

An aerial photograph of Gerringong, New South Wales, showing a coastal town with a beach on the left, a highway running through the center, and green fields extending to the ocean on the right. The sky is clear and blue.

Gerringong upgrade

Princes Highway

Review of Environmental Factors

APPENDIX L - SOCIO-ECONOMIC IMPACT REPORT

JUNE 2010

Princes Highway Upgrade

Prepared for
Roads and Traffic Authority

Prepared by

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Level 11, 44 Market Street, Sydney NSW 2000

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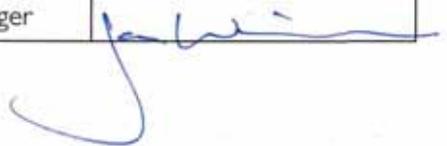
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Executive summary

Introduction

The objective of this report is to provide an overview of potential socio-economic impacts associated with the Gerringong upgrade from Mount Pleasant to Toolijooa Road ('the proposal') which forms part of the RTA's Princes Highway upgrade program between Gerringong and Bomaderry and where possible identify mitigation measures.

Existing environment

The socio-economic profile is the town of Gerringong. The profile also examines the characteristics of the Kiama Local Government Area and nearby Gerroa, located two kilometres south of Gerringong.

Gerringong is a small coastal town located midway along the length of the proposal, approximately 130 km south of Sydney. The town is accessed from the Princes Highway at two points, one at the northern end of town at Fern Street and one at the southern end at Belinda Street.

Gerringong's industrial hub is located adjacent to the Illawarra railway line and consists mainly of light industry. The commercial / business centre is located around Fern Street, Belinda Street and Blackwood Street. In addition to local shops and services, the town includes a number of tourist related activities including boutique hotel accommodation and bed and breakfasts, cafes and restaurants, beach related retail outlets as well as a number of lifestyle and craft related services.

In 2006, Gerringong was home to a population of 3,588 residents with a high proportion of retirees (aged 65 and over) living in the area. The total Gerringong labour force in 2006 was 1,584 and the unemployment rate of 3.6 per cent is below the NSW average unemployment rate of 5.9 per cent. In comparison, Gerroa is a much smaller community, with a population of 475 persons, a total labour force of 216 and unemployment rate of 4.2 per cent in 2006.

Part-time employment in Gerringong is higher than the state average at 36 per cent, likely reflecting high tourist sector employment. The main employment sources include education (14 per cent), retail (11 per cent), health care and social assistance (11 per cent), construction (11 per cent), accommodation and food services (nine per cent), public administration (nine per cent), manufacturing (seven per cent) and professional services (six per cent). The average weekly income of \$421 per individual and \$1,198 per family is similar to the NSW average.

Rural localities in the study area predominantly consist of large lot agricultural holdings including dairy farming and vineyards, as well as designated environmental protection areas. Many of the farms and dwelling houses on these agricultural land holdings are located close to the highway and have direct access to the highway.

Generally, the topography is more rugged to the west of the highway. In these areas, heavily wooded areas are well established. Views from some of these areas stretch down to the Shoalhaven River and to the ocean. There are also a large number of farms to the west of the highway, some of which are "hobby" and "weekend" farms. The farms are serviced by the access roads adjoining the highway.

Land to the east of the highway is generally flatter, with a high percentage situated on the flood plain. This land is primarily used for dairy farming. One other activity of note is quarrying on Crooked River Road, which according to the operator, Cleary Bros., indirectly employs over 100 persons.

Potential impacts

Given the Princes Highway already exists as a major road transport corridor, and that the proposal follows the existing highway alignment, many of the operational, social and economic impacts associated with a road project, such as changes to the socio-economic profile, impacts on local businesses, connectivity and severance, would have already occurred.

Construction is expected to occur over a two year period. Econometric modelling by the Bureau of Transport and Communication Economics (1996) found that every \$1 million of road construction expenditure generates 13 jobs, including both those directly employed in the construction and flow on effects. This suggests that the Gerringong upgrade, with a capital expenditure of around \$230 million, could create up to 2,990 jobs over the two year period.

Construction worker expenditure during the two year construction period would benefit local services in the vicinity of the highway, such as cafes and takeaways, service stations and potentially some accommodation providers. The expenditure would have flow on effects to other businesses in the area.

The proposal is not expected to create major community impacts. There would not be any new severance impacts and town access, although disrupted during construction, would not be altered during operation. The main community impact is likely to be stress due to uncertainty of the construction process and the impacts this may have on their property and lifestyle.

Residents in the vicinity of the proposal may experience minor disruption to their daily lives due to loss of amenity during the construction phase from noise, visual amenity and air quality (dust) impacts. During operation, residents in the vicinity of the Gerringong upgrade may experience noise and visual impacts which would require mitigation, as described in the Noise and Vibration Assessment Report and the Urban and Landscape Assessment Report.

The new rail overbridge at Fern Street may have a socio-economic impact both during construction and operation. Construction of the rail overbridge would require closure of the existing highway junction access at Fern Street for up to 12 months. Although the junction closure is unlikely to result in additional travel time, drivers would perceive an inconvenience.

A number of businesses (resort, hotel, cafes, ice cream shops, etc) are located on the Fern Street approach to the town centre and the temporary diversion to Gerringong via Belinda Street could result in a temporary loss of passing trade and a potential loss in turnover. However, many of these businesses are located on the southern section of Fern Street in the town centre (near Belinda Street) and an effective signposting and traffic management strategy (directing traffic to the centre of town via Belinda Street) would be developed to manage the impacts.

The removal of the Fern Street level crossing facility following the construction of the rail overbridge would remove exposure to rail / motor vehicle crashes and also remove the need for motorists to stop to allow a train to pass, creating travel time and vehicle operating cost savings. Moreover, removing the level crossing would remove the need for annual maintenance of level crossing controls and equipment. Additionally, costs from periodic upgrades (approximately every eight years) would be eliminated.

The transfer of traffic from Fern Street and Crooked River Road (locally known as the 'sandtrack') to the Gerringong upgrade, although improving the amenity of the town, could lead to a loss of passing trade. Passing trade in Gerringong is sourced in part from traffic using the 'sandtrack' route as an alternative to the Princes Highway and in part from visitors diverting from the Princes Highway to the town for a rest stop. Traffic modelling suggests that initially, the Gerringong upgrade would attract only a small proportion of travel demand from the 'sandtrack'. In addition, with the construction of two new grade-separated interchanges and the new railway overbridge at Fern Street, Gerringong would be a more accessible and attractive option for traffic diverting to the town for a rest stop.

The change of access provisions for private properties and some local roads to left turn in and left turn out only, would have the potential to increase journey time for some residents and other road users who currently turn right across the existing highway. However, with improved driver sight distance, the need to give-way to traffic in one direction only and the provision of a two metre sealed shoulder, road safety would be greatly enhanced on the upgraded Princes Highway.

The proposal would improve journey times and road safety for highway users, particularly due to the rail overbridge on Fern Street, which replaces the level crossing. On the Princes Highway, head-on collisions would be eliminated, and other crashes associated with the existing highway alignment would be greatly reduced. The detailed traffic assessment conducted for the proposal found that fatal crashes on the upgrade could potentially be eliminated altogether, based on the types of crashes in the area which have previously caused fatalities.

Most properties directly affected by the proposal have agricultural uses, specifically dairy pasture owned by members of the Gerringong Dairy Farmers Cooperative. The operation of agricultural and farm lands can be affected if an upgrade passes directly through an agricultural property or if access is reduced. As well as loss of productive land, farmers can incur additional costs in moving or replacing high cost equipment such as milking machines.

However, properties affected by land acquisition associated with the proposal would all be subject to acquisition at the edge of the existing road reserve and there are not expected to be any properties that are likely to be severed by the Gerringong upgrade. Furthermore, all existing property accesses would be maintained as part of the proposal.

Land acquisition would be required as part of the Gerringong upgrade, with full acquisition of 3 properties and strip acquisition affecting up to 31 properties. Based on preliminary adjusted road boundaries, the proposal would require approximately 993,400m² (99.34 hectare) of private land. Of this total, the breakdown between full and partial strip acquisitions is shown below:

- Full acquisitions (3 properties) - 743,050m² (74.305 hectare).
- Partial acquisitions (31 properties) - 250,350m² (25.035 hectare).

The majority of the strip acquisitions affect farming/agricultural land, but is generally not considered large enough to significantly alter production and economic viability. The impacts that may be most detrimental are associated with reduced subdivision potential with reduction in some affected lot sizes and rebuild potential.

Mitigation measures

Mitigation measures to address potential negative impacts have been considered for both the construction and operational phases of the proposal.

During construction:

- The community would be kept informed by providing regular information and updates such as:
 - Letter box drops, media releases, and/or community updates.
 - An internet site established and maintained for the duration of the proposal.
 - Variable message signs.
 - Targeted consultation with affected individuals or groups including the Gerringong Chamber of Commerce, Kiama Municipal Council and local tourism promoters.
- Information would be provided to the community including:
 - Changes to access and traffic conditions.
 - Details of future works programs.

