Government Area
and Whole of NSW

Shire	**Dec - 02**	**Mar-03**	**June-03**	**Sept-03**	**Dec-03**
Mudgee	6.2	6.7	6.4	6.5	6.4
Rylstone	8.7	9.8	9.7	9.6	8.9
Merriwa	6.9	6.0	5.6	4.9	5.4
NSW	6.0	5.9	5.9	5.9	5.8

Source: Australian Department of Employment and Workplace Relations

Another important factor to consider is the level of underemployment that also may be available in the surrounding agricultural industries. Based on experience from other mining regions such as the Hunter Valley and the Namoi, there is likely to be a component of labour on the smaller more marginal family operated farms who would choose to seek employment within the mining industry or in flow–on employment opportunities, whilst still operating the family farm.

In addition, the closure of the Mudgee abattoir resulted in the loss of over 200 jobs which has affected the local labour market, particularly semi-skilled and unskilled workers. According to interview surveys, there has been an increase in the number of unemployed clients with a disability and low level of literacy since the closing of the abattoir.

J3 HOUSING AND COMMUNITY INFRASTRUCTURE

J3.1 PERMANENT HOUSING

Dwelling structures in the primary employment catchment area are shown in Table J-10. Given the likely travelling times from the Project and the range of community services available, it is anticipated that Mudgee would be the main area where any in-coming work force would choose to reside.

Table J-10
Number and Percentage of Rental Housing and Type of Structures -2001
Mudgee, Rylstone and Merriwa Shires

	Mudgee		**Rylstone**		**Merriwa**	
	Number	**%**	**Number**	**%**	**Number**	**%**
Rental Housing	1,570	23.4	284	18.5	151	16.2
Separate house	5,783	86%	1,462	95%	888	95%
Semi-detached, row or terrace house, townhouse	240	4%	13	1%	3	0%
Flat, unit or apartment	336	5%	28	2%	15	2%
Other dwelling	258	4%	32	2%	14	2%
Not stated	91	1%	3	0%	10	1%
Total	**6,708**	**100%**	**1,538**	**100%**	**930**	**100%**

Source: ABS Census 2001

Presently in Mudgee, there are five distinct residential areas comprising the original town (Mudgee Central) and four other areas known as Mudgee North, Mudgee South, Mudgee South-West and Mudgee North-West. The main physical constraints to development are the scenic hills to the south west which have a restricted environmental zoning, the floodplain of the Cudgegong River to the north and the main railway line which runs south west to north-east. The more recently developed areas have more variety in their urban design than the more traditional grid pattern of the older residential areas in the main town. This has been in accordance with the Council's 1993 policy on residential property releases.

As a consequence of a historical over estimation of likely population growth, a Council report concluded that "there is currently an oversupply of land zoned 2(c) urban release area" (Mudgee Shire Council Planner, pers. comm., June 2004). There is approximately 120 hectares of land zoned in this category.

In October 2003 it was concluded in the Mudgee Shire residential land strategy that:

> *"There is substantial scope within the recommended urban footprint for consolidation and infill development in addition to new residential release area and large lot residential development and it is likely that the recommended urban structure could accommodate housing needs for at least twenty years"*

The demand situation has changed somewhat in the past year. In May 2004, discussions were held with two of the local real estate agents who together controlled approximately 60% of the managed property market in Mudgee. Observations were made that Mudgee has been experiencing a similar boom to most residential property markets throughout country NSW. In Mudgee, as well as the general effects of a broader property boom, the surge in demand was due in part to internal growth and also investment and speculation from outside the Shire. During the period 1995-96 to 1999-2000 the average dwelling approvals were 117 per annum and this had increased to up to 130 per annum in more recent years.

Internal growth was considered to be made up of the "generation X" cohort of population growing up in Mudgee seeking out their own land and house packages. Secondly, there were people within Mudgee itself upgrading and moving from the older part of town or rural property locations onto more expensive rural residential properties. There was also considerable speculative buying of land and "investment for lifestyle", mainly from Sydney.

The most highly sought after portion of the rural residential market was in North Mudgee in the Bombira subdivision areas. A final subdivision in this area was bringing $185,000 for 4,500m^2 blocks. The limit to development in this area has now been reached as it is borders the vineyard areas and it has been found by Council that there are significant environmental incompatibility issues between rural residential and vineyard areas.

The area of the Bellevue Hill estate in western Mudgee is the main area in which the town is expected to develop. This area has smaller town sized (still relatively large compared to Sydney) blocks of land with an average price varying in recent stages between $80,000 and $110,000. This estate has been in strong demand and has three more stages to be released with 60 blocks still left to be developed. Recent staged releases have sold very quickly with considerable buyer interest from Sydney. There was considered to be a speculative component in this demand. Overall, approximately 130 blocks have already been sold (average size 900m^2) in this estate.

The other main area available is known as South Mudgee. This is an older area but there are still housing lots available and recent older house sales have brought between $250,000 to $300,000 for standard three bedroom houses.

The area earmarked for further residential investigation is to the north west of the town, further on from the Bellevue Hill Estate and investigations to determine potential supply of blocks will be commenced shortly with a study of potential environmental constraints as a precursor to more detailed design and infrastructure investigations (Mudgee Real Estate Agent Interviews, pers. comm., June 2004).

The real estate industry and the Council appear to be working in a well coordinated fashion, particularly in relation to residential land supply. Physical infrastructure for servicing housing in Mudgee (water supply and sewerage) was reported by Council staff to have sufficient capacity for at least the next ten years.

In Gulgong, there is also considerable land available for residential use and prices are currently approximately half of those in Mudgee. The smaller villages also have some land available that is suitably zoned and could be used for housing, but these towns are severely restricted in growth potential because of their relative isolation and lack of services.

Wollar village near the mine site has a small population (less than 100 people in the village and 345 in the entire Census Collection District) but there is cheap zoned land that could be used for housing and there are older houses available. This village is severely restricted in growth potential due to its relative isolation and the probable high cost of the provision of services. It is considered unlikely that in-migration of workforce for the operational phase of the Project would be significant in Wollar.

