

# **WALLARAH 2 COAL PROJECT**

## **SOCIAL IMPACT ASSESSMENT**

FINAL REPORT

September 2009

MARTIN & ASSOCIATES PTY LTD  
LEVEL 1, LIBRARY PLACE  
139 LONGUEVILLE ROAD  
LANE COVE NSW 2066  
Phone/Fax: 02-94188884  
Email: [doug@martinassociates.com.au](mailto:doug@martinassociates.com.au)



## **Table of Contents**

### **1.0 INTRODUCTION**

- 1.1 STUDY REQUIREMENTS
- 1.2 METHODOLOGY AND STRUCTURE OF THE DOCUMENT
- 1.3 SOURCES OF INFORMATION AND CONSULTATION WITH RELEVANT AGENCIES
- 1.4 STATE & LOCAL GOVERNMENT POLICY
- 1.5 TERMINOLOGY

### **2.0 EXISTING EMPLOYMENT, POPULATION AND COMMUNITY SERVICES**

- 2.1 INTRODUCTION
- 2.2 DEFINITION OF THE STUDY AREA
- 2.3 POPULATION CHARACTERISTICS
  - 2.3.1 Population Forecasts
- 2.4 MOBILITY OF THE POPULATION
- 2.5 WORKFORCE CHARACTERISTICS
- 2.6 EMPLOYMENT POLICY AND TRENDS

### **3.0 COMMUNITY SERVICES & INFRASTRUCTURE**

- 3.1 RETAIL AND HOUSEHOLD SERVICES
- 3.2 EDUCATION
  - 3.2.1 Primary and Secondary
  - 3.2.2 Tertiary
- 3.3 EARLY CHILDHOOD SERVICES
- 3.4 HEALTH SERVICES
- 3.5 COMMUNITY SERVICES
- 3.6 TEMPORARY ACCOMMODATION

### **4.0 COMMUNITY BEHAVIOUR AND PERCEPTIONS**

- 4.1 BASELINE SOCIAL SURVEY DIRECTLY AFFECTED AREA
- 4.2 SUB-REGIONAL TELEPHONE SURVEY ON PROPOSED DEVELOPMENT
- 4.3 BROADER BASELINE SOCIAL ISSUES
  - 4.3.1 CSIRO Research on Quality of Life and Sustainability on the Central Coast
  - 4.3.2 Central Coast Research Foundation Community Survey

### **5.0 IMPACTS OF THE PROPOSAL**

#### **5.1 CONSTRUCTION PHASE**

- 5.1.1 Impact on Employment
- 5.1.2 Impact on the Study Area Accommodation
- 5.1.3 Impact on Study Area Population
- 5.1.4 Impact on Community Infrastructure

#### **5.2 OPERATIONS PHASE**

- 5.2.1 Impact on Employment
- 5.2.2 Impact on the Study Area Population and Housing
- 5.2.3 Impact on Community Infrastructure

- 5.2.4 Impact on Physical Infrastructure
- 5.2.5 Impact on Local Businesses
- 5.2.6 Additional Economic Benefits and Cumulative effects

- 5.3 LOCAL COMMUNITY PERCEPTIONS ABOUT THE PROJECT
- 5.4 SUB- REGIONAL COMMUNITY PERCEPTIONS

## **6.0 PROPOSED SOCIAL MANAGEMENT AND MITIGATION PROGRAM**

## **7.0 CONCLUSIONS AND RECOMMENDATIONS**

### **List of Tables**

- Table 2-1 Trip Time Table from the Project Area to Neighbouring Centres
- Table 2-2 Population Characteristics of the Potentially Directly Affected Community and Wyong Shire 2006
- Table 2-3 Selected Income & Financial Characteristics Primary Study Area 2006
- Table 2-4 Mobility of the Population Primary Study Area and Wyong Shire 2006
- Table 2-5 Comparative Employment Structure of the Primary Study Area & Wyong Shire, 2006
  
- Table 2-6 Number Of Unemployed And Unemployment Rates, Wyong, Gosford, Lake Macquarie September 2007
- Table 2-7 Employment Status Primary Study Area Compared to Wyong Shire
  
- Table 3-1 Inventory of Primary & Secondary Schools & Current Enrolment 2003-2006
- Table 3- 2 Accommodation Central Coast, September 2007
  
- Table 5-1 Estimated Employment Impacts from the Construction of the Wallarah 2 Coal Mine
- Table 5-2 Demand and Supply of Temporary Accommodation at Construction Peak
- Table 5-3 Employment Impacts Operations Phase
- Table 5-4 Projected Impact on Study Area Population and Housing Operations Phase
- Table 5-5 Summary of Social Impact Assessment – Wallarah 2 Project

### **List of Figures**

- Figure 1.1 Location Map of the proposed Wallarah 2 Coal Mine
- Figure 2-1 Study Area Map showing 2006 Collection Districts 1211905, 1211903, 121910 1211907 and 1210306
- Figure 2-2 Rural West SPD Assumed New Dwelling Gain 2008-2031
- Figure 2-3 Low Income Households in Wyong Shire - Households with gross weekly income of less than \$500
- Figure 4-1 Concern about Selected Environmental Issues

- Annex 1 Results of the Community Baseline Survey

## 1.0 INTRODUCTION

The Wallarah 2 Coal Project (the Project) is located on the Central Coast of NSW approximately 10 kilometres (km) north of Wyong township in the local government area of Wyong Shire. The underground mining area includes parts of the Dooralong valley and the northern edge of the Yarramalong valley. The surface land above the underground mining area is drained by Jilliby Creek which runs into the Wyong River to the south and eventually to Tuggerah Lake in the east. The main northern railway line from Sydney to Newcastle runs close to the site and an industrial area and rail loop would be built in a new industrial area immediately to the east of the Sydney Newcastle freeway (see Figure 1.1). Land use in the Project area to the west of the Freeway is a mix of State Forest/State Conservation Area on the upper slopes, cleared agricultural land mainly used for larger lot residential subdivisions and agriculture on the lower slopes and floodplain. The agricultural areas are used for turf farming and grazing on improved pasture.

The proposed underground mining area is to the west of the Sydney Newcastle Freeway at a depth of between 350 metres to over 600 metres below the land surface and is approximately 4 km from the proposed coal handling pit-top industrial area on the eastern side of the freeway. A drift or access tunnel under the freeway would connect the mining area to these surface facilities. The nearest large townships are Wyong and Tuggerah which are approximately 10-15 mins by road to the immediate south on the eastern side of the Freeway. Due to the location near the freeway considerable commuting can be expected to the site from many locations but still mainly from within the Central Coast region and the Lake Macquarie local government area adjoining Newcastle. Some workers may also be sourced from Cessnock Shire and others in the lower Hunter region due to its long association with the coal industry. Nonetheless Wyong Shire its environs are considered to be the main area that would be affected by the development.

The Project involves the following main elements:

- an underground coal mine and associated surface facilities including access shafts and drift, gas management facilities, and water management structures;
- production of thermal coal for supply to the domestic and international electricity markets;
- rail and coal handling and loading infrastructure;

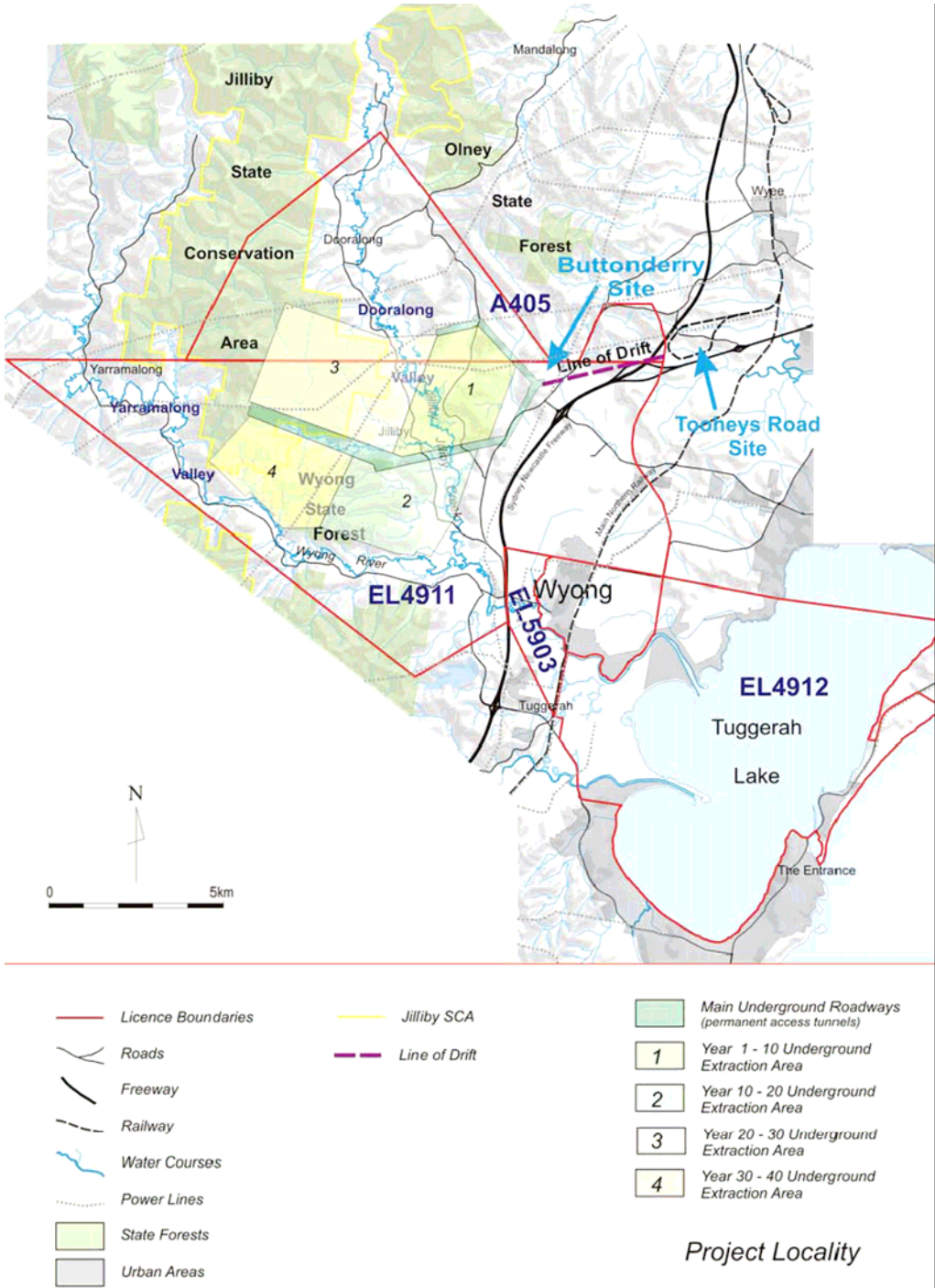
No washing of coal is required due to the coal quality featuring very low content of waste rock and soil in the coal seam. Thus the demand for quantities of water is significantly reduced and will be limited to that used in the surface facilities areas and for water supply to the underground mining areas.

The NSW coal mining industry adopts Statewide employment multipliers for mining projects up to 4.5 flow-on jobs for each full-time person employed in the mine. The W2CP has adopted a very conservative approach and has applied a general multiplier of 2.5. In addition, the economic assessment by CCRF has focused its attention upon the expected beneficial impacts of flow-on employment at the local level rather than the Statewide level.

Local employment levels are anticipated to be up to 2989 direct jobs (equivalent to "job-years") over the three year construction period of the project. During operations the estimated direct workforce would be up to 300 personnel made up of both Company and contract employees. Multiplier employment will increase the construction phase employment to 5125 over the three years and the operational phase to 693 per year by the fifth year of operation.

An Environmental Assessment (EA) for the proposed Project is required under the NSW Environmental Planning and Assessment Act (1979) (EP&A Act). This report is an assessment of the potential community and social impacts of the Project and has been prepared as EA supporting information.

Figure 1.1 Location Map of the proposed Wallarah 2 Coal Mine



## 1.1 STUDY REQUIREMENTS

The study was commissioned by the Wyong Areas Coal Joint Venture (WACV, the proponent) to form part of the Environmental Assessment (EA) to the NSW Government. It has been prepared to assess the potential social impact of the proposal on the local community in the vicinity of the mine and to address the requirements which were outlined by the Director General of the NSW Department of Planning Assessments Branch, in the Director General's Requirements and encompassing the issues outlined in a letter prepared by the Wyong Shire Council.

## 1.2 METHODOLOGY AND STRUCTURE OF THE DOCUMENT

The methodology for carrying out the study was to analyse the existing community and social environment and then consider how local community behaviour and interactions may change with the influence of the proposed mine. The main sources of data for the report were the ABS 2001 and 2006 Censuses and a community survey of 500 households within the directly affected area of the mine.

Consequently the objectives of this report were to:

- characterise the existing community, current behaviour and interactions of residents.
- characterise and assess perceptions of the proposal by those directly affected
- Identify the present use of infrastructure and identify any perceived gaps both physically and from a community perspective
- assess the potential impacts of the Project on the character of any identified communities, on population, accommodation and other social infrastructure on this community.
- discuss implications for the directly affected community particularly the likely spatial distribution of any in-migrating operational and construction work forces and their impacts on the community
- discuss impacts on lifestyles and interaction
- assess implications of any other relevant Government policy and guidelines
- As considered necessary, prepare a social management and monitoring program to mitigate potential and perceived impacts

## 1.3 SOURCES OF INFORMATION AND CONSULTATION WITH RELEVANT AGENCIES

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

- Wyong Shire Council
- NSW Department of Planning
- NSW Department of Education and Training.
- NSW Department of Health.
- NSW Department of Community Services.
- Other Non Government Organisations.
- Local real estate agents.