- General construction progress.
- Visual, air quality and noise and vibration management plans would be developed prior to construction to manage amenity impacts.
- Traffic impacts would be managed through the preparation of a detailed traffic management plan to include construction staging.
- Construction methods and staging would be designed to minimise road closures, subject to other proposal constraints. Staged construction would be allowed so that disruption to the existing traffic is maintained within acceptable levels.
- Adequate signage would be provided to ensure that drivers are aware of how to access Gerringong town centre and Gerroa during the temporary closure of Fern Street.
- The RTA would continue to consult with the community (Gerringong Chamber of Commerce, Kiama Municipal Council, Local Tourism promoters and where appropriate other community members) as it determines mitigation measures for the impact of the temporary closure of Fern Street. These impacts would include the potential temporary loss of trade for businesses receiving customers from Fern Street and the inconvenience of residents in the northern part of Gerringong who usually access their properties from Fern Street.
- Land would be acquired in accordance with the *RTA Land Acquisition Policy* (and under the terms of the *Land Acquisition (Just Terms Compensation) Act 1991*).
- Property access would be maintained and provided throughout. Should temporary or alternative property access be required this would be provided in consultation with the affected landowner(s).
- Ancillary services, such as accommodation, catering and office supplies, would be locally sourced.

During operation:

- A strategy would be developed to provide appropriate signage on the Princes Highway on approach to Gerringong and near to interchanges to identify Gerringong and Gerroa as stopping destinations.
- In addition to strategies developed by the RTA, community and business groups may choose to develop further strategies, such as increasing promotion of tourism in the area and further enhancing the streetscape.

1.0 Introduction

1.1 Background

The Roads and Traffic Authority of New South Wales (RTA) is proposing to upgrade the Princes Highway between Mount Pleasant and Toolijooa Road - the Gerringong upgrade ('the proposal'). The proposal is part of the RTA's program to upgrade the complete Princes Highway corridor between Gerringong and Bomaderry, providing increased road safety and traffic efficiency in the South Coast region of New South Wales.

The proposal would include the following key features:

- Construction of 7.5 km of two lanes in each direction between Mount Pleasant and Toolijooa Road.
- Grade-separated interchange at Rose Valley Road incorporating four-way traffic access to and from Gerringong via a two-way service road and overbridge spanning the South Coast Railway at Fern Street.
- Grade-separated interchange at Belinda Street providing four-way, flood free traffic access to and from Gerringong and incorporating a two-way service road connecting to Willowvale Road.
- Bridge structure spanning a realigned Crooked River, incorporating Bailey's Road and an existing cattle underpass.
- Northbound climbing lane between Rose Valley Road and the top of Mount Pleasant.
- Southbound climbing lane for approximately 800 m from Belinda Street on ramp.
- Property acquisition and the setting of corridor boundaries for the provision of future widening to six lanes (three in each direction).
- Extensive drainage structures maintaining cross drainage flow in the low lying area of Omega Flat.
- Incorporation of the provision for future widening now where the design is constrained by topography and alignment eg the 'slot' and bridge structure at the Rose Valley Road interchange.

Other design features would include areas of cuts and fills, less significant drainage culverts, local road and private road access treatments and cattle underpasses.

The proposal is expected to cost in the order of \$230m and would be funded by the New South Wales State Government. Subject to funding, construction of the proposal is anticipated to commence in 2012 and is expected to take in the order of two years to complete.

1.2 Objective of report

A social and economic impact assessment considers impacts to the community, culture and lifestyle, which can be positive or negative. Equity is a central focus of a social assessment since the groups adversely impacted by a proposal are not always those that reap the benefits.

The proposal may have both direct and indirect impacts on the local communities as well as those throughout the Illawarra region, because it is the main road connection between Sydney and the South Coast of NSW and the Princes Highway around Gerringong is characterised by a range of land-uses.

This report presents an assessment of the potential social and economic impacts associated with the proposal and supplements the Review of Environmental Factors as required under Part 5 of the *Environmental Planning and Assessment Act 1979*. It provides an overview of potential social and economic impacts associated with the proposal and, where appropriate, identifies mitigation measures to minimise those impacts.

1.3 Study methodology

The following approach is a standard framework for undertaking a socio-economic impact assessment:

- Step 1: Scope the extent of the impact assessment.
- Step 2: Profile the current social and economic status of the study area as a baseline level for measuring impacts.
- Step 3: Identify and estimate potential impacts.
- Step 4: Identify options to mitigate or manage impacts.

2.0 Local area profile

2.1 Extent of study area

The study area extends from Mount Pleasant north of Gerringong to the Toolijooa Road intersection south of the town as shown in Figure 2.1.

2.1.1 Description of area

Gerringong is a small coastal town that is located midway along the length of the proposal, to the east of the existing Princes Highway. As a result of amalgamation due to expansion, Gerringong consists of two suburbs; Gerringong; and Werri Beach. Gerringong has both the picturesque qualities of a coastal town to the east and a rural setting to the west, including the Cambewarra Range.

The Princes Highway, in conjunction with the South Coast Railway Line forms a strong western urban boundary to the town. The eastern boundary is the coastline, which is protected from development with an open space corridor. Werri Lagoon and adjacent rural environmental protection zones, limit development to the north, while there is no clear southern boundary and consequently urban expansion has occurred in this part of Gerringong.

Gerringong's industrial hub is located adjacent to the Illawarra railway line and consists mainly of light industry. The commercial / business centre is located around Fern Street, Belinda Street and Blackwood Street. This is also predominantly where the community facilities are located; however a number of facilities are also located in Werri Beach.

In addition to local shops and services, the town includes a number of tourist related activities including boutique hotel accommodation and bed and breakfasts, cafes and restaurants, beach related retail outlets as well as a number of lifestyle and craft related services.

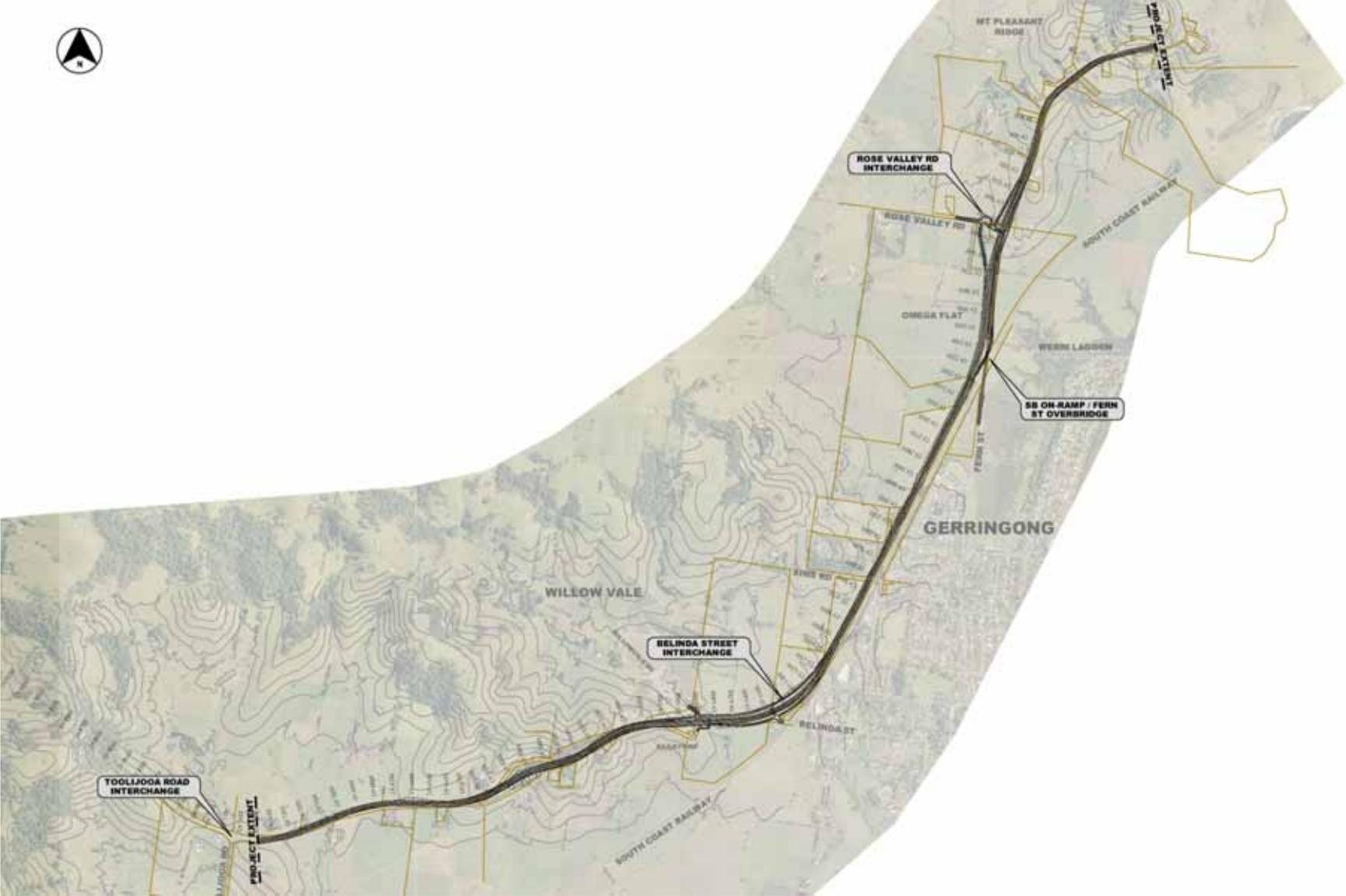
Gerroa is a very small, predominantly residential coastal town located approximately two kilometres south of Gerringong and is accessed from Crooked River Road, an extension of Fern Street. The coastline forms the south and eastern boundary to the settlement and Crooked River Road delineates the northern boundary. Seven Mile Beach Reserve forms the western boundary. With one small shop, one cafe and the Fisherman's Club within the settlement, a number of Gerringong's facilities and services are utilised by residents of Gerroa.