Rental Housing

Anecdotal evidence from local real estate agents indicates there has been a steady increase in rental price and demand for all "good quality rental premises" (ie. flats, villas, houses, etc.). Lower standard (or substandard) flats are not increasing in price. This trend is likely to continue, due to NSW government introduction of stamp duty vendor tax and land tax that will encourage more people to rent rather than buy or build. This impact is likely to start from 2005. There is a waiting list of 2+ years for government housing.

J3.2 INDUSTRIAL LAND

The availability of industrial land in Mudgee is limited to the existing industrial estate in the South Mudgee, Sydney Road area. Within both the light industrial zones along Sydney Road there is vacant and under-utilised or undercapitalised sites. There is an estimated 10 hectares of land zoned for industrial development with further subdivision and development potential in addition to existing subdivided sites which are under-utilised due to access problems. There are considered to be options for the conversion of inappropriately zoned land or under-utilised land which could be investigated in conjunction with consideration of options for additional land for industrial purposes closer to the township.

The current Mudgee industrial land strategy outlines a strategy based on five main components:

- facilitate quality bulky goods development in the existing Sydney Road industrial area;
- encourage development of additional service industrial uses on the southern side of Sydney Road particularly those which relate to urban functions;
- preserve and promote opportunities for an industrial cluster based around the abattoir north of Mudgee and for any additional major industrial opportunities which may arise;
- promote Gulgong as an alternative location for uses which service agriculture; and
- investigate the opportunity for expansion of the Mudgee industrial area to the north west on land not currently used by the golf club (Mudgee Rural Residential, Industrial & Residential Strategy, Andrews Neil, October 2000).

J3.3 SHORT TERM ACCOMMODATION

The importance of the tourist related industries in Mudgee means that short term accommodation can be difficult to find at certain times of the year, particularly when special tourist and wine promotional activities are being conducted (eg. in September). According to Tourism NSW, the Explorer Country region which includes Mudgee, receives the third highest number of domestic tourists in regional NSW. Research has also shown that 10% of the visitors to Mudgee Shire wineries were from overseas. The short-term accommodation available and occupancy rates in Mudgee Shire is shown in Table J-11. It should be noted that at the time of this survey there were no official serviced apartment units (ie. with greater than 15 units) in Mudgee Shire.

Table J-11
Available Short Term Accommodation Mudgee Shire December Quarter 2003
Hotels, Motels and Serviced Apartments

	Establishments (Number)	Bed Spaces(b) (Number)	Guest Rooms(b) (Number)	Room Occupancy Rate (Percent)	Bed Occupancy Rate (Percent)	Average Length of Stay (Days)	Takings per Room Night Occupied ($)
December Quarter, 2003	11	1,029	333	59.6	33.4	1.7	92.7
October	11	1,029	333	72.4	42.2	1.8	95.1
November	11	1,029	333	55.4	29.6	1.6	91.7
December	11	1,029	333	51	28.4	1.7	90.3

Source: ABS Tourist Accommodation Series 2004

J3.4 COMMUNITY INFRASTRUCTURE

Interview surveys and questionnaires were sent out to 36 agencies and institutions within the Mid-Western Regional Council area in June 2004. Interviews were also conducted with industrial operations in Mudgee and the former Rylstone Shire. The survey included consideration of health, education, employment and other community services.

Some of the more important components of community services and infrastructure in the primary study area are summarised below.

J3.4.1 Education

Schools

There is a considerable number of schools in the primary study area which have adequate capacity to service current projected population demand.

Local village primary schools include Wollar, Bylong Upper and Ulan (all within 30 minutes drive of the Project). Larger primary schools are located in Mudgee and Gulgong. All of these schools have capacity to absorb increased enrolments, are all well resourced and enjoy strong community support.

Mudgee High School (approximately 1,000 students) and Gulgong High School (approximately 300 students) enjoy excellent reputations within their communities. The enrolment pattern over the longer term has been of fluctuating enrolments with a recent drop in enrolments caused by the closure of the Mudgee Abattoir. The conclusion of the survey of schools in the area was that there is considerable capacity in the system to enrol additional students both within the urban and surrounding rural areas.

There is a current plan being discussed by the Anglican Church to start a comprehensive Grammar School (ie. Primary and High School) which was to start in Term 1 of 2005. This proposal has now been pushed back to Term 1 of 2006 and the change was due to a lower than planned enrolment (Mudgee Guardian, 24 Sept 2004).

Adult Education

Western Institute of TAFE

TAFE Western institute operates from 24 locations including Mudgee.

Mudgee offers a range of certificate level courses in access and foundation education, agriculture, business services, community services, computing, hospitality and engineering trades. The Mudgee campus specialises in wine operations (viticulture):

- There are no courses available in Mudgee specifically related to the mining industry.
- Two course specifically related to the mining industry are available in Orange:
  - Metalliferous Mining Operations (Underground) - Certificate II (AQF); and
  - Mining Studies - Statement of Attainment (AQF).

A greater range of courses is available in business, information technology, engineering and construction at the Lithgow, Bathurst, Orange and Dubbo campuses.

Due to the limited range of courses provided at the Mudgee campus of TAFE many young people leave town in order to participate in courses at other locations such as Lithgow, Bathurst and Dubbo. There is capacity to absorb more students in those courses available in Mudgee.

Central West Community College: Education and Training

- Mudgee/Kandos is one of 7 Central West Community College campuses.
- Programs include short courses, business options in partnership with local business and industry and traineeship options.
- Courses relevant to the mining industry include electrical tagging; OH&S Construction (WorkCover); traffic control training; senior first aid; Certificate IV Workplace Assessment and Training.
- Training facilities available on site.
- Courses available on a 'needs' basis.
- Access to a WorkCover accredited assessor.