A community survey of 500 local households within the directly affected area was undertaken as well as an analysis of the data from the 2001 and 2006 Censuses.

## 1.4 STATE & LOCAL GOVERNMENT POLICY

The various State and Local Government Social Policies which apply to the project are outlined in detail in other studies that are noted to include:

- Department of Urban Affairs & Planning Shaping Our Cities: The Planning Strategy for the Greater Metropolitan Area of Sydney, Newcastle, Wollongong and the Central Coast 1998
- NSW Department of Planning, Central Coast Regional Strategy. 2008.
- National Economics and Local Government Association, State of the Regions. 2003.

- Wyong Shire Council Residential Strategy 2002

## 1.5 TERMINOLOGY

Terminology used in the subsequent sections is defined below:

*The primary study area* is made up of five 2006 Census Collection Districts with a population of 2435 in 811 households at the 2006 Census.

*The Directly Affected Community* is smaller in scale than the five Census Collection Districts and is made up of

- *Those who live nearby and above the proposed underground mining area.*
- *Those who will hear, smell or see the development or its effects on a daily basis as determined by other specific studies*
- *Those who normally use the land where the project is to be located.*

The population of the potentially directly affected area was estimated to be 1428, made up of 476 households.

*The secondary study area* includes those areas which were not considered to be significantly affected physically but may be impacted in a socio-economic way. This area includes the broader Central Coast area and Lake Macquarie Shire which will contribute the vast majority of the local direct and multiplier workforce.

### *Local Component of the Workforce*

Existing residents of the secondary 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 or secondary study area as a result of the project.

### *Commuters and work week commuters*

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



## 2.0 EXISTING EMPLOYMENT, POPULATION AND COMMUNITY SERVICES

### 2.1 INTRODUCTION

This section discussed the baseline population and employment estimates and an inventory of community services which were then used as the basis for impact assessment. It reviews the existing community environment, dealing with characteristics of the directly affected community and Shire population, projected population increases without the project and various components of employment and economic structure.

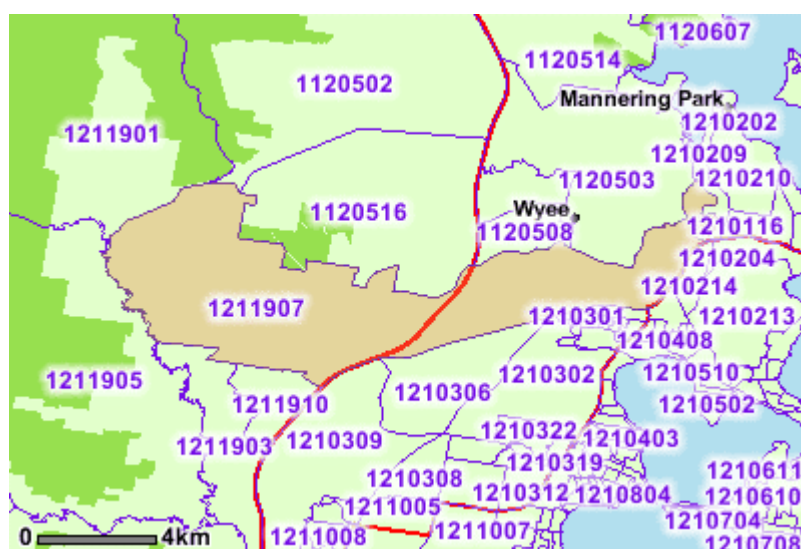
### 2.2 DEFINITION OF THE STUDY AREA

Over the past 20 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 sub-region is the size of any introduced non-local workforce (Gilmore, 1984). Consequently, the definition of the study area is of fundamental importance to the following analysis.

The potentially directly affected community is made up of four sub areas within a larger five Census Collection District area. The first area is referred to as the Valleys area mainly those larger original rural-based properties along the south eastern floodplain of the Dooralong valley with some scattered rural subdivisions. The second area is referred to as the Hue Hue Subdivision area which has large lot residential subdivisions but concentrated on either side of the Hue Hue Road from Jilliby Road to Sparks Rd. The third sub area is on the eastern side of the freeway and includes houses on large lots along Bushells Ridge Rd to the north west of the industrial area and the fourth is the area to the south of the proposed industrial area.

There are three collection districts which are located directly above the proposed underground mining area and two which surround the industrial area located to the immediate east of the Sydney Newcastle freeway. The number of households which are located in the potentially directly affected area was estimated at 1428 made up of 476 Households and the number of persons in the defined 2006 Census Collection District area was 2435 ( see **Figure 2-1**) in 811 households.

**Figure 2-1**  
**Study Area Map including 2006 Collection Districts 1211905, 1211903, 1211910, 1211907 and 1210306**



Source: ABS Census 2006

A secondary study area was assumed to be the Central Coast area plus the City of Lake Macquarie as this was considered to be within reasonable commuting distance to the project. The majority of the work force would be drawn from within this area and would be considered local workers. Workers outside this area would be considered non-local but this does not necessarily mean that such workers would immigrate to the area immediately. They may choose to continue a relatively longer commute before they decide as to whether they would relocate to be within the secondary area.

The secondary study area coincides with the study area for the sub regional economic analysis carried out by the Central Coast Research Foundation (see Appendix Report). This report was the basis of the total estimates of employment referred to later in the text and divided into local and non local components for the present report.

**Table 2-1**  
**Trip Time Table from the Project Area to**  
**Neighbouring Centres**

Mine site to:	Distance (km) (approx.)	Travel (mins) (approx.)
Wyang	10	15
Tuggerah	15	10-15
Warnervale	5	5-10
Sydney	100	80
Newcastle	80	45

The towns and associated areas within the secondary study area have been considered for employment potential in this study. The Project is located on the Central Coast which has an economic base mainly comprised of a mix of locally based industries and many commuters to both Sydney and Newcastle. The two Municipalities and one Shire which make up the secondary study area are all economies which traditionally have depended on a high degree of commuting to Sydney, particularly so for Gosford and Wyong.

## 2.3 POPULATION CHARACTERISTICS

The 2006 population of Wyong Shire was 139801 (Place of Usual Residence Data) which had grown at an annual average growth rate of 1.73% for the previous ten years. The growth rate has slowed considerably in the last five years to 1.03% per year (Place of Enumeration data). In the broader primary study area, the total population of the community in 2006 was 2435 or 1.74% of the total Shire population. Even though there are issues with comparability of the data, the figures suggest only a slight increase in the primary study area since the 2001 census with the population growing by 79 or approximately 26 households which translates to about 5 households per year over the five year inter-censal period.

The population of the directly affected area in 2006 was estimated to be considerably lower at 1428 or 1.03% of the Shire population. Population size and other characteristics for both the primary study area and the Shire are reported in **Table 2-2**.

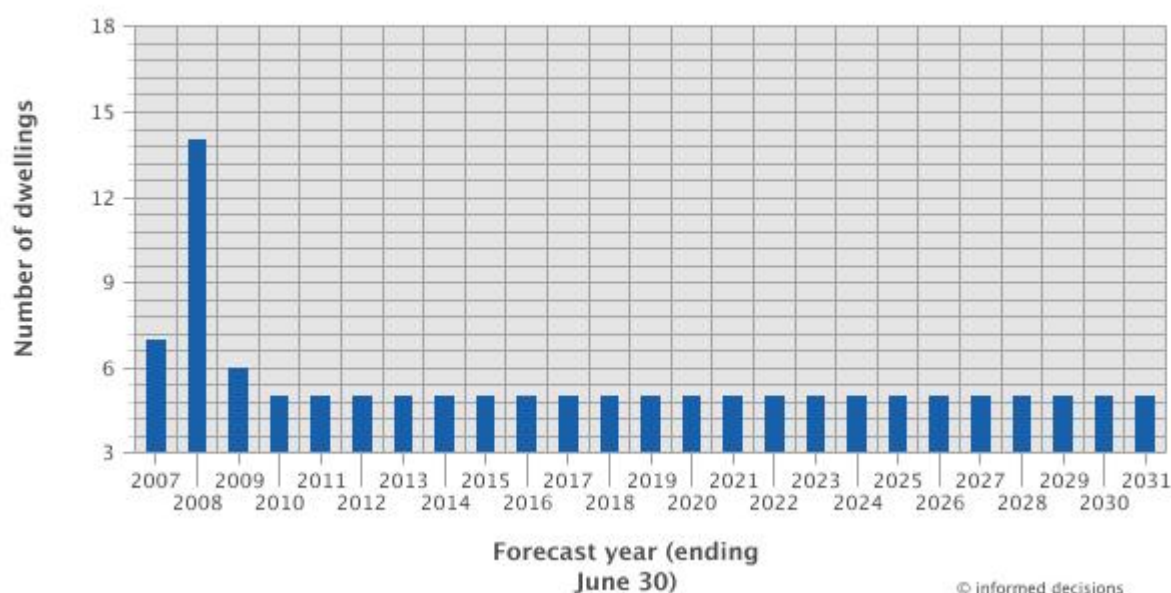
As shown in the Table, the population density of the primary study area was very low when compared to the Shire with a density of 46 persons/km<sup>2</sup> compared to 169/km<sup>2</sup> for the Shire. In general terms the area in the vicinity of the Hue Hue Subdivision is considerably denser than the rest of the directly affected area. (Note the difference between CD 1211903, CD 1211905 and CD1211910 in **Table 2-2**.)

### 2.3.1 Population Forecasts

Wyang Shire Council has produced population forecasts broken down by Sub area for the period 2002-2031. The area which includes the underground mining area is located in the rural west area and the population forecast is shown in **Figure 2-2**.

**Figure 2-2**  
**Wyong Shire Population and Housing Forecast 2009 For Rural West**

**Rural West SPD assumed new dwelling gain (per annum), 2007 to 2031**



Principal land developments and infill assumptions 2006-31:

- 2006-09 dwelling additions are based on building approvals, lagged by 6-18 months.  
From 2009 onwards:
- No major sites identified
- Low level of infill development (5 dwellings per annum)

Source: Wyong Shire Council Website, 2008

With the current increase of approximately 5 households per year for the entire primary study area the area is symptomatic of the Shire in that it has not kept pace with expectations during the 2001-2006 period.

The residents of the primary study area had language, citizenship and ethnicity characteristics very similar to the Wyong shire. Where they differed markedly was in their household population and income characteristics. This community was considerably wealthier and had proportionately twice as many people employed in the work force. This community was younger and not surprisingly the household size was generally larger than at the Shire level. (3.0 persons/households compared to 2.5 at the Shire level.) This contrast is also shown in **Figure 2-3** which shows the location of low income households in Wyong Shire. There was a clear gap found between the primary study area and the Shire as a whole based on Income and employment.

Table 2-2 Population Characteristics of the Potentially Directly Affected Community and Wyong Shire 2006

Population	Broader Area Potentially Directly Affected by Mining or Industrial Area *							Wyong Shire	
Selected Characteristics	Underground Mining Area	Underground Mining Area	Underground Mining Area	Total Underground Mining Area	Area to North and enclosing Industrial Area	Area to South of Tooheys Rd Industrial Area	Primary Study Area Total	Wyong Shire	Primary Study Area as a % of Total Shire
	Persons	Persons	Persons	Persons	Persons	Persons	Persons	Persons	
Collection District (CD)	CD 1121093	CD1121905	CD1121910		CD1211907	CD1210306			
Total persons	450	452	692	1,594	482	359	2,435	139,801	1.74%
Density Persons/Km2	52.5	6	192	83.5	10.4	44	46.0	169	na
Aged Up to 19 Years	110	113	276	499	134	118	751	39,124	1.92%
Aged 65 years and over	54	52	31	137	38	27	202	25,585	0.79%
Born in Australia	358	361	586	1,305	402	289	1,996	114,269	1.75%
Born overseas	60	55	76	191	45	48	284	16,659	1.70%
Speaks English only	415	406	647	1,468	448	323	2,239	128,569	1.74%
Speaks other language	10	17	18	45	7	26	78	4,925	1.58%
Australian citizens	396	404	638	1,438	433	333	2,204	125,664	1.75%

Notes:

\* Population of Actual Potentially Directly Affected Area estimated at 1428

Source: Calculated from the 2006 ABS Census

Table 2-3 Selected Income &amp; Financial Characteristics Primary Study Area 2006

Population	Broader Area Potentially Directly Affected by Mining or Industrial Area *							Wyong Shire
Selected Characteristics	Underground Mining Area	Underground Mining Area	Underground Mining Area	Total Underground Mining Area	Area North of Industrial Area	Area South of Tooheys Rd Industrial Area	Primary Study Area Total	
Collection District	CD1121093	CD1121905	CD1121910		CD1211907	CD1210306		
Median age of persons	41	43	34	39	36	39	38	39
Median individual income (\$/weekly)	468	581	511	520	393	495	469	381
Median family income (\$/weekly)	1,233	1,599	1,475	1,436	1,011	1,351	1266	1013
Median household income (\$/weekly)	1,089	1,345	1,460	1,298	922	1,223	1147	770
Median housing loan repayment (\$/monthly)	1,733	1,900	2,000	1,878	1,600	1,822	1767	1462
Median rent (\$/weekly)	200	150	250	200	320	224	248	200
Average household size	2.6	2.9	3.6	3.0	3.1	3.0	3.1	2.5
% 0-19 Years	24.44%	25.00%	39.88%	29.78%	27.80%	27.80%	28.46%	27.98
%65+ Years	12.00%	11.50%	4.48%	9.33%	7.88%	7.88%	8.37%	18.3