Rural localities in the study area predominantly consist of large lot agricultural holdings including dairy farming and vineyards, as well as designated environmental protection areas. Many of the farms and dwelling houses on these agricultural land holdings are located close to the highway and have direct access to the highway.

Generally, the topography is more rugged to the west of the highway. In these areas, heavily wooded areas are well established. Views from some of these areas stretch down to the Shoalhaven River and to the ocean. There are also a large number of farms to the west of the highway, some of which are "hobby" and "weekend" farms. The farms are serviced by the access roads adjoining the highway.

Land to the east of the highway is generally flatter, with a high percentage situated on the flood plain. This land is primarily used for dairy farming. One other activity of note is quarrying on Crooked River Road, which according to the operator, Cleary Bros., indirectly employs over 100 persons.

Figure 2.1: Extent of study area – Gerringong upgrade



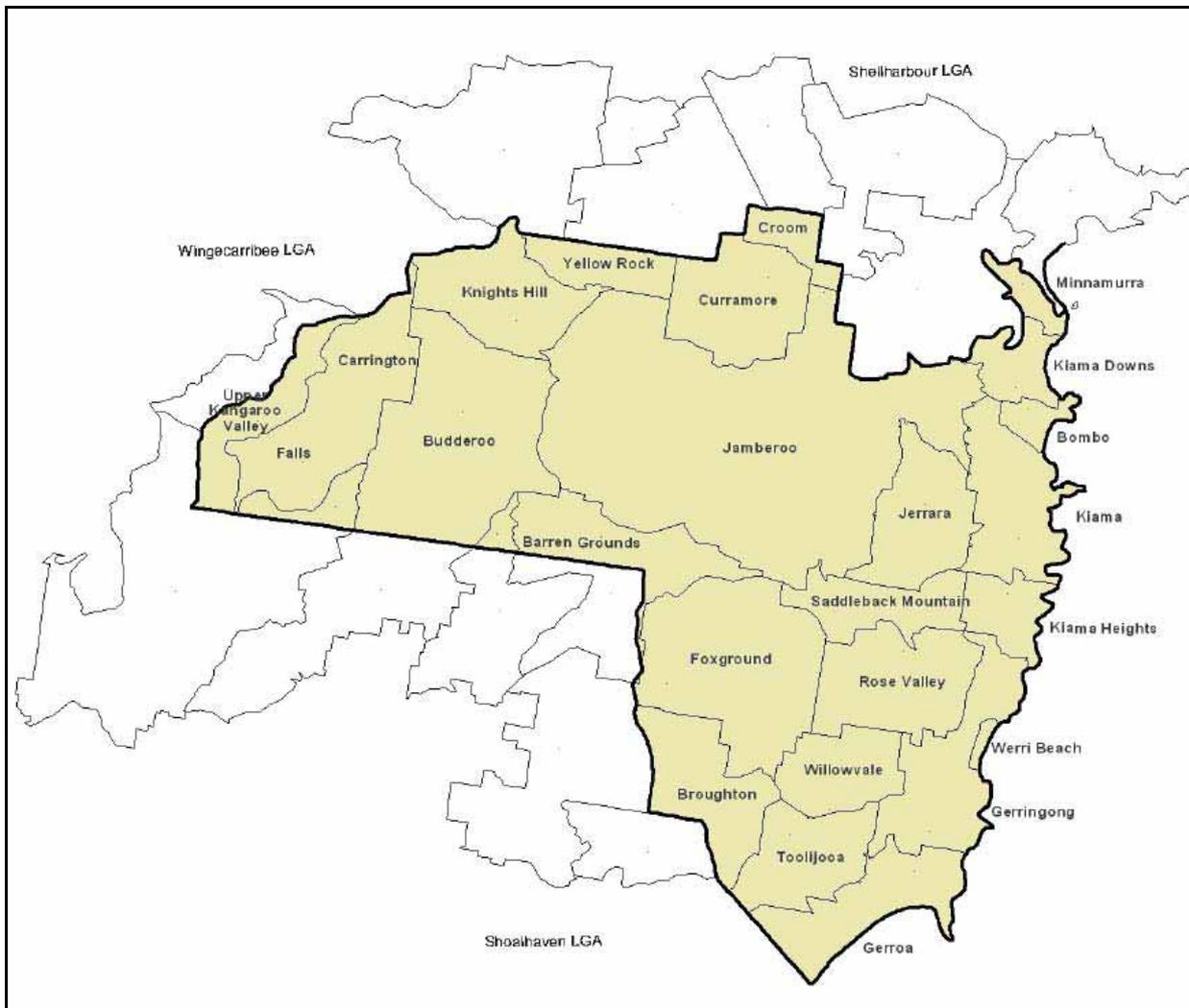
2.2 Socio-economic profile

This section provides a summary of the socio-economic profile of the study area, which is represented by Kiama Local Government Area (LGA). This is followed by a more local summary of the demography in Gerringong.

2.2.1 Kiama Municipal Local Government Area

The Kiama Municipal Local Government Area is located on the south coast of NSW (see Figure 2.2). The Municipality of Kiama is a predominantly rural area with urban townships along the coast. The main urban centres are Kiama, Gerringong, Gerroa, Kiama Downs and Jamberoo. The Municipality encompasses a total land area of 259 km², including national parks, beaches, rivers and rainforests. Rural land is used mainly for dairy farming and cattle grazing, with some basalt mining.

Figure 2.2: Kiama Municipal Local Government Area



In 2006, the population of the Kiama Municipal Local Government Area had reached 18,985, representing 0.3 per cent of NSW's total.

Age structures within the Kiama Municipal Local Government Area are changing. The Kiama Municipal council community profile (March 2007) found that:

"In 1976, only 6.6% of the population of Kiama were over the age of 70. This proportion has doubled with 13.3% of the people of Kiama being over the age of 70. The Kiama region has seen a decrease in the amount of young people living in the area, with the proportion of 20-24, 25-29, and 30-34 year olds all dropping considerably between 1976 and 2001 from 7% to 4.3%, 7.4% to 4.3%, and 7.3% to 5.2% respectively".¹

1.1 per cent of the 2006 population are of an indigenous background, less than the NSW average of 2.1 per cent. Of the total Kiama Municipal Local Government Area population, 82.6 per cent were born in Australia and 17.4 per cent born overseas, namely England, New Zealand, Scotland, Italy and Germany. 6.5 per cent speak a language other than English at home within the Kiama Municipal Local Government Area.

At the 2006 census, detached houses were most prevalent (83.4 per cent), followed by units (9.4 per cent), attached dwellings (5.9 per cent) and other dwellings (1.2 per cent)². Detached dwellings within Kiama Municipal Local Government Area represent a higher proportion of overall dwellings than the NSW average of 69.7 per cent.

The ABS has developed indexes to allow ranking of areas, providing a method of determining the level of social and economic well-being in that region. The Socio-Economic Indexes for Areas (SEIFA) are created by combining information collected in the five-yearly Census of Population and Housing.

The Kiama Municipal Local Government Area averages for relative socio-economic wellbeing are compared to those of NSW in Table 2.1.

Table 2.1: Kiama Municipal Local Government Area averages for relative socio-economic advantage / disadvantage

SEIFA index	Disadvantage	Socio-economic advantage / disadvantage	Economic resources	Education and occupation
Kiama LGA	1062.8	1057.8	1047.7	1047.1
NSW Average*	1000.5	1015.3	1030.5	1009.7

* 2001 values. State averages were not produced for the 2006 Census.

Across all relative socio-economic wellbeing indexes Kiama Municipal Local Government Area displays a higher level of advantage than the NSW average. These results indicate that within Kiama Municipal Local Government Area there is a higher proportion of people living in larger properties, with higher incomes, and higher levels of employment and skills.

2.2.2 Gerringong

Population

As at 2006, Gerringong had a total population of 3,588 persons, of whom 48.7 per cent were male and 51.3 per cent were female. The male population in Gerringong is slightly lower than the NSW average, which was 49.3 per cent.

Of this total population, 79 per cent are 15 and over with 20 per cent 65 and over. The 15 and over age bracket within Gerringong is slightly lower than the NSW average of 80.2 per cent, and the total persons within Gerringong over 65 was higher than the state average of 13.8 per cent.

¹ Kiama Municipal Council Community Profile 2004-2009. March 2004, p7.

² Australian Bureau of Statistics 2006 Census, Kiama (A) (Local Government Area) QuickStats, accessed 2 Dec 2009.