University courses are available at the regional centres of Bathurst, Dubbo and Orange (Charles Sturt University).

J3.4.2 Children's Services

Pre schools and Childcare

All centres in Mudgee have a waiting list and the community has identified the need for another day care centre. These centres include Mudgee Pre-School Kindergarten, South Mudgee Preschool, Mudgee Childcare Centre, Squeakers Long Day Care Centre and Gulgong Preschool Inc. There are long waiting lists particularly for infant care. Current enrolments cater for approximately 500 places.

J3.4.3 Health Services

The Area Health Service offers a wide range of medical, child and family services in Mudgee and surrounding communities such as Gulgong. Due to recent changes to Area Health regions, Rylstone and Kandos will now be included in the service area.

Family and community health services are stretched with waiting lists for most non-urgent services. With the expansion of the health region and the difficulty of attracting qualified health professionals, there is some concern that waiting lists for services will increase.

Hospital Services: Mudgee and Gulgong

Clinical support services are based in Mudgee and Gulgong Hospitals and include the core services: emergency, medical specialists, surgical; maternal and child health: maternity and neonatal; and integrated community and hospital services and community health services. Rylstone and Kandos have an existing District hospital in Rylstone but may now be serviced by Mudgee due to current proposed changes in the Area Health Service.

There are long waiting lists for a range of non-emergency services (eg. 2 months occupational therapy; 3 months social worker; 12 months for a speech pathologist at the time of the survey). The respondent from the Mudgee hospital indicated that there is a need to recruit a full time dietician, a diabetes educator, an additional counsellor/psychologist; an occupational therapist and a speech pathologist at the Mudgee Community Health Service attached to the Hospital.

Medical Practitioners

There are three medical practices in Mudgee (12 doctors) and 1 in Gulgong (2 doctors) and the Mudgee Medical Centre has been trying to recruit 2 additional doctors from overseas. Clients often wait several days to see a doctor for non urgent matters. There was no female doctor in Mudgee at the time of the survey. Since that time three additional doctors have been recruited from out of the local area to address a shortage of general practitioners and to reduce non-emergency waiting times. According to a report in the Mudgee Guardian (4/2/05) Dr Peter Roberts of the Mudgee Medical Centre said that although the three new doctors will help the situation, the town "is still 4 to 5 doctors short". A feasibility study is being conducted for an additional medical centre in Mudgee.

Allied Health Services

There are a variety of service providers including chiropractors; physiotherapists, dentists (7), optometrists and natural therapists.

J3.4.4 Family Support Services

Family Support Services are provided by the Department and Community Services and a number of non-government organisations such as Barnardos which co-operate through an Interagency Committee.

The main local social issues which are addressed by the Interagency Committee include drug and alcohol abuse, domestic violence, mental health, social isolation, cost and availability of rental property, cost and availability of crisis accommodation. Clients currently requiring crisis accommodation services are often sent to a neighbouring town such as Lithgow, Bathurst or Dubbo.

J3.4.5 Community and Social Issues

The following list is a summary of issues raised during interviews in June 2004 with the various public and private community service agencies

- There is limited public transport within Mudgee and no public transport between Mudgee and outlying towns which may increase social isolation and decreased access to services for some families, particularly where there is only one car.
- Amalgamation of councils to include Kandos and Rylstone may impact access to resources including council personnel.
- Another childcare facility may be needed to meet the growing demand for childcare places.
- Drug and alcohol abuse by men and youth is a major concern for family support services.
- There is no refuge or emergency accommodation in Mudgee. Women and families are relocated to other towns such as Bathurst, Dubbo and Tamworth if they require these services.
- There is a growing aged population. Access to aged care facilities is limited.
- The number of Aboriginal and Non English Speaking Background (NESB) families in the community is growing.

J3.4.6 Other Local Service Providers

The Community Project Officer based at the Community Support Centre provides information about funding opportunities, training opportunities, project development and information about community events, services and resources to organisations and individuals.

Mudgee is the major sub-regional centre for the local area and surrounding districts offering a wide range of recreational and retail facilities such as art galleries, library, swimming pool, golf course, shopping centres and restaurants.

Services available within the local area include Rotary and Lions Clubs, aged care facilities and recreational sporting clubs that cover activities such as football, cricket, swimming, tennis and netball. Community services are also provided by organisations such as Meals on Wheels, Community Transport, and Mudgee Accommodation Support Service.

J4 POTENTIAL IMPACTS OF THE PROPOSAL

J4.1 DIRECT EMPLOYMENT

The results of the interview surveys, published employment data and other anecdotal evidence suggest that there is a pool of unemployment in the primary study area potentially available for the semi-skilled jobs required in both phases of the Project. This is also the case for flow-on employment which would require semi-skilled and unskilled workers.

The economic impacts of the proposal include increases in the subregional regional output of the local economy and increases in local income and employment. From a community infrastructure perspective, the main driver of demand for increased services at a higher than normal growth rate is the amount of new employment created by the Project particularly the degree to which non-local employment is created. This means that new families and individuals move into the community thus setting off a wave of newly created demand. Also, the creation of new jobs for local workers may increase incomes and reduce needs for some types of community support services.

The construction phase of the Project would be relatively short term (in Year 1) and due to the nature of the specialised skills required from outside the region and the development of a construction camp relatively minor flow-on effects would be expected. On the other hand the operational phase continues for the life of the Project and would lead to more lasting impacts (Table J-12).

The proponent has estimated that the construction phase of the Project would lead to a peak of 250 jobs with an average of around 200 personnel. For the operational phase, it was considered that there would be an average of 100 personnel with a maximum of 162 during peak periods.

Table J-12
Peak Direct Employment Impacts of the Proposal on the Primary Study Area

Year	Construction			Operational		
	Management and Professional	Skilled Trades	Semi-Skilled	Management and Professional	Skilled Trades	Semi-Skilled
1	20	60	140	12	20	52
2-21	0	0	0	20	34	108
Total	**250***			**84-162****		

Source: Thiess (2004)
* Average construction workforce of approximately 200 people.
** Average operational workforce of approximately 100 people.