Notes:

\* Population of Actual Potentially Directly Affected Area estimated at 1428

Source: Calculated from the 2006 ABS Census

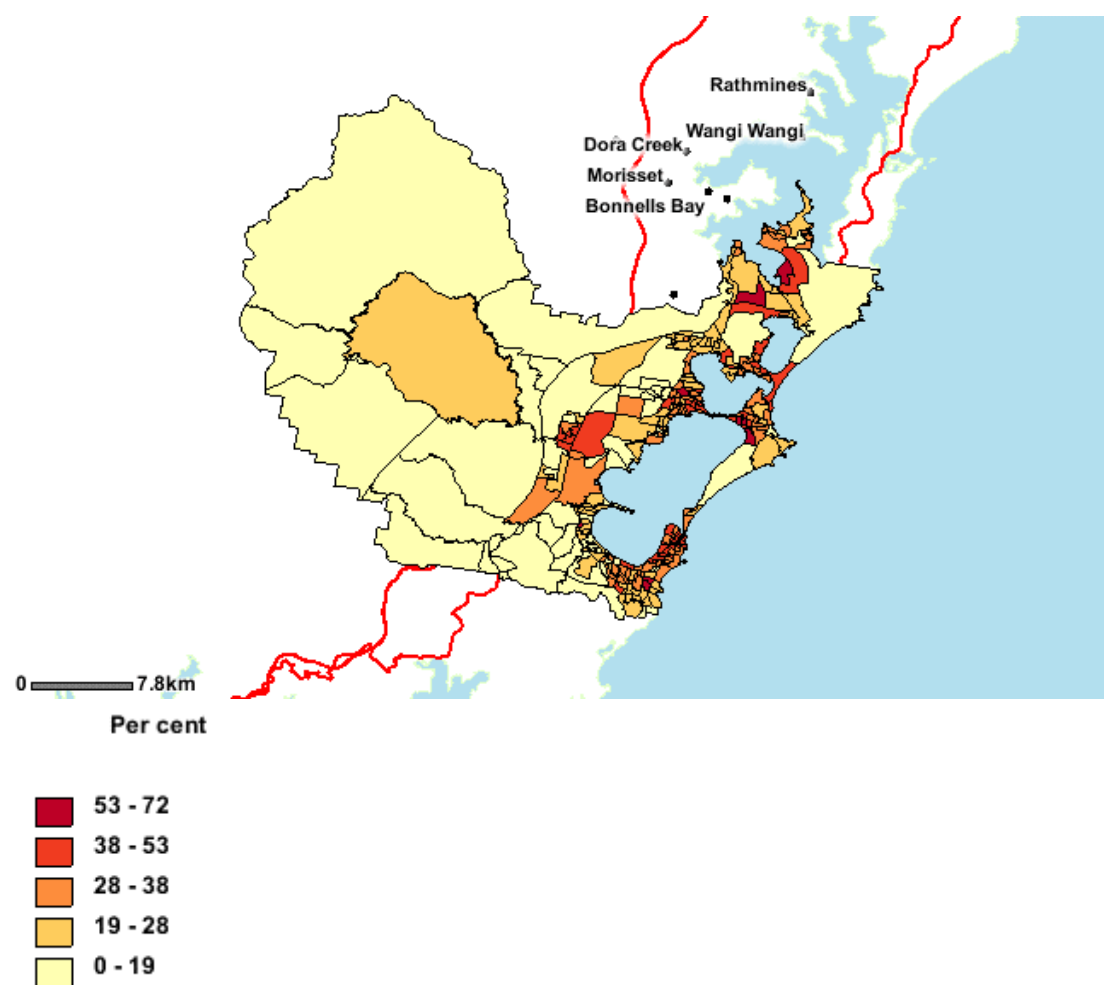


Figure 2-3 Low Income Households in Wyong Shire  
Households with gross weekly income of less than \$500

## 2.4 MOBILITY OF THE POPULATION

The mobility of the affected population in the 2006 Census is shown in **Table 2-4**. The primary area population was found to be more stable than the Wyong Shire as a whole. This was similar for those with the same address 1 year before and five years before. Approximately 40% of the people did not live in the affected community five years before the Census. The data suggest that the core population that would be remaining if the project were to proceed within five years would be of the order of 1473 for the primary area and 863 or 288 households in the potentially directly affected community.

**Table 2-4**  
**Mobility of the Population in the Primary Study Area and Wyong Shire 2006**

Collection District	1211903	1211905	1211910	1211907	1210306	Primary Study Area	Wyong Shire
Same usual address 5 years ago as in 2006	57.8%	59.7%	63.8%	62.9%	58.6%	60.5%	55.9%
Different usual address 5 years ago:							
Same Statistical Local Area (SLA)	3.0%	8.6%	10.8%	10.3%	15.7%	9.7%	14.5%
Different SLA in:							
New South Wales	28.8%	24.3%	20.6%	17.4%	20.1%	22.2%	20.2%
Victoria	0.0%	0.0%	0.0%	0.7%	0.0%	0.1%	0.3%
Queensland	0.9%	0.0%	0.0%	0.9%	0.0%	0.4%	0.8%
South Australia	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Western Australia	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Tasmania	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Northern Territory	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Australian Capital Territory	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Other Territories	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	29.7%	24.3%	20.6%	19.0%	20.1%	22.7%	21.8%
Overseas	1.2%	0.9%	1.1%	0.0%	1.5%	0.9%	1.1%
Not stated	0.0%	0.0%	0.0%	0.7%	0.0%	0.1%	0.6%
Total	33.9%	33.8%	32.4%	30.0%	37.3%	33.5%	38.0%
Not stated	8.4%	6.5%	3.7%	7.2%	4.1%	6.0%	6.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: ABS Census 2006

## 2.5 WORKFORCE CHARACTERISTICS

The workforce characteristics of the potentially affected community in 2006 are reported in **Table 2-5** and show that mining workers made up 0.8% of the population which was a higher share than for Wyong Shire but considerably lower than Lake Macquarie Municipality which has a long history of underground mining. Also interesting was that the construction industry workers made up the third highest share of total employment after the retail and manufacturing industries.

**Table 2-5**  
**Comparative Employment Structure in the Primary Study Area & Wyong Shire, 2006**

Industry	Primary Study Area		Wyong Shire	
	Number	%	Number	%
Agriculture, forestry & fishing	34	4.3%	433	0.8%
Mining	6	0.8%	244	0.5%
Manufacturing	97	12.2%	6,077	11.3%
Electricity, gas, water & waste services	22	2.8%	841	1.6%
Construction	150	18.9%	5,648	10.5%
Wholesale trade	38	4.8%	2,066	3.8%
Retail trade	68	8.6%	7,830	14.5%
Accommodation & food services	60	7.5%	3,961	7.4%
Transport, postal & warehousing	54	6.8%	2,584	4.8%
Information media & telecommunications	9	1.1%	834	1.5%
Financial & insurance services	16	2.0%	1,549	2.9%
Rental, hiring & real estate services	21	2.6%	954	1.8%
Professional, scientific & technical services	25	3.1%	2,162	4.0%
Administrative & support services	25	3.1%	1,610	3.0%
Public administration & safety	39	4.9%	3,218	6.0%
Education & training	31	3.9%	3,289	6.1%
Health care & social assistance	41	5.2%	6,322	11.7%
Arts & recreation services	6	0.8%	699	1.3%
Other services	37	4.7%	2,169	4.0%
Inadequately described/Not stated	16	2.0%	1,371	2.5%
Total	795	100.0%	53,861	100.0%

## 2.6 EMPLOYMENT POLICY AND TRENDS

The NSW Government considers chronic unemployment as a major issue on the Central Coast of NSW. Wyong Shire has experienced a continuing employment problem. The NSW Government also identified the major growth areas within the Central Coast region over the next twenty years as: Warnervale (40,000 additional people), the Peninsula (10,000), The Entrance (6,000) and Gosford City centre (5,000). The remainder of the growth is concentrated across the area in numerous urban centres. Projections estimate that the overall population of the Wyong Shire will be larger than that of Gosford City's after 2014. Warnervale is the closest growth area to the proposed site being located approximately 10 minutes to the south of the proposed industrial area.

Although the Central Coast has been attractive for residential living over the last thirty years, it has not had the same success in attracting businesses. The regional economy depends heavily on the retail and construction industries (with proportionally higher employment than the state average) and has a smaller demand for labour, particularly in highly skilled occupations (in June 2002 the Central Coast's unemployment rate was 7.2% (Gosford City 5.7% and Wyong Shire 9.3%) compared with 6.1% for NSW). This situation is mirrored in the primary study area with the two of the highest share of jobs in



construction and retail. Nonetheless the situation in Wyong in December of 2006 was that 8.5% of the labour force was unemployed whilst in Gosford it was 5.4% . This situation improved gradually over the next two years as the overall economy improved. Data in **Table 2-6** show the latest published small area unemployment rate in December 2008 which shows Wyong Shire at 7% which was still markedly different to Gosford which went down significantly to 3.9% with the NSW figure at 4.8%. Even though the data suggested an improvement, the impact of the global economic crisis is still not included in these figures. It is well documented that the unemployment rate has since once again started to increase. The gap between the need for work and the number of local jobs has been a chronic problem over the last three decades for the Central Coast and the data suggest that Gosford has fared considerably better than Wyong.

An action plan was prepared by the State government in 2003 to address some of the problems of growth and the employment strategy can be summarised as follows:

#### ***Desired Outcomes***

- Employment choice and income opportunities
- Business opportunities
- Diverse and robust economy

#### ***Strategic Objectives***

- Create local jobs
- Create the economic environment for business growth

#### ***Action Points***

- Reinforce a regional culture that encourages employment-generating development.
- Provide business support services.
- Reduce escape expenditure.
- Encourage local economic development initiatives.
- Relocate jobs to the region.
- Target employment generation in specific industries.

The benefit of having a diversified economy, as does the Central Coast, is that it has the potential to offer a degree of stability when individual sectors are in decline. Despite diversity, current economic activity appears to be weak relative to what has been experienced on the Coast in recent years. The selected indicators discussed in the previous sections show that there is a degree of volatility in the Central Coast economy and this is reflected in an unemployment rate that is appreciably higher than the State average.

A characteristic of the Central Coast economy is that a substantial proportion of its residents travel to neighbouring regions for work. The recently released Central Coast Strategy has identified the creation of local jobs as a regional challenge. The benefit of local employment opportunities will be a reduction of travelling times (and associated costs) for those commuting long distances to work. There will also be a greater likelihood that income earned locally will be spent locally, that is, leakage to neighbouring economies will be reduced.

Table 2-6 Number Of Unemployed And Unemployment Rates, Wyong, Gosford, Lake Macquarie, Cessnock , Sydney &amp; NSW

Location	Total Unemployed Persons							Unemployment Rate							Total Labour Force
	Dec-05	Mar-06	Jun-06	Sep-06	Dec-06	Sep-07	Dec-08	Dec-05	Mar-06	Jun-06	Sep-06	Dec-06	Sep-07	Dec-08	Dec-08
Wyong	4,393	4,794	5,285	5,557	5,609	5,586	4,469	7.3	7.8	8.3	8.4	8.5	8.9	7.0	64,109
Gosford	3,678	4,042	4,452	4,717	4,684	4,201	3,240	4.7	5	5.3	5.5	5.4	5.1	3.9	83,789
L.Macquarie	4,838	4,894	5,022	5,160	5,131	3947	4120	5.2	5.2	5.3	5.4	5.4	4.3	4.2	99155
Cessnock	1,724	1,747	1,767	1,809	1,796	1447	1509	8.0	8.0	8.0	8.2	8.2	6.7	6.6	22934
Sydney	101,600	101,600	103,500	106,400	106,500	103,800	104,900	4.5	4.5	4.6	4.7	4.7	4.6	4.5	2,333,300
New South Wales	178,600	179,400	182,600	186,300	184,400	171,900	170,700	5.2	5.2	5.3	5.4	5.3	4.9	4.8	3,585,300

Source: Dept of Employment and Workplace Relations, Small Area Labour Markets Dec 2008

In the primary study area the pattern of employment in 2006 was considerably better than at the Shire level with a generally high level of employment being enjoyed. The most rural western area had the most total unemployment (7.33%) but it was still lower than the Shire level (8.2%).