Employment

The total Gerringong labour force in 2006 was 1,584, and of these 57 (3.6 per cent) were unemployed. At that time, 53.9 per cent of the Gerringong population aged 15 years or more were employed full-time, which was lower than the proportion those aged over 15 years employed in NSW (60.8 per cent). Gerringong's unemployment rate of 3.6 per cent is below the NSW average unemployment rate of 5.9 per cent.

The breakdown of employment activity in Gerringong in 2006 is shown in Table 2.2. The main employment sources include education, retail, health, construction, accommodation and food services, public administration, manufacturing and professional services, which provide over 75 per cent of all jobs. Much of this employment is related to servicing the tourist sector including retail, accommodation and food services. In addition, other employment sectors serving the retirement and second property markets are prominent including health and social assistance, construction and support services.

Table 2.2: Gerringong employment by sector (2006)

Industry	No. of jobs	% of total
Education and training	219	14%
Retail trade	174	11%
Health care and social assistance	172	11%
Construction	166	11%
Accommodation and food services	132	9%
Public administration and safety	130	9%
Manufacturing	103	7%
Professional, scientific and technical services	88	6%
Transport, postal and warehousing	54	4%
Administrative and support services	40	3%
Other services	40	3%
Financial and insurance services	38	2%
Other	173	11%
Total	1,529	100%

Source: ABS Community Profile, 2006

Household structure

There were 1,219 occupied dwellings identified during the 2006 census. Of these:

- 1,065 (87.4 per cent) were detached (greater than the NSW average of 71.4 per cent);
- 51 (4.2 per cent) were semi-detached (lower than the NSW average of 9.7 per cent); and
- 103 (8.4 per cent) were flats (significantly lower than the NSW average of 17.7 per cent).

Travel patterns

Approximately 69 per cent of the population drove to work (driver and/or passenger), which is greater than the NSW average of 62 per cent, although 20 per cent did not go to work or worked from home on the day of the Census, compared to the state average of 15 per cent. Only 2 per cent were reliant on public transport (bus and train), which is substantially lower than the NSW average of 12 per cent.

Income levels

Within Gerringong the following income indicators are recorded:

- Median weekly individual income is \$421 which is similar to the NSW average; and
- Median weekly family income is \$1,198 which is similar to the NSW average.

Economic performance indices

The Gerringong and Gerroa postcode (2534) averages for relative socio-economic wellbeing are compared to those of NSW in Table 2.3.

Table 2.3: Gerringong averages for relative socio-economic advantage/ disadvantage

SEIFA index	Disadvantage	Socio-economic advantage / disadvantage	Economic resources	Education and occupation
Gerringong/ Gerroa	1055.7	1046.8	1044.2	1044.4
NSW Average*	1000.5	1015.3	1030.5	1009.7

* 2001 values. State averages were not produced for the 2006 Census.

Across all relative socio-economic wellbeing indexes, Gerringong and Gerroa display a higher level of advantage than the NSW average. These results indicate that within Gerringong and Gerroa there are a higher proportion of people living in larger properties, with higher incomes, and higher levels of employment and skills.

Summary of business activity

To further understand the types of businesses operating in the study area, an analysis of local business has been undertaken. Table 2.4 shows a summary of business types in the study area and for ease of comparison, various business types have been categorised as follows:

- a) Accommodation – including guest houses, bed and breakfasts and hotels.
- b) Food and drink – including cafes, restaurants, bakeries and public houses.
- c) Services – including real estate, hair dressers, photographers, builders, electricians and accountants.
- d) Retail – including clothing, gifts, wineries, supermarkets, newsagents, bookstores and music shops.
- e) Agriculture – including farming and horse related activities.

Table 2.4: Summary of business types in the study area

Category	Gerringong
Accommodation	12
Food and drink	14
Services	34
Retail	11
Agriculture	2

Source: Gerringong Chamber of Commerce; Yellow Pages.

The full list of businesses and a location map are included at Appendix A. Many of the business located in the Gerringong area are focussed on supporting the tourism industry as well as the second home and retirement markets.

2.2.3 Gerroa

Population

As at 2006, Gerroa had a total population of 475 persons, which was split equally between male and female residents. The male population in Gerroa is higher than the NSW average of 49.3 per cent.

Of this total population, 86.3 per cent are 15 and over with 25.7 per cent 65 and over. Both statistics within Gerroa are significantly higher than the NSW averages of 80.2 per cent and 13.8 per cent respectively, reflecting the attractiveness of the settlement to the older generation.

Employment

The total Gerroa labour force in 2006 was 216 and of these 9 (4.2 per cent) were unemployed. At that time, 51.9 per cent of the Gerroa labour force was employed full-time, Gerroa's unemployment rate of 4.2 per cent is below the NSW average unemployment rate of 5.9 per cent.

The breakdown of employment activity for people living in Gerroa in 2006 is shown in Table 2.2. The main employment sources include education, retail, health, construction, accommodation and food services, public administration, manufacturing and professional services, which provide over 75 per cent of all jobs. Much of this employment is related to servicing the tourist sector including retail, accommodation and food services. In addition, other employment sectors serving the retirement and second property markets are prominent including health and social assistance, construction and support services.

Table 2.5: Employment by sector for people living in Gerroa (2006)

Industry	No. of jobs	% of total
Education and training	25	12%
Retail trade	25	12%
Accommodation and food services	23	11%
Public administration and safety	20	10%
Construction	18	9%
Manufacturing	17	8%
Professional, scientific and technical services	17	8%
Health care and social assistance	13	6%
Administrative and support services	10	5%
Information, media and telecommunications	7	3%
Financial and insurance services	5	2%
Other	25	12%
Total	205	100%

Source: ABS Community Profile, 2006

Household structure

There were 188 occupied dwellings identified during the 2006 census. Of these:

- 170 (90.4 per cent) were detached (greater than the NSW average of 71.4 per cent);
- 3 (1.6 per cent) were semi-detached (lower than the NSW average of 9.7 per cent);
- 8 (4.3 per cent) were flats (significantly lower than the NSW average of 17.7 per cent); and
- The remainder were caravans or cabins.

Travel patterns

Approximately 62 per cent of the population drove to work (driver and/or passenger), which is identical to the NSW average, although 26 per cent did not go to work or worked from home on the day of the Census, compared to the state average of 15 per cent. Only three per cent were reliant on public transport (bus and train), which is substantially lower than the NSW average of 12 per cent.

Income levels

Within Gerroa the following income indicators are recorded:

- Median weekly individual income is \$472, which is similar to Gerringong and the NSW average; and
- Median weekly family income is \$1,119, which is similar to Gerringong and the NSW average.

3.0 Identification of key socio-economic impacts

3.1 Introduction

Given the Princes Highway already exists as a major road transport corridor, and that the proposed Gerringong upgrade follows the existing highway alignment, many of the social and economic impacts associated with a road project, such as changes to the socio-economic profile, impacts on local businesses, connectivity and severance, would have already occurred.

Socio-economic impacts of the proposal may differ in nature and/or severity according to the stage of the proposal, be it during the construction phase or operation of the Gerringong upgrade. Measures to mitigate the impacts are discussed in Chapter 4.0.

3.1.1 Literature review

Several studies have been undertaken since the early 1990s to identify a preferred route to upgrade sections of the Princes Highway between Kiama and Nowra, including a bypass around the town of Berry. Studies that document social issues include:

- Gutteridge Haskins and Davey, 1991, Gerringong to Berry Route Study.
- ERM Mitchell McCotter, 1998, Berry Bypass Environmental Impact Assessment.
- NSW Roads and Traffic Authority (RTA), 2006, Gerringong to Bomaderry Princes Highway Upgrade – Consultation Report.

Visual amenity, property impacts, rural lifestyle / amenity, pollution / air quality and operational impacts are cited in all three studies. This gives an early indication of the potential social and economic impacts associated with the Gerringong upgrade and provides guidance on the impacts to be considered as set out in Section 3.2.

3.1.2 Community consultation

The RTA has undertaken a comprehensive program of community consultation with potentially affected property owners, interest groups, government and private agencies and the broader community. The consultation process has allowed the community to raise social and economic issues and themes that should be considered in the socio-economic assessment of the proposal. These are relevant to both construction and operation and are described in Table 3.1.

Table 3.1: Social and economic issues raised during community consultation.

Social issues	Economic issues
Disruption to daily living, movement patterns and social networks.	Impact of redirected traffic to business and tourism.
Impact on noise and visual amenity.	Impact on property values.
High quality impact mitigation and urban design for affected areas and residents.	Importance of appropriate access and interchanges to Gerringong for business sector performance.
Protection of the heritage and character of the region.	Potential impacts to individual farms and agriculture sector.
	Protection of natural rural and environmental values as key economic assets.

3.2 Potential impacts

The potential socio-economic benefits (in particular those related to safety, tourism, employment and economic development) associated with the proposal at a regional level are far-reaching. However, there is also a potential for the proposal to create negative social impacts. The purpose of this report is to identify potential socio-economic impacts which could be experienced in the local area. Accordingly, this methodology has sought to understand those impacts that are potentially the most significant to the communities along the Gerringong upgrade.