J4.2 FLOW-ON EMPLOYMENT

In order to consider the total impact of the Project on community infrastructure it is also necessary to estimate flow-on or multiplier effects (particularly flow-on employment that is generated in the local economy by the direct effects of the stimulus to the mining industry). The multipliers for each sector of the economy were derived from the input-output tables for the NSW economy and the Mudgee, Merriwa and Rylstone economy (Gillespie Economics, 2005).

J4.2.1 Construction Phase – Flow-on Effects

Given the largely specialist nature of capital equipment and the relatively small size of the primary study area economy, for the purpose of the economic analysis it was assumed that all such purchases and the leasing of machinery are made outside the primary study area. Thus regional economic activity from the mine establishment phase primarily relates to the building and construction sector within the primary study area.

Gillespie Economics (2005) estimate that of the order of $27.3M of the estimated $86M capital costs would need to be spent on other construction within the region to result in a direct workforce of 200 people. The direct and indirect regional economic impacts of this level of expenditure in the primary study area during the construction year of the Project are reported in Table J-13. This table indicates the total and disaggregated regional economic impacts of the construction phase of the Project on the primary study area economy in terms of output, value added, income and employment. As discussed above, new employment is an important driver of demand for housing and community infrastructure.

Table J-13
Adjusted Regional Economic Impacts of the Construction Phase of the Project on the Primary Study Area Economy

	Direct Effect	Production Induced	Consumption Induced	Total Flow-on	Total Effect
OUTPUT ($'000)	$27,300	$8,903	$3,621	$12,524	$39,824
Type 11A Ratio	*1.00*	*0.33*	*0.13*	*0.46*	*1.46*
INCOME ($'000)	$8,841	$1,514	$951	$2,465	$11,305
Type 11A Ratio	*1.00*	*0.17*	*0.11*	*0.28*	*1.28*
VALUE ADDED ($'000)	$13,757	$3,349	$1,673	$5,021	$18,779
Type 11A Ratio	*1.00*	*0.24*	*0.01*	*0.25*	*1.25*
EMPL. (No.)	200	38	31	69	270
Type 11A Ratio	*1.00*	*0.19*	*0.16*	*0.35*	*1.35*

Source: Gillespie Economics (2005)

Gillespie Economics also stated that:

> "Other influences may also impact the estimate of construction impacts on the primary study area economy. These include:
>
> - that the specialised nature of construction activity, particularly that related to construction of the CHPP may result in purchasing patterns that have a greater reliance on imports rather than local production; and
> - that given the manner in which some of the labour would be accommodated i.e. in an onsite camp, it is likely that individual expenditure pattern may differ and be less than the remainder of the workforce in the region."

This may tend to overstate likely regional economic impacts of construction. Gillespie Economics conclude that the multiplier for the construction phase would be of the order of 0.35. That is for each 100 jobs in construction there would be 35 multiplier jobs created as flow-on employment On this basis, Gillespie Economics concluded that construction of the Project is estimated to make the following contribution to the primary study area economy:

- 200 direct jobs and 70 indirect jobs (ie. flow-on employment);
- $40M in annual direct and indirect regional output or business turnover;
- $19M in annual direct and indirect regional value added; and
- $11M in annual direct and indirect household income.

Gillespie Economics has also assessed the potential regional economic impacts of the Project at the NSW State level. For example, a further 121 jobs are expected to be created outside of the primary study area (and in NSW) as a consequence of the Project construction phase. Potential employment effects, population effects and community infrastructure demands that take place outside of the primary study area are expected to be largely concentrated in major centres such as Sydney, and hence in relative terms are likely to be minor in nature. This report therefore concentrates on potential effects in the primary study area.

J4.2.2 Operational Phase – Flow-on Effects

The adjusted estimates of regional economic impacts of the operational phase of the Project from Gillespie Economics (2005), having regard to the estimated sourcing of labour, are provided in Table J-14.

Table J-14
Adjusted Annual Regional Economic Impacts of the Operational Phase of the Project on the Primary Study Area Economy

	Direct Effect	Production Induced	Consumption Induced	Total Flow-on	Total Effect
OUTPUT ($'000)	$215,681	$24,563	$3,805	$28,368	$244,049
Type 11A Ratio	*1.00*	*0.11*	*0.02*	*0.13*	*1.13*
INCOME ($'000)	$8,368	$4,690	$999	$5,690	$14,058
Type 11A Ratio	*1.00*	*0.56*	*0.12*	*0.68*	*1.68*
VALUE ADDED ($'000)	$146,823	$9,927	$1,758	$11,685	$158,508
Type 11A Ratio	*1.00*	*0.07*	*0.01*	*0.08*	*1.08*
EMPL. (No.)	100	118	33	150	250
Type 11A Ratio	*1.00*	*1.18*	*0.33*	*1.50*	*2.50*

Source: Gillespie Economics (2005)

In total, the operation of the Project is estimated to make the following contribution to the primary study area economy:

- 100 direct and 150 indirect or flow-on jobs;
- $244M in annual direct and indirect regional output or business turnover;
- $158M in annual direct and indirect regional value added; and
- $14M in annual household income.

As described in Section J4.2.1, Gillespie Economics has also assessed the potential regional economic impacts of the Project at the NSW State level. For example, a further 257 jobs are expected to be created outside of the primary study area (and in NSW) as a consequence of the Project operational phase. As identified above, potential employment effects, population effects and community infrastructure demands that take place outside of the primary study area are expected to be largely concentrated in major centres such as Sydney and hence in relative terms are likely to be minor in nature. This report therefore concentrates on potential effects in the primary study area.

J4.3 POPULATION AND HOUSING IMPACTS

J4.3.1 Construction Phase Population and Housing Requirements

Using the results of the multiplier analysis from Gillespie Economics, the estimated population and housing impacts of the Project construction phase are provided below.