**Table 2-7**  
**Employment Status Primary Study Area Compared to Wyong Shire**

Status	CD1211905	CD1211903	CD1121910	CD1121907	CD1210306	Wyong Shire
Employed, worked:						
Full-time	53.02%	64.73%	58.79%	59.83%	54.72%	54.97%
Part-time	31.90%	27.80%	35.45%	30.13%	31.45%	30.46%
Employed, away from work	3.88%	4.56%	3.46%	2.62%	5.03%	3.55%
Hours worked not stated	3.88%	1.66%	0.86%	4.80%	4.40%	2.82%
Total	92.67%	98.76%	98.56%	97.38%	95.60%	91.80%
Unemployed, looking for:						
Full-time work	5.60%	0.00%	1.44%	0.00%	4.40%	5.50%
Part-time work	1.72%	1.24%	0.00%	2.62%	0.00%	2.69%
Total	7.33%	1.24%	1.44%	2.62%	4.40%	8.20%
Total labour force	232	241	347	229	159	58,662

Source: ABS Census 2006



### 3.0 COMMUNITY SERVICES & INFRASTRUCTURE

#### 3.1 RETAIL AND HOUSEHOLD SERVICES

Residents of the underground mining area predominately use Wyong and Tuggerah or a combination of both, using Jilliby Rd and Hue Hue Rd to do their daily and weekly shopping. The pattern in the industrial area is slightly different with more of a spread between Charmhaven, Wyong and Tuggerah.

#### 3.2 EDUCATION

##### 3.2.1 Primary and Secondary

There are a wide range of education facilities available within the primary area and its immediate surroundings. Jilliby Primary School is the only school located above the underground mining area. There are six primary schools and four secondary schools with reasonable proximity to the primary study area.

**Table 3-1**  
**Inventory of Primary and Secondary Schools & Recent Enrolment, 2003-2006**

School Name	Enrolment
Wyong Public School	394
Wyong Grove Public School	166
Wyong Creek Public	21
Yarramalong Public	19
Jilliby Public	129
St Cecilia's Catholic	391
Primary Total	1120
Wyong High	733
Wyong Christian Community	486
Mackillop Catholic	932
St Peters Catholic	996
Secondary Total	3147

Source: NSW DET & Annual Reports

##### 3.2.2 Tertiary Education

There is one Technical and Further Education college (TAFE) in Wyong Township. Presently there are no courses which cater to the mining industry and particularly underground mining.

#### 3.3 EARLY CHILDHOOD SERVICES

There is a number of early childhood services available in and around Wyong including Treelands Pre-School and Childrens Centre, Wyong Preschool Kindergarten, Small World Preschool, IE Academy Excellence In Infant Education as well as Wyong Family Day Care also in Wyong. Waiting lists for childcare services are typically full. The community baseline survey found childcare was a significant deficiency in community infrastructure particularly in the younger family area around the Hue Hue subdivision.

#### 3.4 HEALTH SERVICES

Health Services are also extensive in the secondary study area and within 10 -15 minutes of the proposed site.

The NSW Government has been redeveloping Gosford and Wyong Hospitals under the Area's Health Access Plan. The progressive development of the new hospital on the Wyong Hospital site will almost

double the size of the previous existing facility providing significantly increased capacity for the Shire's population.

Wyong Hospital provides inpatient, outpatient and emergency services for the northern sector of the Central Coast. In 2007, there was a significant enhancement to inpatient services with the opening of the 50-bed Mental Health Centre and an additional 14 beds in the Emergency Department.

The new development at Wyong was said to make the Wyong Hospital into "one of the most modern in NSW and enhance its role as the major acute hospital in the Wyong Shire" ( NSW Health Department Web-site).

The new hospital includes:

- A new and expanded Emergency Department
- New Medical and Surgical Wards
- Six new Operating Theatres
- An extended Medical Imaging, Pathology and Pharmacy Service
- New Outpatients Clinics
- A High Dependency Unit
- Education facilities

The new facility was progressively opened from 2004 and the redevelopment of the Wyong Hospital means that it is planned to have a total of 319 beds which provides a high level of service to the Wyong local government area. The facility has three specialist areas and provides 25 Adult Acute beds, 15 Older Persons beds and 10 High-Level observation beds when fully operational.

The hospital is supported by a number of community medical centres with Wyong, the facility at the hospital and Warnervale being closest to the proposed site.

### 3.5 COMMUNITY SERVICES

According to information supplied by the local Shire Council there is reasonably good cooperation between local and State government agencies and community organisations responsible for the provision of community services. These agencies generally work together to find solutions to priority issues affecting the Wyong Shire area. The area is considered to be well catered for and as some of the development planned has not reached expectations to date, there are typically issues in providing enough capacity to support a growing urban community.

Some of the issues identified by Council were as follows:

- Reducing crime and anti social behaviour
- Domestic violence and families in crisis
- Crisis accommodation for young people
- Support services for youth, including mental health services and school retention
- Access to services and facilities
- Access to affordable transport
- Improving coordination of Government.

Planning is also on-going with a Strategic Directions document looking into Human Services and Quality of Life.

There are intended to be Action Plans for Key Social Themes in the Shire. Measurement of the key themes will result from the joint study involving the Councils of Wyong and Gosford and the CSIRO. A report entitled *A Framework for Measuring Quality of Life in the Gosford Wyong Area* has been prepared and there are plans in place to report every four years on the following themes:

1. Achievements in life;
2. Standard of living;
3. Personal relationships;
4. Community connectedness;

5. Feelings of safety;
6. Future security;
7. Health.

The work was based on data from focus groups and perceptions. It will give benchmarks so social planning will be able to characterise what it is like to live in the area.

### **3.6 TEMPORARY ACCOMMODATION**

**Table 3-2** shows the temporary accommodation available on the Central Coast for the December quarter of 2008. Occupancy rates of 49.6% were found to be well below the NSW average of 58%. Total rooms available per night on the Central Coast in December Quarter were reported to be 5458.

**Table 3- 2**  
**Accommodation Central Coast, December 2008**

Central Coast Accommodation Inventory	Establishments		Rooms	Bed spaces	Room occupancy rate			
	December 2008	Q	December Q 2008	December Q 2008	Oct-08	Nov-08	Dec-08	December Q 2008
	no.		no.	no.	%	%	%	%
Central Coast Accommodation								
Licensed hotels with 5 to 14 rooms								
Licensed hotels with 15 or more rooms		3						
Licensed hotels with 5 or more rooms		5						
Motels and guest houses with 5 to 14 rooms		15						
Motels and guest houses with 15 or more rooms		33						
Motels and guest houses with 5 or more rooms		48	1,188	3,302	46.3			47.8
Serviced apartments with 5 to 14 rooms		0	0	0	0.0	0.0	0.0	0.0
Serviced apartments with 15 or more rooms		8					62.3	
Serviced apartments with 5 or more rooms		8					62.3	
Hotels, motels and serviced apartments with 5 to 14 rooms		17	165	409	41.0	41.2	47.3	43.2
Hotels, motels and serviced apartments with 15 or more rooms		44	1,970	6,265	53.3	52.0	57.1	54.1
Hotels, motels and serviced apartments with 5 or more rooms		61	2,135	6,674	52.3	51.1	56.4	53.3
<b>Totals and Average Occupancy Rate Central Coast</b>		242	5,458	16,650	48.2	48.1	57.1	<b>49.6</b>
Totals and Average Occupancy Rate NSW		8132	300,144	840,148	57	56	60	58

Source: ABS Quarterly Accommodation reports



## 4.0 COMMUNITY BEHAVIOUR AND PERCEPTIONS

### 4.1 SOCIAL SURVEY OF POTENTIALLY DIRECTLY AFFECTED AREA

The existing population of the primary study area is made up of an estimated 476 households or 1428 people and has four main clusters each one a little different due to its location, density and access attributes. The areas in between are very low density cleared agricultural land or secondary open and closed woodland forest. The clusters can be generally described as follows:

- the Valleys - large rural properties very low density with main access along Jilliby and Yarramalong roads .
- The Hue Hue Subdivision area with large rural lot subdivision low to medium density closer to the freeway with access to Freeway and Wyong Township along Hue Hue Rd. This one has the most urban feel in appearance, density and layout. This cluster is also the most closely developed of all the four clusters.
- The Bushells Ridge Rd Cluster (area north of the Tooheys Rd industrial area) which are ribbon developed larger rural lots at low density and overlooking the current and proposed industrial area. Access is from Sparks Rd, Hue Hue Rd and Tooheys Rd.
- The area to south of the Tooheys Rd industrial area also mainly ribbon developed with low to medium density with access from Sparks Rd with no view of the industrial area.

A survey of residents of the potentially directly affected area was conducted in order to better understand baseline community behaviour and interactions. Residents were also given the opportunity to discuss their perceptions about the potential effects of the project. The results of the social survey also included a review of how they presently use physical and community infrastructure.

The survey was sent out to all 476 households who were defined as potentially perceiving that they will be affected by the project. The potentially directly affected area applied to households in the vicinity of the underground mining area and the Tooheys Rd industrial area. Potential for perceived Impact was measured by

- the predicted noise or air quality contours from other specialist studies,
- if the houses would be likely to see the site (visual impact),
- if the houses were to be potentially affected by subsidence or within 100 metres of the zero subsidence impact line

Respondents were given three choices for the conduct of the survey. They could have chosen to fill out the survey individually and mail (included self addressed envelope), fax back, or be assisted to fill out the questionnaire by an interviewer from the team.

The response rate was 63 households or 12.65 % which was slightly better than normally expected for a letter box drop survey of this kind. The survey implementation was hampered by a public notice placed in all respondents' letter boxes by the main opposition group to the proposal - the Australian Coal Alliance (ACA) recommending that the community not respond to the survey. As this group has been particularly active in the Valleys sub-area, the response rate was significantly lower than in the other two areas. Whilst more responses from this area similar to the overall response rate would have boosted the ability of the survey to discriminate between the areas, the main objective of the survey was not affected. The purpose of the survey was to carry out a baseline survey of community activities and behaviour in the vicinity of the site. It was particularly focused on understanding possible interactions of residents with the potential surface workforce access and mining industrial area as the underground mine workings themselves are on average over 400 metres underground (range 360-650m). Questions were asked about work commuting, retail behaviour, education and recreation both active and passive. It asked questions about perceptions of the performance or gaps in current infrastructure. It also gave respondents the opportunity to comment on specific impacts of the development either as a structured question or as a written narrative comment.

(For more detail, including ACA's distributed notice about the community survey protest, see **Annexe 1**)

### 4.2 SUB-REGIONAL TELEPHONE SURVEY ON PROPOSED DEVELOPMENT

A telephone survey was prepared by the Central Coast Research Foundation in 2007. Respondents to the sub regional survey were very concerned about potential:

- Impacts on the groundwater supply in the local area (mean concern score of 4.1 out of 5)
- Impacts on the surface water supply in the local area (4.1 out of 5)
- Mine subsidence impacts to houses and structures (3.7 out of 5).

Consequently, an important issue to address in the potentially directly affected area was to determine how residents presently use water. Inspection of the aerial photography found that many properties were either dependent on house roof tanks or surface dams. Other questions raised included:

- How much groundwater is used by the residents potentially affected by the proposal?
- Which residents were dependent on town water supply?
- How do residents with different occupations perceive the project?
- What are their most basic fears about the project particularly about subsidence?

There are other detailed technical reports which have specifically addressed these issues in other chapters and appendices of this EA.

### 4.3 BROADER BASELINE SOCIAL ISSUES

#### 4.3.2 CSIRO Research on Quality of Life and Sustainability on the Central Coast

“CSIRO Sustainable Ecosystems and the Central Coast Councils of Gosford and Wyong developed a partnership to explore quality of life and sustainability on the Central Coast. The rationale for the project is that overall quality of life of a region is thought to be a key driver of population and employment growth. The purpose of this project was to better understand the links between regional sustainability issues and the quality of life of local residents.

Four critical sustainability issues were identified through the interviews (commuting, life long learning, sense of community, and climate change) and these formed the focus for the quality of life workshops (see method section). Participants in the groups were asked if and why that issue was critical for the sustainability of the region and how it impacts on their quality of life. There was general agreement that the issues identified were important for the sustainability of the region. Key points are summarised below.

- Sustainability is about maintaining or improving quality of life for all into the future.
- Critical sustainability issues for the Central Coast region were considered to be commuting, climate change, sense of community and life long learning.
- In the literature the link between sustainability and quality of life is expressed firstly as ‘liveability’, focused on the present and heavily influenced by the social and the physical areas; and secondly as sustainability, focused on the economic and physical. Discussions from the focus group did not support this temporal separation of sustainability elements. Focus group attendees agreed that what makes up quality of life changes through time, but not that some elements of sustainability should be emphasised over others in order to pursue a path of sustainability.
- Focus group attendees also saw the social elements such as community cohesion and community level problem solving as being critical to sustainability for the region. ‘Community’ was continually raised in the discussion of all the critical areas for sustainability.
- Focus group members saw the built and natural environment as a significant influence to quality of life on the Central Coast. This emphasis is not highlighted in the general literature and demonstrates the need to understand the local community when determining how to ask questions around the seven life domains.
- If the critical sustainability issues for the areas are not addressed, the general opinions from the focus groups were that quality of life in the region will deteriorate. Specifically, people saw continued social problems with a lack of life long learning, family stress and break down with continued commuting and increased feelings of uncertainty, discomfort and disempowerment in

relation to climate change. At the same time, people could envision positive scenarios. Some of the commuters believed that commuting would become less prevalent in the future, and members of both 'sense of community' focus groups believed that sense of community was improving."(CSIRO,2007)

#### 4.3.2 Central Coast Research Foundation Community Survey

As discussed above " Gosford and Wyong Councils' partnered with the CSIRO to more comprehensively and clearly identify what quality of life..... "meant".. for local residents and to consider the best approach to continue to measure and monitor this. Specifically, the project sought to identify aspects of people's living circumstances that impact on quality of life. The research phase of the project included a literature review; workshop; interviews with Council staff and community focus groups to identify key issues impacting on people's quality of life. As part of the project, a framework for measuring and monitoring quality of life across the region was developed."