The following six categories have been developed to allow a better understanding of each of the potential impacts:

- 1) Community identity and interaction (social cohesion, severance, community identity, social interaction, community assets, uncertainty).
- 2) Amenity impacts (including noise, air pollution, visual).
- 3) Road related impacts.
- 4) Road user benefits.
- 5) Economic impacts (local and regional).
- 6) Impacts of acquisition.

A description of types of potential impacts, and instances of these potential impacts identified to date, are provided below.

3.2.1 Community identity and interaction

Table 3.2 describes potential impacts on community identity and interaction as a result of the proposal.

3.2.2 Amenity impacts

This section seeks to identify impacts that have the potential to permanently alter the amenity of the areas adjacent to the Gerringong upgrade and hence may impact on way of life in these areas. It focuses on identifying changes to noise levels, visual amenity and urban design, air quality and lighting. Impacts on traffic and transport are also considered in this section although these affect all users of the upgrade and not only residents in the vicinity of the proposal.

Amenity impacts would be generated both during construction and operational project phases. For the purposes of this report, the following contributory elements have been identified as being those which are most likely to create impacts on the existing levels of amenity in the localities along the proposal:

- Loss of flora and fauna.
- Noise and vibration.
- Visual impacts.
- Lighting.
- Pollution / air quality.

Table 3.2: Potential community impacts

Impact category	Description	Potential impact
Social cohesion	Social cohesion has a number of definitions, but the over-arching definition is that it is, "all that which brings people together" ³ . It is also seen as being the ongoing process of developing a community of shared values, shared challenges and equal opportunities based on a sense of trust, hope and reciprocity.	Social cohesion can be impacted if some members of the community feel they have experienced greater impacts than others. There is potential for businesses on Fern Street, Gerringong that currently benefit from passing trade to feel that they experience a greater impact as a result of the proposal than other businesses in Gerringong. However, there is not expected to be an extensive impact on social cohesion as a result of the proposal.
Severance	Severance refers to the extent to which the proposal or related activities (during construction or operation) has the potential to physically divide a community. That is, this impact focuses on identifying those proposal elements which could reduce the level of integration within a community based largely on the physical nature of the infrastructure.	The township of Gerringong is unlikely to be impacted by severance as the upgrade passes outside the town boundaries.
Community identity	Community identity refers to a condition where the community has a distinctive identity. This identity is often developed as a result of evolution based on those characteristics of the community which contribute to its distinctiveness from other communities. For example, Gerringong is a coastal town compared to the agricultural land holdings to the eaStreet of the Princes Highway and the farms to the weStreet of the Princes Highway which have rural / farming identities.	There is not expected to be an impact on community identity as a result of the Gerringong upgrade.
Social interaction	Social interaction refers generally to the extent to which individual or group actions promote a high level of interaction.	Social interaction may increase as a result of the Gerringong upgrade in the form of opposition to or support for the proposal or certain project elements. This form of interaction occurs during planning and construction phases, for example, in the activity of resident action groups. Resident action groups have formed during earlier planning stages of the proposal and are expected to continue to be active during future stages.
Community assets	Related to the above elements is the role of community assets in promoting cohesion and interaction among community members. The extent to which these assets are detrimentally affected by the proposal (either directly or indirectly) would determine the likely social impacts caused.	There are not expected to be any impacts on community assets, such as sports grounds, as a result of construction or operation of the proposal.
Uncertainty	The feeling of uncertainty is well known. In short it is the feeling of doubt or insecurity driven by not knowing what the result of an action may be.	In relation to the proposal, the concept of uncertainty may be common, in particular prior to confirmation of the preferred project but also prior to scheduling of the works and during the construction phase. This would be experienced throughout the study area.

³ European New Towns Platform (<http://www.newtowns.net/newtowns/themesmap/socialcohesion>)

Loss of flora and fauna

Vegetation and animal habitat contributes significantly to the level of residential amenity. In addition to visual impacts, from a social perspective, flora and fauna also plays an important role in providing a respite from the urban form. Therefore, loss of vegetation as a result of the proposal may contribute to a reduction in this amenity throughout the study area.

A *Flora and Fauna Assessment* prepared by Biosis (March 2010) has identified that there would be limited vegetation clearing as a result of the proposal and impacts are limited to the edges of already fragmented areas of native vegetation. Therefore, there is expected to be minimal impact to local residential amenity.

Noise and vibration

Noise and vibration created during both the construction and operational phases may create impacts on residential amenity unless appropriate design and mitigation measures are adopted. Key elements likely to be associated with the Gerringong upgrade include:

- Construction noise (site clearance, earthworks, road works, bridge and culvert works).
- Operational noise.

The social impacts of noise may include disruption of daily activities or sleep disturbance. Sleep disturbance brings associated health implications, such as reduced alertness, shortened attention span, poorer judgement and memory, reduced work efficiency, loss of motivation or microsleeps. The effects of sleep loss can be particularly bad on children and teenagers and can affect their school work and there is increased risk of disorders such as depression and attention deficit hyperactivity disorder (ADHD).⁴

Generally construction activities are expected to take place in the daytime, which would limit the impact on local residents, although some activities would take place at night to minimise disruption to traffic and to improve work efficiency, therefore reducing the duration of the construction works.

Works that would be undertaken outside the DECCW standard working hours would be in accordance with the DECCW Interim Construction Noise Guideline (DECC 2009) and the procedure contained in the RTA's Environmental Noise Management Manual 2001, "Practice Note vii – Roadworks Outside of Normal Working Hours".

DECCW standard hours are:

- Monday – Friday: 7.00am to 6.00pm
- Saturday: 8.00am to 1.00pm
- Sunday and Public Holidays: No work.

The Noise and Vibration Assessment prepared by AECOM (March 2010) found that vibration impacts are not expected to be significant and would not cause structural damage to nearby buildings.

The Noise and Vibration Assessment has identified that during operation up to 83 residential properties could be affected by noise in excess of the Environmental Criteria for Road Traffic Noise (ECRTN) guidelines. Of these properties, 22 are isolated rural properties and the remainder are within the Gerringong Township. Noise attenuation measures would be considered during detailed design to mitigate the impact on these properties.

⁴ Better health, Victorian Government, sourced December 2009

Visual impacts

Visual impacts can have very significant impacts upon the amenity of an area as a result of a changed landscape and introduced structures associated with the Gerringong upgrade. Key elements likely to be associated with the proposal include:

- Scenic amenity.
- Scale of the infrastructure.
- Loss of views.

A *Visual Impact Assessment* has been undertaken by AECOM as part of the preparation of the *Urban Design Strategy* (March 2010). The Assessment concludes that due to the open nature of the landscape in the study area, the visual impact of the proposal on local residents could be medium to high. The design of structures and interchanges (in particular the Fern Street / Rose Valley Road interchange) require careful consideration so as to mitigate the visual impact. (Refer to Chapter 4.0 for mitigation options).

Lighting

The majority of construction works are expected to take place during daytime but certain activities would be scheduled to take place at night. The proposal may therefore generate lighting impacts on affected residents in the vicinity of construction sites. Currently, the Princes Highway is not lit extensively, with lighting mainly around intersections. It is expected this would continue during the operation of the Gerringong upgrade.

Pollution / air quality

Pollution can lead to significant impacts upon the amenity of the area. Pollution has the potential to be experienced through the construction phase of the upgrade and also during operation as a result of the potential greater volume of vehicles.

During construction, the most likely impact on air quality is dust generation during excavation works and movement of construction vehicles or equipment. Dust can cause significant disruptions to everyday living for adjacent residents. It can:

- Create health problems, particularly for those with respiratory problems.
- Cause environmental degradation, including air and water pollution.
- Create problems with visibility.
- Damage or soil property and belongings (eg house interior and exterior, garden, car/boat, paths).

An *Air Quality Assessment* prepared by PAE Holmes (March 2010) has identified that carbon monoxide, oxides of nitrogen and particulate matter generated during operation of the Gerringong upgrade would not exceed NSW Department of Environment, Climate Change and Water criteria. Odour from construction activities or the operation of the upgrade is not expected to impact the quality of residents within the vicinity of the proposal.

3.2.3 Road related impacts

Any major project of this nature has the potential to have significant road related impacts and these are detailed within the *Detailed Traffic Assessment* prepared by AECOM (March 2010). Some of the main road related social impacts which can be expected to be associated with the Gerringong upgrade include road safety improvements, transfer of traffic between the 'Sandtrack' and the Princes Highway, road closures and changes to access and displacement and provision of pedestrian and cycle routes.

Construction impacts to travel time

During construction, there is potential to impact road capacity and or operating speed due to work sites on or adjacent to the carriageway, which may result in increased travel times.

The most significant potential delays to existing road users would occur due to the building of the new interchanges at Belinda Street and Fern Street. The majority of the construction work for the Belinda Street interchange can be undertaken without changes to traffic routes.

Construction of the Fern Street railway overbridge would require a temporary closure of the existing junction for a period of up to 12 months, causing potential disruption for vehicles travelling south along the Pacific Highway towards Gerringong. As the Princes Highway is a quicker route, the additional travel time is minimal, although vehicles would face additional operating costs (an additional 1.6 km⁵).

During construction, some traffic from the Princes Highway would divert to the 'Sandtrack' to avoid congestion and delays associated with the works. This may increase crash exposure on the alternative route, increase travel times for existing users and decrease amenity for residents in the vicinity of the route.