Table J-15
Estimate of Population Impacts – Direct and Flow-on Employment
Construction Phase

Employment Type	Source	Jobs	Single Workers	Workers with Spouses	Children	Total Population Increase
Direct Employment	Local	80	-	-	-	-
	Non Local	120	108	12	12	144
Flow-on Employment	Local	35	-	-	-	
	Non Local	35	31	4	4	43
Total		**270**	**139**	**16**	**16**	**187**

As shown in Table J-15, it is predicted that the Project would lead to an increase of 144 people moving into the primary study area as a result of direct employment and a further 43 people would be expected to move into the area as a result of flow-on employment during the construction phase.

The predicted population effects detailed in Table J-15 are based on the assumption that 60% of the direct construction jobs are allocated to non-local employees. Given the current employment situation In Mudgee, it was considered that most of the semi skilled personnel would be available locally.

The percentage of the incoming (non-local) direct Project workforce assumed to be married with families was 10%, with the rest single. This is due to the fact that the construction workforce in the mining industry and large infrastructure projects generally is very mobile and tends not to have accompanying spouses and children.

With the proponent proposing to build an on-site camp for up to 100 workers, it was assumed that 100 of the non-local workforce directly employed at the Project would be accommodated at the construction camp on-site and they would commute to their usual residence (outside of the primary study area) on a "work week" or "work to suit" basis. There may also be a small percentage of the non-local construction workforce who would make some other arrangements for accommodation within the primary study area. So up to 20 direct non-local workers may bring their families or seek alternative single accommodation.

Similarly, for flow-on employment, it was assumed that approximately 10% of the non-local workers moving to the area would be accompanied by spouses, and that these families would have at least 1 child.

On the basis of the population increases provided in Table J-15, Table J-16 provides an estimate of the housing demand that would result from the Project direct and flow-on employment during the construction phase.

Table J-16
Estimate of Housing Requirements
Construction Phase

Housing Type	Direct Employment Effect	Flow-on Employment Effect	Total
Family/Couple	12	4	16
Single – Site Accommodation Camp	100	-	100
Single Houses/Units	8	31	39

The demand for conventional housing (rental houses and flats) is mainly due to the small component of workers attracted to Mudgee and working in other sectors as a result of the Project. (ie. the non-local flow-on employment) and the small proportion of the non-local workforce that may choose not to stay in the accommodation camp. The estimate of the total demand for housing outside the camp is estimated to be 55 housing rental units.

The potential impacts described above are based on the average construction workforce over the construction phase. During peaks in construction activity, a further 50 people, (eg. 25 local and 25 non-local) may be employed at the Project for a short term. The additional 25 non-local workers would be accommodated in company owned houses at the Project or hotels/motels in the primary study area. No further flow-on employment from outside the area is anticipated for these short term peaks due to adequate capacity in the local employment pool and the brief nature of such peaks.

Based on the results of the social survey in June 2004 and further discussion with local real estate agents in January 2005, this additional demand for 55 rental accommodation units for shorter term rental during the construction phase may cause some pressure on the market, particularly at the lower end. This would tend to affect the flow-on employment workers rather than the direct construction workers. The direct workers would generally have higher salaries and would have more choices available to them in the existing rental housing market. This effect would tend to lead to workers seeking cheaper rental accommodation in Mudgee and in the smaller towns and surrounding rural areas.

J4.3.2 Operational Phase Population and Housing Requirements

Spatial Allocation of the Operational Phase Non-Local Workforce

In order to obtain an insight into employee distribution at existing operations, to assist in estimating the distribution of Project non-local employees within the primary study area, a series of interviews were conducted with existing mining or related industries in the area. The results of the interviews were as follows:

Ulan Coal Mines

The present distribution of the workforce is very stable and is distributed as follows:

- 70% Mudgee (distance 50 km),
- 20% Gulgong (distance 40 km); and
- 10% in other towns scattered throughout their labour area with one or two employees from Rylstone/Kandos.

Anecdotally the pattern at Ulan is people who begin work at the mine sometimes commute longer distances to work for short periods until their spouses can get a local job, and then the worker and their family move into the local area. The present workforce is approximately 300 open cut and underground employees and the workforce is very stable. Finding highly skilled workers can be problematic due to the perception of the area as being isolated and many skilled workers prefer to stay close to the coast. Contractors run the open cut operation and the ratio of skilled to unskilled workers is approximately 33:66.

Lime Plant Hydrock Pty Ltd, Kandos

The total workforce is 22 and ratio of skilled to unskilled workers is approximately 33:66. The turnover of the workforce is fair but the workforce is reasonably stable. There are a few commuters from the other side of Mudgee and 2 of the managers come from Wallerawang, near Lithgow.

Charbon Colliery, Kandos

The workforce is 74 and the ratio of skilled to unskilled workers is approximately 33:66. One of the senior management personnel interviewed reported he had lived in Rylstone for ten years and now Mudgee for ten years. He prefers Mudgee because it is a larger town with a much broader range of facilities and services.

Australian Cement, Kandos

The current workforce is about 100. All the workforce is local and very stable.

Predicted Project Non-Local Workforce Distribution

The information above indicates the type of lifestyle the operational workforce of the Project is likely to prefer and the tendency for people relocating to the primary study area to choose the larger well serviced centres over the outlying smaller centres.

This information was considered in the development of the next step in the impact analysis which was to allocate the Project non-local work force between the towns which make up the study area. This was done using a gravity model which allocated the direct workforce on the basis of weighted scores on four criteria.

- population of each centre;
- access to day high schools (non-boarding);
- access to spouse employment; and
- relative prices for housing and land.

Travelling time between the mine and the site would normally be included in the model but in this case it is quite similar between Mudgee, Gulgong and the site.

The gravity model predicts that virtually all of the incoming population would choose to live in Mudgee because of its higher population, greater number of schools and the opportunities for spouse employment.