Findings from this project included:

- Quality of life is an important aspect of sustainability and an important measure of social progress;
- More wealth does not equal greater well-being;
- Personal attributes and the external living environment affect quality of life;
- People tend to compare their quality of life with people living in other areas (e.g. better than Sydney);
- Quality of life can be measured at both an individual and community level using facts and perceptions (objective and subjective data);
- To measure quality of life you need to overcome the '75% happy response'; and
- Governments can make a difference to quality of life by focusing on the external environment.

The research project made it clear that it was important for Councils to expand data collection methods to include subjective quality of life information.

The joint Council/CSIRO research broke subjective quality of life into seven life domains:

1. Achievements in life;
2. Standard of living;
3. Personal relationships;
4. Community connectedness;
5. Feelings of safety;
6. Future security;
7. Health

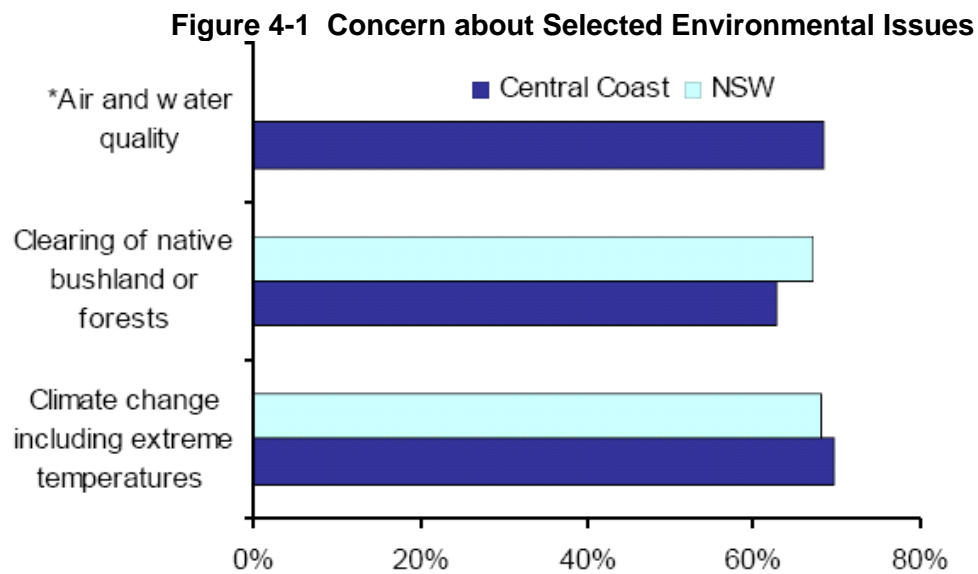
The domains were used to provide the framework for including aspects of people's living circumstances which have an impact on their quality of life, which were then described in each of the relevant domains."

The CCRF Survey "was undertaken at a time when climate change, the need for alternative energy sources, declining biodiversity and deforestation are regular headlines in the media, Central Coast residents were also asked about whether they were *worried* about some of these 'headline' environmental issues, either from a local or global perspective."

The issues addressed (with the proportion answering yes shown in brackets) were:

- Climate change and extreme temperatures* (69.8%)
- Clearing of native bushland or forests* (62.6%)
- Quality of your drinking water* (68.3%)

The first two issues were put to residents in NSW in 2006, and the results obtained were not significantly different from the distribution of responses to these questions in the Central Coast in 2007. The third issue *air and water quality* was not put to NSW residents. The two sets of results, for NSW and the Central Coast, are shown in **Figure 4-1** .( CCRF,2008)



SOURCE: CCRF, 2007

Proportion answering yes

There were no significant differences in the responses to these questions, between Gosford and Wyong.

## 5.0 IMPACTS OF THE PROPOSAL

### 5.1 CONSTRUCTION PHASE

The estimated employment impacts of the proposal are based on the economic impact assessment using Input-Output analysis prepared by the Central Coast Research Foundation in 2007 and updated in 2008.

#### 5.1.1 Impact on Employment

The Wallarah 2 Coal Mine is a proposed development on the Central Coast of NSW. If the proposal proceeds, construction is expected to require three years, starting after granting of development consent. The mine is expected to start operations after the construction period with an estimated output of 0.3 million tonnes per annum. This output will rise to an estimated 4.5 million tonnes after five years of operation.

The pattern of expenditures and the estimated flow-on impacts that would result from the initial expenditures during the construction was summarised as:

“Over three years, expenditures will be made into the sectors of *Machinery etc* (\$270 million); *Construction* (\$168 million); *Transport equipment* (\$59million); *Retail* (\$26 million); and *Property and business services* (\$20 million). The total initial expenditures are estimated to be \$613.5 million over the construction phase. The total impact on the output of the Central Coast economy from the three years of the mine’s construction is expected to be approximately \$1058 million.”(HVRF, Dec 2008)

The pattern of initial and flow-on employment estimated to be generated from the construction of the Wallarah 2 Coal Project is shown in **Table 5-1**. In total, an estimated 2,989 initial jobs are expected to be created on the Central Coast as a result of the mine’s three year construction. *In Input-Output analysis, a job is defined as lasting for one year and being full-time.* With the addition of the estimated total flow-on jobs of 2135, the total employment impact on the Central Coast economy will be 5125 jobs during the construction phase.

**Table 5-1**  
**Estimated Central Coast Employment Impacts from the Construction of the Wallarah 2 Coal Mine**

	Employment Impacts in 3 Year Construction Phase (number of jobs)			
	Year 1	Year 2	Year 3	Total
Initial	1001	1188	801	<b>2989</b>
Production	321	278	167	<b>765</b>
Consumption	486	542	342	<b>1371</b>
Total flow-on	807	820	509	<b>2135</b>
<b>TOTAL EMPLOYMENT IMPACT</b>	<b>1,808</b>	<b>2007</b>	<b>1309</b>	<b>5125</b>

Source: CCRF, December 2008

#### 5.1.2 Impact on the Study Area Accommodation

The above schedule estimates that the construction workforce will peak in the second year and then steadily decline in the final year. The construction workforce will be made up of several large general contractors which will subsequently tender many subcontractors. Even though the area looks and feels rural, 25% of the respondents to the community survey commuted to Sydney for work. This observation suggests that the area is very accessible to the Sydney Newcastle freeway and consequently functions very much as a peri urban region. Modern construction workforces have been found to be highly mobile and prepared to commute relatively long distances if adequate road infrastructure is in place.

In this case, the vast majority of construction activity is expected to be carried out by local firms from within the Central Coast area. As shown in the economic analysis (CCRF, 2008) the Central Coast has a proportionately higher share of construction industry than for NSW as a whole. Also as shown in **Section 2.5**, construction workers make up 18% (150 workers) of the workforce in the primary study area of the 5634 construction workers who live within Wyong Shire. It is not unrealistic to expect many of these local workers to participate in the construction of the mine.

Nonetheless, there will be specialised work areas and trades which will require some import of labour into the region. Non local construction workers who do not commute to the site on a daily basis can be accommodated through their sub-contractors at the many hotel, motel and caravan park facilities within the Central coast area. Potential for impacts on the main tourist season are expected to be limited as the construction schedule will go into recess over the Christmas and New Year period. No construction camp at the industrial area site is presently anticipated due to the high proportion of local workers who can commute to the site on a daily basis and the surplus of accommodation for non-local workers.

Assuming that 50% of the workers were to require accommodation (which is considered to be a very worst case scenario) the results of the impact analysis show that there is still significant adequate capacity within the temporary accommodation sector to satisfy accommodation needs. The majority of these workers will be single and/or unaccompanied.

**Table 5-2**  
**Demand and Supply of Temporary Accommodation at Construction Peak Year 2**  
**Worst Case Scenario**

Estimated Number of initial round workers needing Accommodation ( worst case scenario)	594
Capacity of Central Coast December 2008	5458
Occupancy Rate December 2008	49.6%
Surplus Accommodation in December 2008	2751
% of Surplus required for Project workforce	21%

Source: Tourist Accommodation Statistics, ABS December Quarter 2008

The main amenity impact on the primary study area will be a significant increase in traffic volumes and any associated noise coming to the proposed mining access and industrial area. This impact will be mainly confined to the east of the Sydney Newcastle Freeway and the immediate vicinity to the west of the Sparks Rd Interchange for workers entering the mine access worker facilities.

### 5.1.3 Impact on Study Area Population

The impact on population coming into the immediate vicinity of the industrial area will be significant on a daily basis but will be concentrated in the surrounding roads leading into and around the mining industrial area. At peak, 1188 workers will come into the site area via the Motorway Link Road and/or Sparks Rd interchanges. However, only a very small proportion of workers will have any need to visit or use community facilities on the western side of the Freeway other than for entry to and from the office and facilities slightly north of the Sparks Rd interchange. Traffic generated within the study area will be due to local workers who live in the directly affected area and commute to the site. As discussed above, 150 construction workers presently live within the primary study area. Even if 10% or 118 workers of the peak construction workforce (1188) were to move into the secondary study area particularly Wyong Shire, the proportional share of population (based on the existing work force distribution) moving into the primary study area for the three year construction period would be less than 10 households over three years. This level of population increase is considered to be within the baseline forecast prepared by Wyong Shire for the rural west shown in **Figure 2-2**.

### 5.1.4 Impact on Community Infrastructure

Unless facilities are provided on site during mealtimes, local cafes and restaurants to the south and west in Warnervale, Wyong and Tuggerah will be affected by a large increase in business for the duration of the project. As the majority of the construction workforce will be commuting to the site on a daily basis, no significant impacts are anticipated on the various elements of community infrastructure. There may be slight impacts on the outpatient health services facilities at Wyong hospital and in Wyong and

Warnervale due to servicing of the normal needs of the construction workforce on a daily basis. No significant impacts on local schools are anticipated as any non-local workforce is expected to commute to the site on a daily or weekly basis. However, if 10% of the construction workforce were to move into the secondary study area particularly Wyong shire, the total demand for schooling and childcare facilities would not exceed 119 students and childcare places at the peak of construction. On a proportional population basis the impact on the primary study area would be less than a total number of 15 students and childcare places.

## 5.2 OPERATIONS PHASE

### 5.2.1 Impact on Employment

The pattern of expected employment from the Wallarah 2 Coal Mine in the Central Coast is shown in **Table 5-3**. This table also shows the flow-on impacts that are anticipated from these expenditures. In its first year of operation the mine is expected to generate 428 jobs in the Central Coast economy which will rise to 693 jobs by the fifth year of operation. In I-O analysis, a job is defined as lasting for one year and being full-time. The main stimulus to demand for new housing and community infrastructure in the local area is the proportion of non local jobs anticipated as the local jobs will not lead to an increase in demand for local services. The proportion of local: non-local employment of the direct initial effect jobs was assumed to be 70% to 30%. As shown in **Table 5-3**, the direct workforce stabilises at a total of 300 jobs so the non-local direct jobs were thus estimated to be 90 jobs. While there is already considered to be considerable excess capacity in the local economy to absorb the significant local flow-on support jobs, the non-local flow-on jobs will be mainly registered in the Newcastle-Hunter economy to the north (about 336 ongoing jobs) (CCRF, 2008).

**Table 5-3**  
**Central Coast Employment Impacts Operations Phase**

Type of Effect	Operation Year 1	Operation Year 2	Operation Year 3	Operation Year 4	Operation Year 5
Initial	250	300	300	300	300
Production	67	87	111	136	138
Consumption	111	159	190	253	255
Total flow-on	178	247	301	389	393
TOTAL JOB IMPACT	428	547	601	689	693

Source: CCRF,2008

### 5.2.2 Impact on the Study Area Population and Housing

Assuming that all 90 potential employees from the project choose to locate in Wyong Shire, the number of employees choosing to locate in the primary study area was estimated to be 12 households. This figure is based on the 2006 share of employment in the mining industry in Wyong Shire for the primary study area of 2.4% totalling 6 workers of 250 people employed in the mining sector in the Shire. The proportional share of 2.4% of the 90 jobs would lead to approximately two jobs created in the primary study area.

However, as the areas in the primary study area currently have high amenity, they may prove attractive for relatively higher income mining industry employees. Consequently, the current share of mining jobs was increased by six times so the total number of households predicted to live in the primary study area was increased to 12 households. This number will double the number of people working in the mining industry in the primary area but is still a relatively small share of total employment. The balance of 78 jobs would be created elsewhere in the secondary study area.

As discussed above all flow on jobs are expected to be taken by local workers. This would mean a total population increase in the primary study area of 36 people at a rate of three persons per household.. This level of increase is considered to be manageable within the baseline population forecast prepared

by Wyong Shire for the rural west sub region and presented in **Figure 2.2**. The forecast has suggested a rate of five households per year until 2031. The balance of the operational workers of 78 workers would be located within the secondary study area with the majority within Wyong Shire. The total population increase in the Shire would not exceed 234 people (assuming that 100% moved into Wyong Shire). This represents 0.19% of the 2006 Wyong Shire population. (See **Table 5-4** below).