Travel time benefits during operation

The Gerringong upgrade would reduce travel times on the existing highway due to an increase in the signposted speed, which, along with the road safety improvements described below, would encourage drivers to transfer from the 'Sandtrack'. The volume of traffic transferring would be expected to increase as subsequent sections of the Princes Highway are upgraded.

Road safety

Road safety is an important social impact, both for current and future safety. Sections of the highway, particularly around Gerringong have a poor crash record and limited safe overtaking opportunities. The proposal study area (and other areas further south) would gain positively in terms of safety from a social perspective. The *Detailed Traffic Assessment* found that fatal crashes on the upgrade could potentially be eliminated altogether, based on the types of crashes in the area which have previously caused fatalities.

Level crossing safety

The NSW Government's Level Crossing Improvement Program aims to improve conditions at level crossings across the state, with the primary objective of improving safety at these locations. The Fern Street level crossing is ranked number 20 on the priority list for improvement. The removal of the Fern Street facility following the construction of the rail overbridge would remove exposure to rail/ motor vehicle crashes and also remove the need for motorists to stop to allow a train to pass, creating travel time and vehicle operating cost savings.

Removing the level crossing would remove the need for annual maintenance of level crossing controls and equipment. Additionally, costs from periodic upgrades (approximately every eight years) would be eliminated. Changes in train speed are minimal and are unlikely to generate significant operating cost savings or travel time savings.

⁵ This is based on a trip ending at the junction of Blackwood and Fern Street.

Road closures and changes and provision of access to new road

The change of access provisions for private property and some local roads to left turn in, left turn out only to accommodate the provision of a median barrier, would have the potential to increase journey time for some residents and other road users who currently use right turn access across the existing highway. For example, residents of Simms Road and Alne Bank Lane, through consultation with the RTA, have expressed a need for some more immediate pedestrian/cycle connection to Gerringong as this movement is effectively prevented by the left turn in, left turn out configuration for Sims Road junction with the upgraded highway.

However, with improved sight distance, the need to negotiate traffic in one direction only and the provision of a two metre sealed shoulder, road safety would be greatly enhanced on the upgraded Princes Highway.

All properties with existing accesses to the Princes Highway would retain access following the Gerringong upgrade, however, some redundant accesses may be closed or multiple accesses consolidated. This would be undertaken in consultation with the affected property owners.

3.2.4 Employment and business impacts

Construction impacts

Construction is expected to occur over a two year period. Econometric modelling by the Bureau of Transport and Communication Economics (1996) found that every \$1 million of road construction expenditure generates 13 jobs, including both those directly employed in the construction and flow on effects. This suggests that the Gerringong upgrade, with a capital expenditure of around \$230 million, could create up to 2,990 jobs over the two year period.

Construction worker expenditure during the two year construction period would benefit local services in the vicinity of the highway, such as cafes and takeaways, service stations and potentially some accommodation providers. The expenditure would have flow on effects to other businesses in the area.

The temporary closure of the northern town access at Fern Street during construction may cause some short-term impacts on local businesses. A number of businesses (hotel, cafes, ice cream shop etc) are located on the Fern Street approach to the town centre and the diversion to Gerringong via Belinda Street could result in a temporary loss of passing trade and a resulting loss in turnover. However, many of these businesses are located on the southern section of Fern Street in the town centre (near Belinda Street) and an effective signposting and traffic management strategy (directing traffic to the centre of town via Belinda Street) would be developed as a measure to manage the impacts.

Potential delays on the Princes Highway during construction would also encourage a proportion of traffic to transfer temporarily from the highway to the 'Sandtrack', therefore increasing passing trade for businesses in Gerringong. With traffic management and signposting strategies in place, there could be a temporary increase in travel demand through the southern end of town, which may benefit businesses along Belinda Street and Fern Street.

Operation impacts

Loss of business to Gerringong

The transfer of traffic from the 'Sandtrack' to the Gerringong upgrade, although improving the amenity of the town, could lead to a loss of passing trade. Passing trade in Gerringong is sourced in part from traffic using the 'Sandtrack' route as an alternative to the Princes Highway and in part from visitors diverting from the Princes Highway to the town for a rest stop.

However, traffic modelling suggests that initially, the Gerringong upgrade would attract only a small proportion of travel demand from the 'Sandtrack'. It is expected that a significant proportion of traffic would switch to the Princes Highway as a result of the cumulative travel time savings associated with the completion of the proposal and subsequent Foxground and Berry bypass and Berry to Bomaderry upgrade sections. In addition, with the construction of two new grade-separated interchanges and the new railway overbridge at Fern Street, Gerringong would be a more accessible and attractive option for traffic diverting to the town for a rest stop.

Other local and regional business impacts

Although it is possible that there may be some business impacts and possible employment losses because a small proportion of traffic diverts from the 'Sandtrack' to the Gerringong upgrade, the proposal may improve economic activity in the locality and the region. In terms of the regional effects, improved connectivity to the South Coast of NSW would enhance business opportunities in the area as well as support the existing tourism industry in the area including Jervis Bay, Bateman's Bay and Ulladulla. In addition, industries in the Nowra area would benefit from increased accessibility to markets and raw materials in the Sydney and Wollongong areas.

In particular there would likely be benefits from improved labour supply. When people make decisions about whether or not to work, where to work and how much to work, they take into account many things, including not only the wages on offer but also the costs associated with each option (time forsaken, commuting costs, stress etc). This means that high commuting costs can lead workers to work less or in less productive jobs (and lower paid) than they otherwise would. Reducing travel time and costs along the Princes Highway may cause people to enter the labour market or move to more productive jobs as a result. There are three labour market impacts⁶:

- More people choosing to work as a result of commuting time savings (because the cost of working has fallen).
- Some people choosing to work longer hours (because they spend less time commuting).
- Relocation of jobs to higher-productive areas (because better transport makes the area more attractive and accessible to firms and workers).

Individuals make such choices based on the after tax income received, which is covered in traditional cost-benefit analysis. However, the full benefit is measured by the gross income paid by their employer including the additional tax revenue received by the state so the traditional cost benefit analysis would not capture of the full benefits.

Impacts on agricultural / farm lands

Most properties directly affected by the proposal have agricultural uses, specifically dairy pasture owned by members of the Gerringong Dairy Farmers Cooperative. The operation of agricultural and farm lands can be affected if an upgrade passes directly through an agricultural property or if access is reduced. As well as loss of productive land, farmers can incur additional costs in moving or replacing high cost equipment such as milking machines.

However, properties affected by land acquisition associated with the proposal would all be subject to acquisition at the edge of the existing road reserve and there are not expected to be any properties that are likely to be severed by the Gerringong upgrade. Furthermore, all existing property accesses would be maintained as part of the proposal.

⁶ Transport, Wider Economic Benefits, and Impacts on GDP, UK Department for Transport, 2006

Although access may be modified to meet safety requirements, the detailed design of individual farm accesses would consider feedback gathered through ongoing consultation and access arrangements would meet the requirements of the property owner to minimise potential impacts on access and business viability.

3.2.5 Impacts of acquisition

The construction of the Gerringong upgrade would require the acquisition of land along the route. Acquisition of property can potentially create a number of social impacts which are summarised in Table 3.3.

Table 3.3: Social impacts associated with acquisition

Residential	Commercial / employment	Rural / agricultural	Industrial
Anxiety. Amenity. Financial distress. Isolation. Severance from community. Reduced subdivision potential. Reduced value of remaining land.	Financial concerns. Relocation costs . Locating suitable alternative accommodation. Staff anxiety. Operational difficulties. Market impacts.	Loss of agricultural land and production. Recognition of differential land values within a farm ^{a/} . Relocation costs. Locating suitable alternative accommodation. Reduced subdivision potential.	Financial concerns. Relocation costs. Locating suitable alternative accommodation. Staff anxiety. Operational difficulties. Market impacts.

Note: a/ For example, high ground is more valuable than low land (cattle can be moved to high ground during flooding) and paddocks close to homestead are more valuable than those further away (security of cattle at night).

Based on preliminary adjusted road boundaries, the proposal would require approximately 99,3400m² (99.34 hectare) of private land. Of this total, the breakdown between full and partial strip acquisitions is shown below:

- Full acquisitions (3 properties) - 743,050m² (74.305 hectare).
- Partial acquisitions (31 properties) - 250,350m² (25.035 hectare).

The preliminary adjusted road boundaries would be subject to confirmation following concept design finalisation addressing any design modifications required following the display of the REF and feedback gathered during the submissions period.

All property acquisition, whether partial or full acquisition would be undertaken in accordance with RTA's Land Acquisition Policy and the *Land Acquisition (Just Terms Compensation) Act 1991*.

The partial acquisitions do not include the loss of buildings, although some residences may be closer to the Upgrade with associated amenity impacts.

The majority of the partial acquisitions affect farming/agriculture land but the area of land expected to be acquired is not considered large enough to significantly alter production or economic viability.

3.3 Summary of key social and economic impacts

The proposal would not be expected to create major community impacts as there would not be community severance or a loss of access. The main community impact would likely be stress due to uncertainty of the construction process.