Even though Mudgee performs much better on all criteria except the price of land and housing, it is anticipated that a small number of the incoming workforce for the operational phase of the Project would choose to live in Gulgong, because of lower property prices. It is considered that 80% of the direct workforce would choose to live in Mudgee, 10% in Gulgong and the remaining 10% in the surrounding rural areas.

Operational Phase Population and Housing Effects

Two scenarios of the operational phase population and housing impacts were developed for the analysis. The first scenario used the estimate of average operational phase employment of 100. This scenario takes into account that over the life of the Project that there may well be fluctuations in the workforce, but the average is predicted to be approximately 100 people over the life of the mine. The second scenario takes account of the peak operational workforce (162) that may occur and is considered here (including maximum flow-on employment effects) in order to assess a maximum likely impact.

Table J-17
Operational Phase Population Effects – Direct & Flow-on Employment
Average and Peak Employment Scenarios

Phase	Employment Type	Source	Jobs	Spouses	Children	Total Population Increase
Operational Phase Average Employment	Direct Employment	Local	50	-	-	-
		Non Local	50	35	35	120
	Flow-on Employment	Local	105	-	-	-
		Non Local	45	14	14	73
	Total		**250**	**49**	**49**	**193**
Operational Phase Peak Employment	Direct Employment	Local	81	-	-	-
		Non Local	81	57	57	195
	Flow-on Employment	Local	170	-	-	-
		Non Local	73	22	22	117
	Total		**405**	**79**	**79**	**312**

There are no housing related impacts associated with employment of local people either directly by the Project or as a component of flow-on employment. Table J-18 provides estimates of the housing requirements associated with non-local employment in the primary study area for average and peak scenarios during the operational phase.

Table J-18
Estimate of Housing Requirements – Operational Phase
Average and Peak Employment Scenarios

Phase	Housing Type	Direct Employment Effect	Flow-on Employment Effect	Total
Operational Phase - Average Employment	Family/Couple Houses/Units	35	14	49
	Single Houses/Units	15	31	46
	Total	**50**	**45**	**95**
Operational Phase – Peak Employment	Family/Couple Houses/Units	57	22	79
	Single Houses/Units	24	51	75
	Total	**81**	**73**	**154**

In summary, depending upon the actual operational workforce numbers, the total population impact of the operational phase of the Project on the primary study area is expected to vary from 193 to 312 new people (Table J-17), and the predicted demand for housing units would vary from 95 to 154 (Table J-18). As described in Section J4.3.2, the demand for housing is predicted to be distributed to Mudgee (80%), Gulgong (10%) and other rural areas in the primary study area (10%).

The results of the spatial allocation of population and housing impact on each centre and the rural areas in the Mid-western Regional Council area is shown in Tables J-19 and J-20.

Table J-19
Estimates of Total Operational Phase Population Impact of Non-local Employment
Allocated to Different Centres and Rural Areas

Phase	Employment Type	Source	Mudgee	Gulgong	Rural Areas	Total*
Operational Phase Average Employment	Direct Employment	Non Local	96	12	12	120
	Flow-on Employment	Non Local	58	7	7	73
	Total		154	19	19	193
Operational Phase Peak Employment	Direct Employment	Non Local	156	20	20	195
	Flow-on Employment	Non Local	93	12	12	117
	Total		249	32	32	312

*May be minor errors in totals due to rounding

Table J-20
Estimates of Total Operational Phase Housing Impact
Allocated to Centres and Rural Areas

Phase	Housing Type	Mudgee	Gulgong	Rural Areas	Total*
Operational Phase - Average Employment	Family/Couple Houses/Units	39	5	5	49
	Single Houses/Units	37	5	5	47
	Total	76	10	10	95
Operational Phase – Peak Employment	Family/Couple Houses/Units	63	8	8	79
	Single Houses/Units	60	8	8	76
	Total	123	16	16	154

*May be minor errors in totals due to rounding

In order to understand the implications of this stimulus the record of recent dwelling approvals in Mudgee Shire was reviewed. It was found that in the period 1995-96 to 1999-2000, the normal number of dwelling approvals was 117 approvals per annum. In recent years there has been more activity with up to 130 approvals per annum (of which approximately 50 are in Mudgee itself). Assuming the increased demand of between 96 to 156 housing units occurs over a two year period, the likely number of total residential units required would be of the order of 48 to 78 per year.

In Mudgee and Gulgong, it is anticipated that the vast majority of singles accommodation would not be owner purchases so the actual demand for new housing in Mudgee would be no more than 39 to 63 dwelling units, and between 5 to 8 in Gulgong. Some of this demand would obviously be taken up by the purchase of existing houses within the towns and rural areas.

It should be emphasised that this analysis is based on the assumption that there is some excess capacity in the local economy and so 50% of the Project direct employment has been assumed to be taken by workers from within the primary study area. Approximately 70% of the flow-on employment is assumed to be provided by local people from the primary study area, as Gillespie Economics (2005) has indicated the majority of flow-on employment is likely to be in the wholesale/retail trade and services sectors, which are well represented in the primary study area (Table J-6).

J4.3.3 Potential Impacts on Residential Land Market

Construction Phase

The impact of the construction phase on the residential land market is not expected to be significant because the housing demand generated is expected to be minimised by the construction camp arrangements and would mainly affect the existing rental market for houses and units.

Operational Phase

In June 2004 when an initial survey was conducted, there was a general consensus that there was still adequate residential land to service the Project within Mudgee, but there was pressure on prices due to a sustained property boom in the area. Prices had generally doubled in most markets over the previous two years.

Since the initial survey in 2004, market conditions in the Mudgee residential market have softened considerably and there are more existing homes available for sale. A follow-up survey of real estate agents in January 2005 found that no problems were anticipated in servicing the estimated range of 95 to 154 housing units within current housing or new subdivision areas. Another 150 lots were about to be released in the Mudgee South area (January 2005) which would more than satisfy the projected demand from the proposal as well as normal growth.