**Table 5-4**  
**Projected Impact on Study Area Population and Housing during Operations Phase**

<b>Job Categories</b>	<b>Jobs</b>	<b>Population Increase</b>	<b>Children</b>
Total Direct Jobs	300		
Local Jobs	210	0	0
Non Local Jobs	90	270	90
Within Primary study area	12	36	12
Secondary areas Wyong Shire & Gosford, Lake Macquarie, Cessnock	78	234	78

Source: Estimated from Discussion with CCRF

### 5.2.3 Impact on Community Infrastructure

The majority of the operations workforce will be commuting to the site on a daily basis and the impact on the various elements of community infrastructure is expected to be low. There may be slight impacts on the health services facilities at Wyong hospital due to servicing of the normal needs of the operational workforce. There may also be some impacts on childcare and local primary schools due to the non-local component of the workforce that will permanently move into the primary study area. However such impacts estimated at 12 children for both schooling and child care is considered to be within the normal planning capacity of the existing school and childcare system. A small increase in the primary schools within the primary study area may also help to keep local schools viable.

By far the biggest gap discovered in current community infrastructure was the total lack of public transport which was mentioned by over 80% of the respondents in the community baseline survey.

The one aspect of community infrastructure that will be more affected by the proposal will be the College of TAFE as a training and apprenticeship program will be needed to improve the skills required to run a modern underground mining operation. Suitable courses are presently available in Newcastle but given the size of the proposed workforce, it would make sense to consider building the program at the Wyong campus. Further liaison and coordination would be required to prepare such a program during the licensing phase of the project.

The results of the community survey revealed that the potential for community interaction with the mining proposal is very limited. The orientation of the community to use Wyong and Tuggerah for the vast majority of community services and active recreation activities was very clearly shown. Passive recreational activities were concentrated to the west of the area in the Watagan State Forest. Underground mining is not anticipated to interfere with these current facilities and there will be only minor traffic west of the office facilities located adjacent to Hue Hue Rd and north of Sparks Rd Interchange.

The main corridors for community movement were found to be Sparks Rd to access the Freeway and Hue Hue Rd for access south to Wyong and Tuggerah townships which are well south of the industrial area. The only potential for interaction with the mine industrial area was found to be several respondents who sometimes use the Tooheys Rd tunnel under the Freeway to go to the beach. Subject to further detailed design requirements and government requirements, the mine is not expected to interfere with this minor flow.



#### **5.2.4 Impact on Physical Infrastructure**

The community survey revealed that 85% of the residents in the potentially directly affected area used roof tanks as their main water supply. The secondary source was farm dams in conjunction with roof tanks. The only area using town water was found to be some of the subdivision areas along Hue Hue Rd. The community reported a very high level of concern on the need to protect surface and ground water resources. The biggest threat reported by respondents was the potential for dust generated by the proposal in the industrial area finding its way into the roof tank systems. Even though the distance to the industrial area to most residents is considerable, this perception is still very real to the residents of the directly affected area. A relevant consultation and management program is considered to be a worthwhile activity as the project progresses.

#### **5.2.5 Impact on Local Businesses**

The main longer term amenity impact on the primary study area will be an increase in traffic volumes and associated noise coming to the proposed office, portal facilities and industrial area. This impact will be mainly confined to the immediate east and west of the Sydney Newcastle Freeway between Sparks Rd Interchange and the Doyalson Interchange. These increases will be aligned with the significant traffic increases associated with commuting and visitation to the Wyong Employment Zone (WEZ) and the Warnervale Town Centre (WTC).

Similar to the construction phase, the impact on local business of population coming into the area will be significant on a daily basis and will be concentrated in the area of the office facilities and industrial area. During mealtimes, local cafes and restaurants can anticipate a sustained increase in business for the duration of the mining period. This activity will be focused on Warnervale and Wyong/Tuggerah as retail facilities in the primary study area are currently virtually non-existent. The estimated increase in the resident population in the primary study area is not expected to exceed 36 based on a rate of 3 people to each new household generated by the mine. These workers will tend to follow the current community behaviour and do the majority of their retail and personal services business in Wyong and Tuggerah using either Sparks Rd and/or Hue Hue Road.

#### **5.2.6 Additional Economic Benefits and Cumulative effects**

The development of the Tooheys Road industrial site will include the provision of power, water and other utilities. The current availability of these services close to this site is poor. As the Wallarah 2 Coal Mine will be underwriting the initial cost of provision, the initial connection cost of these services for firms locating near the site will be reduced. This could also provide a financial incentive for industries which support mining operations to locate in the area. This issue has been addressed in a separate land use planning report.

Discussion with representatives of Wyong Shire Council highlighted the importance of future planning for the Warnervale Urban Growth Centre. The mining project will provide a source of immediate seed employment to generate local direct and indirect jobs and also to attract some 90 workers and their families into Wyong Shire. As the project is located in an area in reasonable proximity to Warnervale, continuing consultation between the Council and the proponent can help to facilitate the development of the growth centre.

### **5.3 LOCAL COMMUNITY PERCEPTIONS ABOUT THE PROJECT**

For respondents with high awareness of the project there was significant concern expressed about mine subsidence, impacts on ground water and impacts on surface water. The other issues including flooding regime changes, noise from the industrial area, increases in truck traffic around the industrial area and concern over global warming were issues of lesser concern and did not show any relationship with prior knowledge about the project. There was no statistical relationship found between the different issues of concern and the location of the respondent within the potentially directly affected area. This finding suggests that information about the surface and underground arrangements of the proposal are not fully understood by many respondents. The potential amenity impacts were found by other specialist studies to affect only small portions of the potentially directly affected area (as has been indicated in Wallarah 2 Coal project's newsletters and website information).

#### 5.4 SUB- REGIONAL COMMUNITY PERCEPTIONS

The results of the CCRF survey of 400 households in the Central Coast region were summarised as follows:

Respondents were very concerned about potential:

- Impacts on the groundwater supply in the local area (mean concern score of 4.1 out of 5)
- Impacts on the surface water supply in the local area (4.1 out of 5)
- Mine subsidence impacts to houses and structures (3.7 out of 5).

Respondents were moderately concerned about:

- Increasing the risk of flooding in some areas (3.4 out of 5)
- Noise produced by machinery at the mine's surface facilities (2.9 out of 5)
- Increased vehicle movements around the mine entrance (2.8 out of 5)
- More trains moving on local railway lines (2.6 out of 5).

Respondents were slightly concerned about:

- The visual appearance of buildings at the mine's surface facilities (2.4 out of 5)
- Decreasing the risk of flooding in some areas (2.3 out of 5).

These results generally reflect the findings of the community survey of the potentially directly affected area.

The results of the social impact assessment are summarised in the following matrix using criteria developed from the literature. (Cox, 1995). See **Table 5-5** in following section.

**Table 5-5 Summary Social Impact Assessment – Wallarah 2 Project**

COMMUNITY ISSUES	WITHOUT THE PROJECT - BASELINE PROJECTION	WITH THE PROJECT - LIKELY SOCIAL IMPACTS
POPULATION AND EMPLOYMENT CHANGES		
What is the likely Employment generation/loss?	<p>Chronic local unemployment has been identified as a major community issue on the Central coast for many years. Unemployment in Wyong Shire in December 2008 was 7% of the workforce representing 4469 workers whilst the NSW rate was 4.8%. In 2006, there were 244 people employed directly in the mining industry in Wyong Shire or 0.5% of the workforce in the Shire and of these 6 people lived within the primary study area or 0.8 % of the workforce. In close proximity the Lake Macquarie mining workforce was 1332 (3.3%) of which the vast majority are coal miners. Cessnock Shire also has a high number (1328) and percentage (13%) of coal miners in the workforce.</p>	<p>The project is expected to generate 1188 direct jobs at the construction peak and 2989 direct jobs over the three year construction period. When multiplier employment is included the total employment impact of the project will total over 5000 jobs for the three years. The operational phase will generate 300 direct jobs for the life of the project ( presently assumed at 40 years). Multiplier employment generated by year five of the project is estimated at 393 jobs making up a total yearly employment impact of 693 jobs for the life of the project. The local workforce is expected to take 70% of the direct workforce or 278 jobs which represents 9.6 % of the present workforce in mining in the secondary study area. The non-local workforce is estimated to total 90 jobs of which 12 households are estimated to move into the primary area and 78 will move into the secondary study area.</p>
Will the resident population change as a result of the project?	<p>The primary study area will continue to attract small numbers of families who have higher incomes compared to areas east of the Freeway. These people will continue to be primarily dependent on urban based rather than rural incomes but who are attracted to the rural appearance and amenity of the area.</p>	<p>The primary study area may attract a greater share of the mining workforce than would be expected based on the current share of the mining workforce in the Shire due to their higher incomes and the general amenity of the area. Their population and social characteristics are expected to be similar to the host population.</p>
<p>Will the resident population change as a result of the project?</p> <p>What are total expected increases/decreases and as % of the total population of the suburb and/or LGA</p>	<p>In the rural west area of the Shire, the 2008 baseline forecast is for 5 dwellings per annum to 2031 or up to 15 people.</p>	<p>The operational phase of the project will generate 12 households over the first two years of the project or 36 people in the primary study area. The project will generate up to 78 new households or 234 people in other parts of the Wyong Shire, Gosford City and Lake Macquarie. The small increase generated is considered to be within the normal growth expectations of the primary and secondary study areas.</p>

How would you describe the existing communities and the effect on population and income characteristics?

The existing population of the primary study area is made up of 476 households or 1428 people and has four main clusters each one a little different due to its location, density and access attributes. These include (1) the Valleys - large rural properties very low density with main access along Jilliby and Yarramalong roads. (2) The Hue Hue Subdivision area with large rural lot subdivision low to medium density closer to the freeway with access to freeway and Wyong Township along Hue Hue Rd. This one has the most urban feel in appearance and density and layout. This cluster is also the most closely developed of all the four sub areas. (3) The Bushells Ridge Rd Cluster which are larger rural lots at low density and overlooking the current and proposed industrial area. Access from Sparks Rd and Tooheys Rd. (4) The area to south of Tooheys Rd industrial area with low to medium density with access from Sparks Rd with no view of the industrial area.

Will these characteristics change the existing population mix? Will the workforce change as a result?

The residents of the primary study area had language, citizenship and ethnicity characteristics very similar to the Wyong shire. Where they differed markedly was in their household population and income characteristics. This community was considerably wealthier and had proportionately twice as many people employed in the workforce. It was younger and the household size was generally larger than at the Shire level. (3.0 persons/households compared to 2.5 at the Shire level.) There was a clear gap found between the primary study area and the Shire as a whole based on Income and employment characteristics. This gap will continue due to affordability in the primary study area.

The operational work force will have similar income and family characteristics to the host population. As the total number is not expected to exceed 12 households or about 3% of the host population over an area of approximately 146.2 km<sup>2</sup> the negative socioeconomic impact will be relatively limited and are not expected to be significant. It should be noted that the variation in the individual collection districts is high with one rural residential area only 3.8 km<sup>2</sup> and two other very large rural areas.

Areas to the east of the Sydney Newcastle Freeway have different income and family characteristics compared to the western side of the freeway portion of the primary study area. These areas outside the primary area will provide some employees to the project who will earn incomes higher than those that the average median income for the 2006 census suggest. In the primary study area the current social mix is unlikely to change as any incoming mining workforce will have higher income and similar family characteristics to the host population.

Does the level of increase/ decrease conflict/agree with State and Local Government Policy

Both State and local Government have the objective of growing the local employment base. The major initiatives are the Warnervale urban centre and Wyong Employment Zone (WEZ). The Wyong Shire Council has been opposing the project for the past two years and the technical reasons for the opposition have been continuing concern of residents particularly for impact on groundwater and surface water and mine subsidence. These issues were addressed by the recent Government Inquiry into Potential Coal Mining in Wyong Shire.

The industrial area of the mine is well north of the urban centre. The industrial area of the mine is not visually apparent from any part of the employment zone so the physical appearance of the mine with coal stockpiles in a zoned industrial area is not anticipated to detract from the clean industry objective in the WEZ. As the mining activity is all underground the only obvious surface activity is in the mine industrial area which is already zoned for this type of industrial activity. The existing uses on the site include a quarry and a ceramics factory which according to anecdotal evidence have never been the subject of community concern.

#### AMENITY

Is the proposed development sympathetic with area? What are the existing physical characteristics, scale and scenic quality?

The Visual Assessment reported that the Buttonderry Site is situated adjacent to an area that has been designated for employment purposes within the Wyong Employment Zone (WEZ) and the existing Buttonderry Waste Management Facility. The proposed elements of the W2CP have been designed to be consistent with the future business park development anticipated to occur within the adjoining WEZ. The landscape is typical of the area with no prominent landscape features. This indicates that it has a Moderate scenic quality rating. The Tooheys Road Site is situated in an area that currently has rural characteristics and is typical of the land forms and features of the region. It sits between the Freeway and an active quarry and ceramics factory. A large portion of the boundary to the west across the freeway is owned by WACJV. It was also rated as being of moderate scenic quality.

The physical appearance in the primary study area will only be affected in one sub area- the Bushell's Ridge Rd community. Some residents to the east of the road will be able to partially see the new activity in the industrial area (some 1km distant). In the other three sub areas it is not anticipated that there will be any change in residents' viewsheds and access corridors. Houses on the south eastern side of the road can already see and hear the Sydney Newcastle Freeway and the existing Quarry and Ceramics plant.