Residents in the vicinity of the Gerringong upgrade would experience minor disruption to their daily lives due to temporary loss of amenity during the construction phase from noise, visual amenity and air quality (dust) impacts.

During operation, residents in the vicinity of the proposal may experience noise and visual impacts, which would require mitigation.

The new rail overbridge at Fern Street may have socio-economic impacts both during construction and operation. Construction of the rail overbridge would require closure of the existing highway junction access at Fern Street for up to 12 months. Although the junction closure is unlikely to result in additional travel time, drivers would perceive this as an inconvenience.

A number of businesses (hotel, cafes, ice cream shop etc) are located on the Fern Street approach to the town centre and the temporary diversion to Gerringong via Belinda Street could result in a temporary loss of passing trade and a resulting loss in turnover. However, many of these businesses are located on the southern section of Fern Street in the town centre (near Belinda Street) and an effective signposting and traffic management strategy (directing traffic to the centre of town via Belinda Street) would be developed as a measure to manage the impacts.

Construction worker expenditure during the two year construction period would benefit local services in the vicinity of the highway, such as cafes and takeaways, service stations and potentially some accommodation providers. The expenditure would have flow on effects to other businesses in the area.

The Gerringong upgrade would improve journey times for road users and safety, particularly due to the rail overbridge on Fern Street, which replaces the level crossing. The proposal may also bring benefits to the regional economy through improved travel times, particularly through improved labour supply.

Land acquisition is required as part of the proposal, with full acquisition of 3 properties and partial acquisition affecting up to 31 properties. The majority of the partial acquisition is on farming/agriculture land but is generally not considered large enough to significantly alter production and economic viability. The impacts that may be most detrimental are associated with reduced subdivision potential with reduction in some affected lot sizes and rebuild potential.

4.0 Identification of mitigation measures

4.1 Introduction

This chapter considers the potential impacts identified in Chapter 3.0 and suggests suitable mitigation measures to address them.

The key negative impacts of construction identified are:

- Community impacts (uncertainty for local residents).
- Amenity impacts to local residents (visual, noise and dust generation).
- Road user impacts from temporary traffic provisions (longer journey times, temporary accesses).
- Inconvenience over a period of up to 12 months during construction of the Fern Street rail overbridge.
- Property acquisition.

The negative impacts identified with the potential to occur during the operation of the Gerringong upgrade are:

- Amenity impacts (visual and noise).
- Employment and business impacts (loss of trade).
- Road user impacts (longer journey times) from the provision of left turn in and left turn out only movements for property accesses and some local roads.

4.2 Construction

4.2.1 Community impacts

Some residents adjacent to the Gerringong upgrade may experience stress due to the uncertainty surrounding the proposal and the impacts on their property. This would be addressed by providing timely, regular and transparent information and updates to all potentially affected residents such as:

- Letter box drops, media releases, and/or community updates.
- An internet site established and maintained for the duration of the proposal.
- Variable message signs.
- Targeted consultation with affected individuals or groups including the Gerringong Chamber of Commerce, Kiama Municipal Council and local tourism promoters.

Information would be provided to the community including:

- Changes to access and traffic conditions.
- Details of future works programs.
- General construction progress.

4.2.2 Amenity impacts

During construction the following mitigation measures would be adopted:

- Preparation and implementation of a Construction Noise and Vibration Management Plan.
- Implementation of a dust management plan in accordance with the recommendation of the *Air quality impact assessment* prepared by PAE Holmes (March 2010).

- Progressive revegetation of cleared areas on completion of works packages.

4.2.3 Road related impacts

All the impacts of construction on road users would be addressed through the preparation and implementation of a traffic management plan. Work would likely be carried out six days per week during daylight hours, with the potential for extended working hours in the months with longer daylight. Night work would also be likely for special operations such as bridge girder placement, asphalt paving and temporary connections.

Under the traffic management plan, traffic control plans would be produced for all changes to the current road provisions and would cover all road users (motorists, pedestrians and cyclists). Through the community consultation strategy, residents and road users would be advised in a timely manner before any changes to road provisions were implemented. Where feasible and appropriate a variable message sign (VMS) would be used to communicate road changes to road users.

Property access would be maintained and provided throughout. Should temporary or alternative property access be required this would be provided in consultation with the affected landowner(s).

Work would not be carried out on public holidays or for approximately two weeks over the Christmas/New Year holiday period. Traffic control plans would address peak tourist/holiday traffic such as Friday and Sunday afternoons and days immediately prior to and following public holidays.

Wherever practicable, traffic would be provided with a two lane two-way configuration posted at 80km/hr adjacent to construction work.

The potential for increased traffic transfer to the 'Sandtrack' during construction is recognised. The efficiency and safety performance of uncontrolled junctions and overtaking opportunities would be monitored. Where a significant deterioration in safety occurs a specific 'Sandtrack' traffic control plan would be developed and implemented. The performance of the signalised junction of Bolong Road with the Princes Highway would also be addressed under this plan.

4.2.4 Employment and business impacts

The RTA would continue to consult with the community (Gerringong Chamber of Commerce, Kiama Municipal Council, Local Tourism promoters and where appropriate other community members) as it determines mitigation measures for the impact of the temporary closure of Fern Street. These impacts would include the potential temporary loss of trade for businesses receiving customers from Fern Street and the inconvenience of residents in the northern part of Gerringong who usually access their properties from Fern Street.

4.2.5 Impacts of acquisition

The construction of the Gerringong upgrade would require the acquisition of land along the route. The land would be acquired in accordance with the *RTA Land Acquisition Policy* (and under the terms of the *Land Acquisition (Just Terms Compensation) Act 1991*. Section 55 of the act allows for the following matters to be considered in determining the amount of compensation to which a person is entitled:

- The market value of the land on the date of its acquisition.
- Any special value of the land to the person on the date of its acquisition.
- Any loss attributable to severance.
- Any loss attributable to disturbance.
- Solatium (meaning compensation to a person for a non financial disadvantage resulting from the necessity to re-locate their residence as a result of the acquisition).

Adherence to the land acquisition policy is the appropriate method for managing impacts.

4.3 Operation

4.3.1 Community impacts

No major negative community impacts such as severance or impacts to social cohesion would be expected to occur as a result of the proposal operation as the Gerringong upgrade follows the existing alignment. However, residents of Sims Road and Alne Bank Lane, through consultation with the RTA, have expressed a need for some more immediate pedestrian/cycle connection to Gerringong as this movement is effectively prevented by the left turn in, left turn out configuration for Sims Road junction with the upgraded highway. A combined pedestrian/cycle facility would be provided to link Sims Road with Belinda Street.

4.3.2 Amenity impacts

It would be important to provide noise attenuation to prevent noise levels exceeding allowable limits for properties in the vicinity of the proposal.

Mitigation measures are suggested in the *Noise and Vibration Assessment* (AECOM, 2010). For isolated properties, it may be most cost effective to provide architectural treatments, which might include the upgrading of door or window seals, or provision of new doors and windows. In areas such as the Gerringong Township, it may be more practical to provide attenuation such as a barrier.

Mitigation measures should be developed in consultation with community, since some residents may have a preference for what type of noise attenuation would be most appropriate. However, the final decision as to which treatment is applied would remain with the RTA as the proponent of the proposal.

The *Noise and Vibration Assessment Report* also recommends provision of low noise road surfacing as an alternative mitigation measure. The potential for this would be investigated as part of the detailed design.

The selection of appropriate noise attenuation would have implications for the visual amenity. The majority of the amenity impacts would arise as a result of the scale and location of noise attenuation in areas where there is a lack of vegetation or where the built form is located close to the property boundary. Ensuring there is a vegetative screening between potential noise attenuation and the properties would reduce the visual impact.

4.3.3 Employment and business impacts

As discussed in Chapter 3.0, the temporary closure of the Fern Street junction may result in a small amount of passing trade being lost. However, many of these businesses are located on the southern end of Fern Street in the town centre and an effective signposting and traffic management strategy (directing traffic to the centre of town via Belinda Street) would be developed as a measure to manage the impacts. In addition, a net increase in turnover is expected due to growth in regional population and traffic growth.

A strategy would be developed to provide appropriate signage on the Princes Highway on approach to Gerringong and near to interchanges to identify Gerringong and Gerroa as stopping destinations.