The limited demand for new housing in Gulgong is not anticipated to significantly affect the need for new subdivision areas to be developed. The estimated demand in the surrounding rural areas for new housing of between 5 to 8 houses is not anticipated to have a significant impact on the residential land market in Gulgong.

J4.3.4 Potential Impacts on Rental Accommodation

Construction Phase

Based on the results of the social survey in June 2004 and further discussion with local real estate agents in January 2005, an additional demand for 45 rental accommodation units for shorter term rental during the construction phase may cause some pressure on the rental market, particularly at the lower end. This would tend to affect the flow-on employment workers rather than the direct construction workers. The direct construction workers would generally have higher salaries and would have more choices available to them in the existing rental housing market. This effect would tend to lead to flow-on employment workers seeking cheaper rental accommodation in Mudgee and in the smaller towns and surrounding rural areas.

Operational Phase

The estimated range for the number of housing units required for rental accommodation would be 24 to 38 units each year over the first two years. This represents between 14% to 23% of the apartment/flat/unit stock of 336 units or approximately 1.6% to 2.5% of the rental housing stock in Mudgee in 2001.

This was an area of some concern during the social survey conducted in June 2004, however, a follow up survey in January 2005 found that the market in all residential listings had flattened considerably over the previous six months and it was considered that the local market could absorb the projected numbers without any undue upward pressure on rents and availability.

If there were to be upward pressure on rents, the direct workforce associated with the mine normally has a higher than average income and should not have any difficulties. The people attracted to Mudgee who obtain jobs in other sectors (flow-on employment) would have considerably lower disposable incomes which may trigger the need for rental support or other support services.

Access to crisis accommodation for families was identified as a significant on-going issue in the Mudgee community and should also be monitored for any changes during the development of the Project.

J4.3.5 Potential Impact on Demand for Industrial Land

The demand for additional industrial land that would be generated by the Project depends on the existing capacity of engineering and metal fabricating companies in the primary study area. It is assumed that the majority of specialised capital purchases and equipment for the construction phase would be made outside of the primary study area. During operations, more demand on local industry is expected. In Mudgee, there are up to 6 companies presently servicing the mine at Ulan and there is one existing engineering company servicing the industrial and mining sector between Kandos and Rylstone. As the Ulan mine and the Charbon Colliery and Kandos Cement Works have experienced periodic fluctuations in production over the years, with no apparent fluctuation in the number of firms servicing the industry, the situation suggests considerable excess capacity exists and the demand for additional industrial land from mining related demand during the construction and operational phases is considered to be low. The pressure on industrial land in Mudgee appears to be more based on the demand for larger bulky goods and wholesale warehouse developments selling direct to the public.

J4.3.6 Sensitivity of Population and Housing Estimates

The most important variable in determining the total impact is the amount of non-local employment generated by the Project. In the preceding analysis, there is a considerable component of the impact due to flow-on employment coming from non-local sources. It should be remembered that there are at least 700 officially classified unemployed people already living within the primary study area who have the necessary skills to fill flow-on employment jobs. Consequently, it can be argued that 100% of the flow-on employment could potentially be absorbed by unemployed and under-employed people in the local employment market. The effect of this would be to considerably reduce the potential incoming population. Consequently, it is considered that the estimates used in this report are in the higher end of the range. This is done intentionally so that the total impact on population and housing would be conservative.

J4.4 SCHOOL FACILITIES AND SERVICES

J4.4.1 Construction Phase

The estimated number of school age children was estimated to be approximately 16 (Table J-15) and would not have any significant impact on the wide range of education facilities currently available in the primary study area.

J4.4.2 Operational Phase

The estimated number of children that would be moving into the Mudgee/Gulgong area ranged from 49 in the average case scenario up to 79 for the maximum case scenario during the operational phase. When these numbers are distributed spatially between Mudgee, Gulgong and the surrounding smaller country primary schools it was concluded that even though the numbers are moderate in terms of the total school population, there is more than adequate capacity within the existing system to deal with such numbers. Contact with Regional Office of the Department of School Education and Training and schools during the survey confirmed considerable capacity is available.

The number of children that would be attending local high schools was found to be of similar magnitude to the number of children that left Mudgee High School as a result of the Mudgee Abattoir closing. This was reported to be of the order of a total of 30 children over Years 7-12.

The Regional Director of Schools reported that:

> *"In short the school communities are excited about new infrastructure and more school aged students in the area." Regional Director DEET, December 2004*

One existing issue in Mudgee (that is common to most of NSW) is a shortage of childcare places (Section J3.4.2). The Project may increase demand for childcare places during operation, however, the total number of children (all ages) is not high (Table J-17).

J4.5 HEALTH, COMMUNITY SERVICES AND FACILITIES

J4.5.1 Construction Phase

At this stage, consultation has found that no significant impact on the delivery of acute hospital care is anticipated as the level of in-migrating population is quite modest (up to 100 people) and can be serviced by either Mudgee or Gulgong hospitals.

Community health services may experience some increase in due to the presence of a moderately sized construction work force of up to 100 personnel living in the construction camp in the relatively isolated location near Wollar. These workers would in the main be unaccompanied by spouses and children. The transient nature of construction workers can lead to occasional social impacts of a nuisance nature such as noise and traffic. If construction workers are accompanied by family, there can also be social impacts arising from family conflicts but the small proportion of workers bringing families is not considered to lead to higher than normal rates of incidence.

J4.5.2 Operational Phase

No significant potential impacts are anticipated upon hospital services or community health services during the operational phase as the numbers of direct workers and their dependants are very modest and there would be adequate time for normal planning procedures to occur. There is an existing shortage of General Practitioners in Mudgee and this may be accentuated by the Project-related population increase. An additional Medical Centre is currently the subject of a feasibility study funded in part by the Mid-Western Regional Council.