How will the proposed development interact with the neighbourhood and wider community?	The amount of existing social interaction was found to be highly variable in the community survey. As would be expected, the relationship between the frequency of visits to neighbours and the description of the community was found to be significant. Almost 50 % of respondents were found to be reasonably independent of their neighbours or rarely interact with them with 45% describing their community as close knit more for local friends than relatives.	The reality is that there is limited need or likelihood for the surface activities in the proposal to interact with the neighbourhood and wider community during operations. The mining areas are underground and the workforce access area and industrial area are in very close proximity to the freeway corridor. All of the coal transport is by rail not by truck. It is unlikely that there will be interaction except for significant traffic increases at change of shift times in the vicinity of the Sparks rd Interchange.
Will there be disruption to social and cultural networks / community cohesion/ identity?	Based on the results of the community survey, the two community clusters to the south west of the primary study area (The Valleys and Hue Hue) gravitate to the Wyong/Tuggerah area for retail and community services. In the vicinity of the industrial area, the two community clusters use Sparks Rd as part of their normal social and cultural network.	The two community clusters to the south west of the primary study area gravitate to the Wyong/Tuggerah area for retail and community services. Consequently the existing social and cultural networks will not be affected. The two clusters in the vicinity of the mine access and industrial area may be physically affected by traffic increases around the Sparks Rd Interchange when they go shopping and also to recreation areas such as beaches to the east of the interchange. This may affect their social network but as the disruption will only occur at change of shift times, the duration and intensity of the social impact is limited and not expected to be significant.
<b>PUBLIC DOMAIN</b>		
Will the development involve the removal or demolition of structures or demolition of structures or natural features of community significance?	No structures or natural features of community significance were observed in the primary area.	No Facilities or natural features of Community Significance will be affected by the Proposal
<b>COMMUNITY SERVICES AND FACILITIES</b>		
Will an existing service or facility be permanently changed or discontinued?	Not Applicable	Not Applicable

If significant change is expected to resident workforce or other visitor populations arising from the proposal, is there sufficient spare capacity to meet the likely increase in the demand/needs for services and facilities?	<p>The secondary study area is well resourced with community infrastructure with most services at urban standard. On the contrary the primary study area is relatively under resourced due mainly to location associated with the relatively low population. Two primary schools at Jilliby and Wyong Creek provide community focal points for people with younger children. There are also bushfire brigade facilities at these locations which would focus community efforts during emergencies. There are no clusters of neighbourhood retail facilities and the baseline community survey found that residents travelled to Wyong/Tuggerah for the majority of other services. Review of the local school websites suggest that even though numbers are low in one school (Wyong Creek) the school will continue to provide services over the planning horizon for the project. The larger of the schools has over 100 students and anecdotal evidence from the survey suggested that it has slightly increasing enrolment and services more than the immediate area. The most problematic service identified in the survey was the general lack of public transport services.</p>	<p>As the number of new households projected to move into the primary study area is low, the impact on the existing services is not expected to be significant. The addition of an additional 12 households with an estimated number of 12 children may help to make the smaller local school more viable.</p>
<b>LOCATION AND LAND USE</b>		
How far/accessible are new services and facilities from public transport services and facilities and main centres?	<p>Apart from the school bus which services Jilliby primary school, public transport in the area is very limited. This may be due to the relatively low population density found in the area.</p>	<p>The impact of the project may increase the feasibility of more regular public transport due to the concentration of employees having a common destination in the immediate vicinity of the Spark Rd Interchange. This could be developed as part of an agreed community management and monitoring program.</p>
Is there adequate and safe pedestrian and cycle access to new facilities?	<p>Currently there are no bikeways or dedicated pedestrian facilities except some scattered footpath sections.</p>	<p>These could be integrated into the design of the facilities but are not presently proposed.</p>
Are there any opportunities for clustering or co-location of new and/or existing services and facilities?	<p>Not applicable</p>	<p>See Public Transport above</p>

COMMUNITY IDENTITY AND COHESION		
Existing values and sense of community?	<p>The Lifestyle survey by the CCRF (2008) found that Central Coast residents generally agreed that their neighbourhoods had a strong sense of community (mean score was 3.45 out of 5, with the mid-way point of 3 representing ambivalence) but the level of agreement was not particularly strong and was significantly lower than the level of agreement in NSW. Gosford residents were significantly more likely to agree that their neighbourhoods had a strong sense of community than their counterparts in Wyong. These results were similar to the baseline community survey which found that 49% of the respondents were either reasonably independent of their neighbours or rarely interacted with them. The generally large lots and rural properties in the primary area tend to reduce the likelihood of interactions. Existing community focal points were found to be limited and to have single functions.</p>	<p>The CCRF research in 2008 found that sense of community is correlated with density of development and personal well being. The impact of 12 new households in such a spatially diverse and separated physical area and the low density of housing anticipated indicate that sense of community will not significantly change.</p>
HOUSING		
Will existing rental housing be affected by the proposal?	<p>Rental housing units in Wyong Shire totalled 11226 units in 2006 which was 25% of the total housing stock. This percentage of rental housing had not changed significantly since 2001 even though the total housing stock was reported as declining during the inter censal period. In the primary study area the percentage of rental houses is considerably lower (10%) and the total stock is also low .(428)</p>	<p>The demand for rental housing in the primary area may be affected during both the construction stage and operations phase but the number of of units required will be low. The estimate of new residents in the primary area is less than 15 households for both phases of the project. The supply of rental housing is very limited (13% of total of 97 units presently rented compared to 25% at Shire level) and it is more likely that there will be more variety and stock of rental housing in the secondary study area. The demand for rental housing should also be considered in the light of the present amount of temporary accommodation that is available in the Central coast area. Surplus accommodation in December 2008 was reported at around 2700 units/ per night.</p>
CUMULATIVE IMPACTS		



Are there other developments or proposals which when combined with proposal result in cumulative impacts?

Discussion with representatives of Wyong Shire Council highlighted the importance of future planning for the Warnervale Urban Growth Centre. The mining project will provide a source of immediate seed employment to generate local direct and indirect jobs and also to attract some 90 workers and their families into Wyong Shire and the other parts of the secondary study area. As the project is located in an area with good proximity to Warnervale, close continuing consultation between the Council and the proponent can help to facilitate the development of the growth centre.

The development of the Tooheys Road industrial site will include the provision of power, water and other utilities. The current availability of these services close to this site is poor. As the Wallarah 2 Coal Mine will be underwriting the initial cost of provision, the initial connection cost of these services for firms locating near the site will be reduced. This could also provide a financial incentive for industries which support mining operations to locate in the area. This issue has been addressed in a separate land use planning report.

#### MONITORING

##### Key Performance indicators

There is no current list of agreed community monitoring indicators and subject to agreement, should be prepared in close consultation with the community liaison committee.

The results of the analysis suggest that actual and perceived monitoring of public transport services, the quality of roof tank water, baseline air quality, traffic noise and the provision of skilled job training would be suitable issues to monitor using a before and after study design.



## **6.0 PROPOSED SOCIAL MANAGEMENT AND MITIGATION PROGRAM**

Based on the results of the analysis, community infrastructure does not appear to be a significant issue at this time.

If necessary it 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 and Wyong Shire Council) with coordination by the Community Liaison Committee. The Community Liaison Committee was set up to act as a conduit between the community and the project and chaired by the Hon. Milton Morris AO. This Committee has been in place for many years. This committee monitors the progress of the project and allows the project to regularly share information with community representatives and other stakeholders such as Wyong Council.

Based on correspondence with the NSW Department of Health, it would be advisable to follow up on specific matters particularly in relation to emergency contingency planning for mine planning purposes. Such consultation could be carried out once development consent were granted as part of the licensing process.

The one aspect of the 2003 State Government Action Plan was to address the chronic shortage of local jobs in the sub region. Included in the scope of the plan is to improve the quality of the local workforce. Consequently, the one aspect of community infrastructure that will potentially be more affected by the proposal will be the College of TAFE in Wyong as a training and apprenticeship program will be needed to improve the skills required to run a modern underground mining operation. Suitable courses are presently available in Newcastle but given the size of the proposed workforce, it would make sense to consider building the program at the Wyong campus. Further liaison and coordination with NSW DET and Wyong Shire Council would be required to prepare such a program during the licensing phase of the project.

This study found that there is a clear gap between the perceived effects of the proposal by the broader community including the potentially directly affected area and predicted effects as measured and predicted in the quantitative studies carried out by specialist consultants.

A key element of any proposed social management and mitigation program must therefore address this perception gap regarding the project's impacts and benefits.



## 7.0 CONCLUSIONS AND RECOMMENDATIONS

The potentially directly affected community is relatively small when compared to the entire Wyong Shire with an estimated 476 households or approximately 1428 people. This number amounts to approximately 1 % of the total 2006 population in Wyong Shire of 139,800. Some households are potentially affected in the underground mining areas by some subsidence and the remainder are in areas which are within or relatively close to the zero subsidence line, anticipated noise and dust contours or are visually affected.

A baseline social survey was conducted in the potentially directly affected area. As expected the relationship between the frequency of visits to neighbours and the description of their community interaction was found to be statistically significant. In other words when they saw their neighbours more they felt more part of a community. Interestingly, the sense of community within this area was found to vary considerably. More than 50 % of respondents were reasonably independent of their neighbours and socialised with friends outside the area or rarely interacted with their neighbours. The remaining 45% described their community as close knit more because of local friends than relatives. Given the smaller sample size in one of the sub areas, no quantitative statistical relationship was found due to location of the respondent, so sense of community was not found to be necessarily related with the density of development. Based on the results of the survey, the majority of residents of the area could be described as being a collection of reasonably independent individuals. There was some anecdotal evidence which also suggested that more sense of community existed where there were slightly smaller lot sizes and more children with families were present.

The primary study area looks and feels rural but functionally many of the people are dependent on the more urban based economy either within the Central Coast or Sydney.

The residents of the primary study area had language, citizenship and ethnicity characteristics very similar to the Wyong shire. Where they differed markedly was in their household population and income characteristics. This community was considerably wealthier and had proportionately twice as many people employed in the work force. The overall community was younger and not surprisingly the household size was generally larger than at the Shire level (3.0 persons/households compared to 2.5 at the Shire level.). There was a clear gap found between residents of the primary study area and the Shire as a whole based on income and employment.

The results of the survey suggest that the potential for community interaction with the coal mining proposal is very limited. Accordingly, there is limited potential for impacts on community lifestyles. The orientation of the community to use Wyong and Tuggerah for the vast majority of community service and active recreation activities was very clearly shown. Passive recreational activities were concentrated to the west of the area in the State Forest. The main corridors for community movement were found to be Sparks Rd and Hue Hue Rd which are well south of the industrial area. The only potential for interaction with the mine industrial area was found to be a very small percentage who use the Tooheys Rd tunnel under the Freeway to go to the beach on weekends. By far the biggest gap discovered in current community infrastructure was the total lack of public transport in the area which was mentioned by over 80% of the respondents. Anecdotal evidence indicated that noise generated from the Sydney Newcastle Freeway represented another important ongoing amenity issue particularly for residents in the Bushell's Ridge area and some sections of the Hue Hue Subdivision.

During the construction phase, the impact on population coming into the area will be significant on a daily basis but will be concentrated in the surrounding roads leading into and around the mining industrial area. At peak, 1188 workers will come into the site area via the Motorway Link Road and/or Sparks Rd interchanges. However, only a very small proportion of workers will have any need to visit or use community facilities on the western side of the Freeway other than for entry to and from the office and facilities slightly north of the Sparks Rd interchange. Traffic generated within the primary study area will be due to any local workers who live in the directly affected area and commute to the site. As discussed above, 150 construction workers presently live within the primary study area. If 10% of the construction workforce were to move into the secondary study area particularly Wyong Shire, the proportional share of population moving into the primary study area would be less than 15 households. This level of population increase is considered to be manageable and within the baseline forecast prepared by Wyong Shire for the rural west sub region.

During the operational phase, the projected employment increase from the Wallarah 2 Coal Mine for Wyong Shire and the Central Coast is substantial. In its first year of operation the mine is expected to generate 428 jobs in the secondary study area which will rise to 693 jobs by the fifth year of operation. The vast majority of these jobs will be created locally as there is considered to be adequate capacity within the secondary study area to service the project. Of the total, there will be 90 direct jobs that will need to be imported from non local sources. Consequently, the total population increase resulting from the direct non-local workforce will be of the order 270 people over the first two years of the project. This figure represents 0.19% of the 2006 Wyong Shire population of 139,800. Currently the population increase in Wyong Shire is of the order of 1.7 % per year which represents approximately 2,300 people. The impact on the primary study area is considered to be of the order of 12 households or 36 people which is considered manageable and within the normal population forecast for the western rural sub region forecast prepared by Wyong Shire.

Even with such modest increases in population, the perceived effects of the project are still of significant concern to the majority of the residents surveyed. They are particularly concerned about the effects of mine subsidence, and impacts of the project on surface water and groundwater even though the majority appear to be dependent on roof tanks for their supply. They have slightly less concern about the effects on flooding, noise in the industrial area, truck traffic generated in the vicinity of the site and general concerns about the impacts of the project on global warming. These results generally mirror the results of a broader telephone survey conducted by the CCRF of 400 residents in the broader sub region of the Central Coast. In order to address these perceptions, there is a need for continued information to be disseminated about the actual effects of the project from the results of the considerable number of quantitative studies already generated as part of the overall environmental assessment. The EA report will provide a comprehensive source of factual information which will address these perception issues.