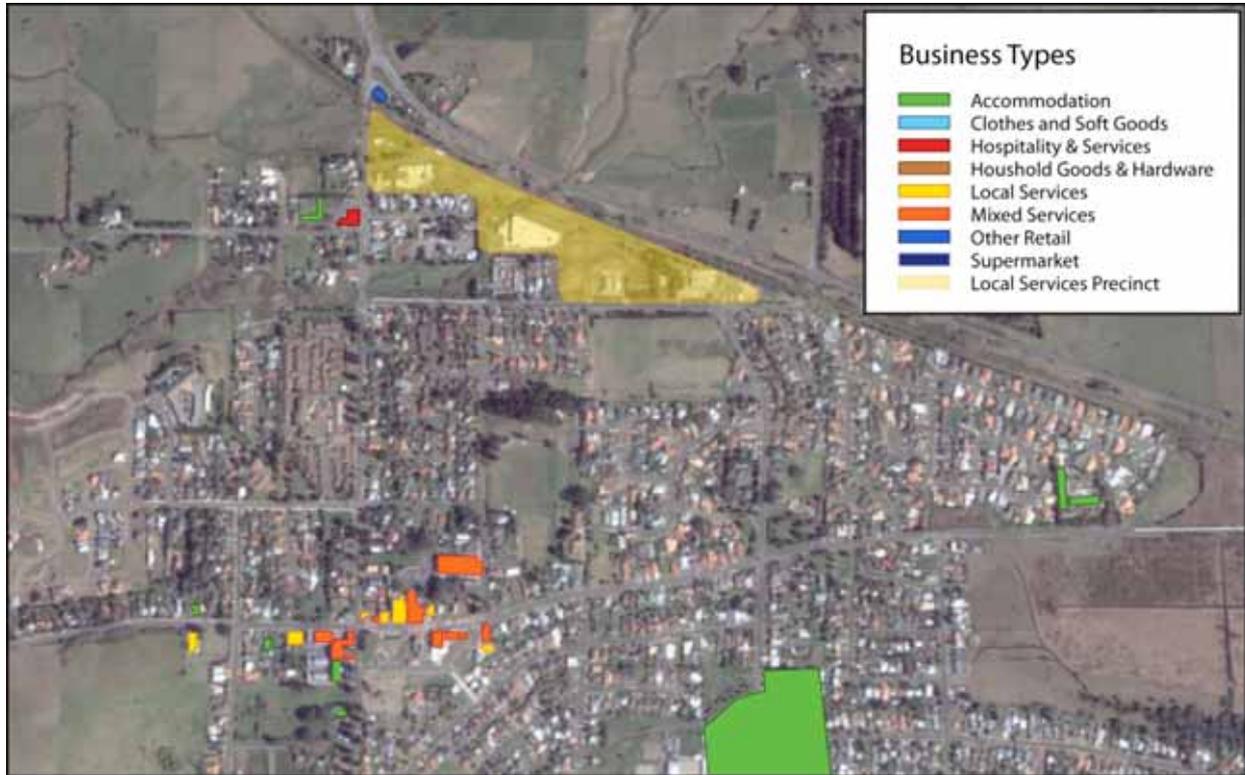
In addition to strategies developed by the RTA, community and business groups may choose to develop further strategies, such as increasing promotion of tourism in the area and further enhancing the streetscape.

Appendix A List of businesses in the study area at 2007

Appendix A List of businesses in the study area

Category codes: A – accommodation; F – food and drink; R – retail (excl food and drink); S – services; AG – agricultural

Figure A.1: Location of Gerringong businesses



Source: SGS 2008

Businesses in Gerringong at 2007

Number	Business	Address	Business type	Category
1.	Adam's Quality Meats & Catering	102 Fern Street Gerringong	Food	F
2.	Gerringong Pizza	Shop 1/ 123 Fern Street Gerringong	Food	F
3.	Lucky Harbour Chinese Restaurant	Shop 4/ 152 Fern Street Gerringong	Food	F
4.	Seahaven	19 Riverleigh Avenue Gerroa	Food	F
5.	Seven Mile Beach Kiosk	Crooked River Road Gerroa	Food	F
6.	Zoobs Wood Fired Pizza	Shop 1, 11 Blackwood Street Gerringong	Food	F
7.	Crooked River Winery / Cafe	11 Willowvale Road Gerringong	Food	F
8.	Jacks Grill	Gerringong Hotel Gerringong	Food	F

Number	Business	Address	Business type	Category
9.	Perfect Break Vegetarian Cafe	Opposite Town Hall Gerringong	Food	F
10.	Poets Corner	104 Fern Street Gerringong	Food	F
11.	Sea Vista	Shop 2/ 1 Noble Street Gerringong	Food	F
12.	Gerringong Deli & Cafe	133 Fern Street Gerringong	Food	F
13.	Scoops Ice Creamery & Cafe	100 Fern Street Gerringong	Food	F
14.	Bellachara Boutique Hotel	1 Fern Street Gerringong	Hotel	A
15.	Glenora Weaving & Wool	Gerringong	Crafts	R
16.	Beauty By The Beach	Shop 137 B, Fern Street Gerringong	Beauty Salons	S
17.	Jindalee Spa	Shop 137b Fern Street Gerringong	Beauty Salons	S
18.	Local Beauty	7 Fern Street Gerringong	Beauty Salons	S
19.	Nail Are You	125 Fern Street Gerringong	Beauty Salons	S
20.	Peradigm Solutions	37 Gowan Place Gerringong	Computer Systems Consultants	S
21.	Gerringong Rural Services	Gerringong	Farm Contracting Services	AG
22.	Southern Rural Fencing & Farm Services	Gerringong	Farm Contracting Services	AG
23.	Roselea Vineyard	310 Princes Highway Gerringong	Vineyards	R
24.	Gerringong Veterinary Surgery	20 Belinda Street Gerringong	Veterinary Surgeons	S
25.	Illawarra Equine Centre	23 Bridges Road Gerringong	Veterinary Surgeons	S
26.	Medenis A J & Associates	20 Belinda Street Gerringong	Veterinary Surgeons	S
27.	Chris & Wendy Cutting	Gerringong	Fencing Contractors	S
28.	Southern Rural Fencing & Farm Services	Gerringong	Fencing Contractors	S
29.	Axiom Fencing	7 Willawa Avenue Gerringong	Fencing Contractors	S
30.	Gerringong Co-Operative Dairy Society	18 Belinda Street Gerringong	Fencing Materials	S
31.	Burgess Phillip	6/ 11 Blackwood Street Gerringong	Chiropractors	S
32.	Diane Redmond	Gerringong	Fitness Centres	S
33.	Rhee International Tae Kwon-Do	Gerringong	Fitness Centres	S

Number	Business	Address	Business type	Category
34.	South Coast Pilates Studio	Shop 4, Gerringong Plaza 11 Blackwood Street Gerringong	Fitness Centres	S
35.	Joy Gabrielsen	75 Renfrew Road Werri Beach	Herbalists	R
36.	Raffal Goudry	67 Mitchells La Rose Valley	Alexander Technique	S
37.	Joy Gabrielsen	75 Renfrew Road Werri Beach	Bowen Therapy	S
38.	Karenne Eccles	42 Burnett Avenue Gerringong	Aromatherapy	R
39.	Gerringong Family Medical Practice	139 Belinda Street Gerringong	Doctors--Medical Practitioners	S
40.	Dick Payne First National	119 Fern Street Gerringong	Real Estate Agents	S
41.	Gerringong The Professionals	135 Fern Street Gerringong	Real Estate Agents	S
42.	Bevans Real Estate Group - Illawarra	1/ 102 Fern Street Gerringong	Real Estate Agents	S
43.	Campbells Ray White	1/ 1 Noble Street 94 Fern Street Gerringong	Real Estate Agents	S
44.	Noble Bros Gerringong Pty Ltd	58 Fern Street Gerringong	Real Estate Agents	S
45.	F Harding	32 Willawa Avenue Gerringong	Storage	S
46.	Gerringong Hotel Motel	29 Belinda Street Gerringong	Hotel	A
47.	ANZ Bank	107 Fern Street Gerringong	Bank	S
48.	Gerringong Pharmacy	113 Fern Street		R
49.	Gerringong Physio	11 Blackwood Street		S
50.	Gerringong Top Video	3/11 Blackwood Street		R
51.	Gerringong Village Auto Centre	100 Belinda Street		S
52.	Mortgage Wisdom Gerringong	15 Henry Lee Drive		S
53.	PRM Architects & Town Planners	3 Noble Street		S
54.	Rentquip - Kiama / Gerringong	15 Victoria Street		S
55.	Seahaven Café	19 Riverleigh Avenue Gerroa		F
56.	South Coast holidays	3 Noble Street		S
57.	Guys At Gerringong	Shp1/ 135 Belinda Street Gerringong		R
58.	Natural Necessity Surf & Snowboard Shop	Opposite Town Hall Gerringong		R

Number	Business	Address	Business type	Category
59.	IGA			R
60.	Library	Town Hall		S
61.	Florist - Seeking More	Shop 2/ 125 Fern Street Gerringong		R
62.	Carter & Ferguson	125 Fern Street Gerringong		S
63.	Bookshop			R
64.	Retirement Village			A
65.	Anchor Inn	139 Belinda Street Gerringong		A
66.	Gerroa Shores Holiday Park	Crooked River Road Gerroa		A
67.	Seven Mile Beach Holiday Park	Crooked River Road Gerroa		A
68.	Werri Beach Holiday Park	Pacific Avenue Gerringong		A
69.	Gerringong YHA Hostel "Nester House"	Fern Street Gerringong		A
70.	Gerringong Coastal Resort Motel	Fern Street Gerringong		A
71.	Seascape Manor & Resort	Fern Street Gerringong		A
72.	The Werri Traveller	57 Fern Street Gerringong		A
73.	Tumblegum Inn	141C Belinda Street Gerringong		A
74.	Adam's Quality Meats & Catering	102 Fern Street Gerringong		F
75.	Gerringong Gourmet Meats	109 Fern Street Gerringong		F
76.	Jocks Bakery & Cafe	123 Fern Street Gerringong		F