J4.6 POTENTIAL CUMULATIVE IMPACTS

As shown on Figure J-2, the Ulan Coal Mines are located approximately 11 km to the north-west of the Project, near the village of Ulan. The Ulan Coal Mines form part of the existing baseline for the Project, as the population and community infrastructure effects of the Ulan Coal Mines are largely historical and form part of the existing community infrastructure environment.

However, the Ulan Coal Mines operate under a number of consents. A 2 Mtpa underground mining operation comprising Underground Mine No. 4, a new CHPP, rail loop and train loading facility was approved in October 1985 as part of Stage 2 of the Ulan Coal Mines. The Underground Mine No. 4 and associated surface facilities that comprised part of Ulan Stage 2 were not developed at that time.

The peak construction workforce associated with Ulan Stage 2 was predicted to be up to 100 people (Kinhill Stearns, 1983). The peak operational workforce associated with the as yet undeveloped component of Ulan Stage 2 was not separately stated in the Ulan Stage 2 EIS (Kinhill Stearns, 1983), however, from the information that is provided, it was estimated that the peak operational workforce of the undeveloped component would be approximately 250 people.

In addition, while the Ulan Coal Mines is currently operating with a workforce of approximately 300 people (Section J.4.3.2), the *Mining Lease Application No. 80 Development Application and Environmental Impact Statement* (Kinhill, 1998) indicates that employment at the Ulan Coal Mines could be up to 410 people in the period 2008 to 2014.

If the two scenarios outlined above were to coincide with the Project construction or early operational phase, then cumulative impacts on employment, population and housing could occur.

The potential cumulative impacts would be expected to be:

- an increased demand for unemployed and underemployed workers in the primary study area;
- a non-local workforce component would be drawn to the primary study area and along with associated employment flow-on effects, would lead to population increases; and
- the additional population coming into the primary study area would increase demand and competition for rental and owner occupied housing (particularly in Mudgee).

How these potential demands would relate to the Project would depend on the timing of the developments and the degree of recruitment of non-local workers. For example, if the cumulative impacts occurred after the third year of the Project development, cumulative impacts would be expected to be less than if the additional demand coincided with the construction phase or first year of Project operations.

Given the uncertainty of the timing or nature of any such additional demand in the local area, it is recommended that WCPL consult with the Mid-Western Regional Council, DIPNR and other mine operators during the life of the Project, to plan for and manage any cumulative issues, should they arise.

J5 CONCLUSIONS AND RECOMMENDATIONS

The review undertaken in this study of the existing social and economic structure in the primary study area found that the socio-economic benefits of the existing Ulan Mine and smaller operations in the former Rylstone Shire have led to significant benefits for local employment and income, with no evidence of any negative marginal social costs to community infrastructure in the surrounding region. The social survey undertaken in June 2004 found that Mudgee and Gulgong were typical of many urban communities in rural NSW. There was a high standard of living enjoyed and community infrastructure (particularly physical infrastructure) was also considered to well provided and with excess capacity.

The social survey conducted for the assessment indicated a lack of short term rental and crisis accommodation in the lower end of the accommodation market. The short-term market for accommodation provided by hotels and motels was found to have little excess capacity, particularly during seasonal festival times. It was not considered prudent for the Project to rely on this short term accommodation for the construction phase and a construction camp for single unaccompanied workers has been proposed near the mine site.

Potential Impacts of the Project on the Rental Housing Market

During the Project construction phase there would be a small component of the direct construction workforce and also some of the flow-on employment workers who may choose to bring their dependents. This would lead to an additional demand for 55 rental accommodation units for shorter term rental. Based on the results of the social survey in June 2004 and discussion with local real estate agents in June 2004 and January 2005, this may cause some pressure on the existing rental market, particularly at the lower end. This potential for short term increases in demand for rental accommodation would also occur during the early part of the operations phase as families move to the area to set up more permanent housing arrangements.

Such issues can be monitored and managed effectively by ongoing consultation between the proponent and local and State government service providers (eg. NSW Department of Health and Community Services) through the Inter Agency Committee for delivery of Social Services.

Potential Impacts on Residential Land Market

For the operational phase of the Project, allocation of potential incoming population to local towns was carried out using a gravity model. The results of the modelling suggest that the most significant impact of the Project would be on Mudgee. There would be considerably lower impacts on Gulgong and the surrounding rural areas in the Mid-Western Regional Council area. It is anticipated that the demand on Mudgee township's infrastructure and land market would be well within its existing capacity.

The likely demand for housing in Mudgee, Gulgong and the surrounding rural areas associated with the Project operational phase workforce and flow-on employment would be in the range of 95 to 154 housing units. This includes accommodation for families and individuals who may be attracted to Mudgee for work in other sectors (ie. flow-on employment). As the former Mudgee shire area has over 1,500 houses in the rental market, and the normal annual rate of residential building activity in the former Mudgee shire has been in the order of 120 building applications per annum for new housing, the increase in demand is expected to be able to be serviced without any undue pressure on land and physical infrastructure services.

Potential Impacts on Other Community Services and Infrastructure

In both Mudgee and Gulgong the other elements of community infrastructure such as education, health and other community services and recreational services generally have sufficient excess capacity to accommodate the increase in population and housing/land demand that would be caused by the Project. Notwithstanding, existing shortages in General Practitioners and childcare places may be exacerbated by the moderate increase in population associated with the Project.

It is important to understand that the most significant variable in determining the total impact of the Project is the amount of non-local employment generated by the Project. It should be remembered that there are some 700 officially classified unemployed people already living within the primary study area who are likely to have the necessary skills to carry out a significant proportion of flow-on employment jobs. Consequently it can be argued that the flow-on employment population effect estimates used in this report are in the higher end of the range. This is done intentionally, so that the predicted total impact on population and housing in this assessment is considered to be conservative.

Potential Cumulative Impacts

Given the uncertainty of the timing or nature of additional demand in the local area, it is recommended that WCPL continue to consult and monitor potential developments with the Mid-Western Regional Council, DIPNR and other mine operators during the life of the Project and to plan for and manage any cumulative issues, should they arise.

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