There would appear to be significant local social benefits arising from the project which are fully consistent with current State and previous Local Government policy. The number of jobs generated by the project within Wyong Shire and the Central Coast is virtually the same as the total primary study area workforce with a very low risk of any need for increasing pressure on community infrastructure. The potential for any significant change to lifestyles or amenity impacts from surface facilities in the directly affected area is considered to be low. Those residences which partially overlook the proposed site and the Sydney Newcastle Freeway on Bushell's Ridge Rd are noted in other studies to be already heavily affected by background noise and dust from the Freeway. The other sub areas potentially directly affected are through subsidence which is accurately documented in other technical appendices.

As this project will be functioning in a sub region which is part of the Sydney metropolitan region, the area has community infrastructure at a standard which has been planned on the basis of a significantly higher urban population and 25 % of the population living in the potentially directly affected area were found to be commuting for employment to Sydney. The Warnervale Town Centre (WTC) and Wyong Employment Zone (WEZ) growth areas are in the same Wyong sub-region and consequently infrastructure which is in place or planned is anticipated to be able to adequately cope with the relatively small numbers of workers and families who will be coming into the area as result of the project.

The most important State and Local Government policy which relates to the study area in general is the need for the Central Coast to continue to grow and increase its ability to become more self sufficient in employment generation. The current unemployment level in Wyong Shire is significantly higher than most other sub regions of NSW and was double the National average at a time when general employment had been at record highs for many years. Consequently, the project is fully consistent with these stated State and local government policies. It also has the potential to be a seed project for future employment generation for the WTC and WEZ which are within 15 minutes travelling time from the site.

One aspect of the 2003 State Government Action Plan was to address the chronic shortage of local jobs in the sub region. Included in the scope of the plan is to improve the quality of the local workforce. Consequently, the one aspect of community infrastructure that will potentially be more affected by the proposal will be the College of TAFE in Wyong as a training and apprenticeship program will be needed to improve the skills required to run a modern underground mining operation. Suitable courses are presently available in Newcastle but given the size of the proposed workforce, it would make sense to consider building the program at the Wyong campus. Further liaison and coordination with NSW DET and Wyong Shire Council would be required to prepare such a program during the licensing phase of the project.

## 8.0 BIBLIOGRAPHY

Central Coast Research Foundation (CCRF ) April 2008

Quality of Life in the Central Coast A community survey of Central Coast Residents 2007

Cox, G. 1994, Better Communities Through Social Impact Assessment, Office on Social Policy, NSW Government Social Policy Directorate

Cox, G. 1995, Techniques for Effective Social Impact Assessment: A Practical Guide, Office on Social Policy, NSW Government Social Policy Directorate

Cox, G. & Miers, S. 1995, Social Impact Assessment for Local Government: A Handbook for Councillors, Town Planners and Social Planners, Local Government and Shires

Associations of NSW & NSW Government Social Policy Directorate

Menzies, C. 1993, Ground Rules: A Social Planning Handbook for Local Government, Local Government & Shires Associations of NSW

CSIRO, Gosford City Council, Wyong Shire Council  
Quality of Life and Sustainability on the Central Coast  
Final Report  
May 2007 CSIRO Sustainable Ecosystems

Dawson John, Sustainability in Wyong Local Government Area  
presented at CCCEN Forum November 2001

Department of Urban Affairs & Planning Shaping Our Cities: The  
Planning Strategy for the Greater Metropolitan Area of  
Sydney, Newcastle, Wollongong and the Central Coast 1998

ACIL Tasman, The Contribution of the Minerals Industry to the NSW Economy. 2006, Prepared for the Minerals Ministerial Advisory Council.

Gilmore JS DM Hammond JF Johnson Assessing and Managing Socioeconomic Impacts of Power Plants Final Report EPRI 1984

NSW Department of Planning, Draft Central Coast Regional Strategy. 2006.

National Economics and Local Government Association, State of the Regions. 2003.

Central Coast Research Foundation, Central Coast Economic Indicators. 2006.

Hunter Valley Research Foundation, Hunter Region Economic Indicators. 2006.

ABS Censuses 1996, 2001, 2006





## Annex 1

### Results of the Community Baseline Survey

The purpose of the survey was to carry out a baseline survey of community activities and behaviour in the vicinity of the site. It was particularly focused on understanding current interactions with the potential mining and industrial area. Questions were asked about work commuting, retail behaviour, education and recreation both active and passive. It asked questions about peoples perceptions of the performance or gaps in current infrastructure. It also gave respondents the opportunity to comment on specific impacts of the development either as a structured question or as a written narrative comment.

The Survey was sent out to all 476 households who were defined as being potentially directly affected by the project. The potentially directly affected area applied to households in the vicinity of the underground mining area and the industrial area. Impact was measured by

- either noise or air quality contours,
- if the houses could see the site (visual impact),
- if the houses were to be affected by subsidence or within 100 metres of the no subsidence line

Respondents were given three choices for the conduct of the survey. They could chose to fill out the survey individually and mail (included self addressed envelope), fax back or be assisted to fill out the questionnaire by an interviewer from the team.

The response rate was 63 households or 12.65 % which was slightly better than normally expected for a survey of this kind. The survey implementation was hampered by a public notice placed in all respondents letter boxes by the main opposition group to the proposal - the Australian Coal Alliance (ACA) recommending that the community not respond to the survey (refer copy of notice distributed by ACA at end of this Annex 1). As this group has been particularly active in the Valleys sub-area, the response rate was significantly lower than in the other two areas. Whilst more responses from this area similar to the overall response rate would have boosted the ability of the survey to discriminate between the areas, the main objective of the survey was not affected.

**Table A1 Survey Response**

Location	Number of Surveys	Percentage of Surveys Distributed	Number Responding	Response Rate
Valleys	177	36%	12	6.78%
Hue Hue Subdivision	270	55%	36	13.24%
Area around Mine Industrial Area	51	10%	15	28.30%
Overall	498	100%	63	12.65%

**Table A2 Location of Respondents By Sub Area**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Valleys	12	19.0	19.0	19.0
	Hue Hue Subdivision	36	57.1	57.1	76.2
	Area around Mine Industrial Area	15	23.8	23.8	100.0
	Total	63	100.0	100.0	

The survey represented the responses from approximately 200 of the estimated 1428 people living in the directly affected area. The average household size was 3 persons per household which is the same as the Census 2006 finding.

The results demonstrate that the potential for community interaction with the mining proposal is very limited. The orientation of the community to use Wyong and Tuggerah for the vast majority of community service and active recreation activities was very clearly shown. Passive recreational activities were concentrated to the west of the area in the Watagan State Forest. The main corridors for community movement were found to be Sparks Rd and Hue Hue Rd which are well south of the industrial area. The only potential for interaction with the mine industrial area was found to be several respondents who use the Tooheys Rd tunnel under the Freeway to go to the beach on weekends. By far the biggest gap discovered in current community infrastructure was the total lack of public transport which was mentioned by over 80% of the respondents.

A selected group of responses under different topics has been prepared below.

### Mobility

The average length of residence in the area was found to be 14.4 years.

**Table A3 Did you have the same usual address 5 years ago?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	42	66.7	72.4	72.4
	No	16	25.4	27.6	100.0
	Total	58	92.1	100.0	
Missing	System	5	7.9		
Total		63	100.0		

The percentage of residents with same address five years ago was slightly higher than the Census data reported ( 61% ) and suggests a more stable community than that for the Wyong Shire which had 56% of its residents at the same address five years ago.

### Commuting Behaviour

**Table A4 Where does the family's main income earner normally work?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Local Area	9	14.3	16.7	16.7
	Wyong	4	6.3	7.4	24.1
	Tuggerah	2	3.2	3.7	27.8
	Central Coast	14	22.2	25.9	53.7
	Newcastle	1	1.6	1.9	55.6
	Sydney	13	20.6	24.1	79.6
	Other	9	14.3	16.7	96.3
	Combination	2	3.2	3.7	100.0
	Total	54	85.7	100.0	
Missing	System	9	14.3		
Total		63	100.0		

Commuting behaviour revealed that 27% of respondents worked either within the local area or Wyong and Tuggerah, a further 25 % on the Central Coast and 24 % in Sydney. The percentage working in Newcastle was very low.

**Schools****Table A5 Where do your children normally attend school?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No Children at School	37	58.7	67.3	67.3
	Wyong Creek	2	3.2	3.6	70.9
	Jilliby	2	3.2	3.6	74.5
	Other	14	22.2	25.5	100.0
	Total	55	87.3	100.0	
Missing	System	8	12.7		
Total		63	100.0		

More than two thirds did not have children and four children attended the primary schools in closest proximity to the underground mining area – Wyong Creek and Jilliby. The remainder attended schools on the eastern side of the Freeway but not within the vicinity of the proposed mining industrial area.

**Recreation**

Over 90% of respondents to this question specified the State Forests within the Dooralong and Yarramalong Valleys as their main destination for passive recreation. Active recreation was focussed on Wyong and Tuggerah facilities.

Access to the beach was either Sparks Rd to Toukley or via Wyong Rd to Tuggerah. One or two respondents use the Tooheys Rd Tunnel on weekends.

**Water Supply**

About 15 % of respondents were found to be dependent on town water supply and 85% rely mainly on roof tanks with a small percentage supplementing their supply with a farm dam. The only town water supply found was located in the Hue Hue Subdivision.

Table A6 What is the main source of your domestic water supply by Area

What is the main source of your domestic water supply?		Area			Total
		Valleys	Hue Hue Subdivision	Area around Mine Industrial Area	
	Town Water	0	9	0	9
		.0%	100.0%	.0%	100.0%
	Roof Tanks	10	23	13	46
		21.7%	50.0%	28.3%	100.0%
	Combination Roof & Farm Dam	1	3	2	6
		16.7%	50.0%	33.3%	100.0%
Total		11	35	15	61
		18.0%	57.4%	24.6%	100.0%

**Sense of Community****Table A7 How regularly do you visit your immediate neighbours?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Everyday	3	4.8	5.7	5.7
	Two or Three Times a Week	11	17.5	20.8	26.4
	Each Week	13	20.6	24.5	50.9
	Monthly	11	17.5	20.8	71.7
	Hardly Ever	11	17.5	20.8	92.5
	Never	4	6.3	7.5	100.0
	Total	53	84.1	100.0	
Missing	System	10	15.9		
Total		63	100.0		

**Table A8 Which statement best summarises how you would describe your interactions with the local community?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Close Knit More Family Oriented	7	11.1	12.7	12.7
	Close Knit More Friends Oriented	18	28.6	32.7	45.5
	Reasonably Independent				
	Socialise Outside Immediate Community	18	28.6	32.7	78.2
	Rarely Interact With Neighbours or Immediate Community	9	14.3	16.4	94.5
	Dont Know or No Opinion	3	4.8	5.5	100.0
	Total	55	87.3	100.0	
Missing	System	8	12.7		
Total		63	100.0		

As would be expected, the relationship between the frequency of visits to neighbours and the description of the community was found to be significant. Almost 50 % of respondents were found to be reasonably independent of their neighbours or rarely interact with them with 45% describing their community as close knit more for local friends than relatives.

### Perceptions of Impact

**Table A9 Prior to being contacted for this interview how aware of the Wallarah 2 Coal project did you feel you were?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at All	4	6.3	7.1	7.1
	Slightly	2	3.2	3.6	10.7
	Aware	8	12.7	14.3	25.0
	Moderately	18	28.6	32.1	57.1
	Very Aware	24	38.1	42.9	100.0
	Extremely	56	88.9	100.0	
Missing	Total	7	11.1		
System		63	100.0		
Total					

The level of awareness about the project showed that 75% of the respondents were either very aware or extremely aware about the project. The remaining 25% were either moderately aware or less with 7% responding that they had no awareness at all.

Interestingly, the level of prior awareness about the project was significantly related to the level of concern expressed about three issues subsidence, impacts on groundwater, and impacts on surface water. In other words the level of concern increased with the level of prior awareness. However, there was no relationship found with the level of concern about the other issues canvassed which included truck traffic, noise from machinery, flooding and concern about global warming.

Sex of respondent was important in explaining the level of concern about noise from machinery, truck traffic around the mine entrance and increased train movements. For all of the other issues the level of concern shows no relationship with the sex of the respondent.

Also there was no significant relationship found between sub area and the level of concern except for mine subsidence which was found to be approaching significance. Of the 75% of respondents who had prior awareness of the project, there was a high level of concern about the perceived impacts addressed specifically.

Copy of notice distributed by Australian Coal Alliance to residents in December 2007:



## Australian Coal Alliance Incorporated

# IMPORTANT NOTICE

It has come to our notice that over the past few days Kores (Wallarah 2 Coal Project) have had Martin Associates deliver a questionnaire to homes within the area affected by the proposed coal mine.

The questions are very invasive and are of a personal nature and have no relationship whatsoever to the proposed mine. The questionnaire also requires you to provide your street address.

The questionnaire also tells you nothing about the adverse impact that this project will have upon our community.

The Australian Coal Alliance believes that this information, if supplied to the mining company, may be used to the detriment of the community, in as much as it could then be alleged that there is no real objection to the coal mine proceeding.

It was also noted that the map on the back of the questionnaire does not illustrate whatsoever the boundary perimeters of the 37 square kilometres of the proposed mining.

**Since the community is vehemently objecting to the proposed coal mine, the Australian Coal Alliance encourages all those who have received this questionnaire not to complete it and not to return it to Martin Associates.**

Our interpretation of this document could in no way be recognised as a genuine inquiry into the impact upon the community overall of the Wallarah 2 coal project. Kores have not yet presented a detailed and informative proposal to the State Government.