GLOUCESTER SHIRE COUNCIL

LOCAL ENVIRONMENTAL STUDY 2006

HunterDevelopmentBrokerage

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March 2006

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Document History and Status

Issue	Revision	Issued To	Qty	Issue Date	Author	Reviewed
Draft	1	Hunter Development Brokerage	1		B. Heise	K. Nichols
Final	1	Hunter Development Brokerage	1		B. Heise	K. Nichols
Final	1	Gloucester Shire Council	3		B. Heise	
Revision	1	Gloucester Shire Council	1		J. Nichols	G. Wilcox
Final	1	Gloucester Shire Council	1		J. Nichols	K. Nichols

Printed: 5/04/2006

File Reference: G:\Jobs\2004\0493 – Gloucester Council\publications\LES 2005.doc

Applicant: ***Gloucester Shire Council***

c/- Hunter Development Brokerage Pty. Ltd.

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HDB Reference Number: 04/93

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INTRODUCTION

The Shire of Gloucester has experienced a decline in its traditional agricultural base, particularly timber and dairying. At the same time, there has been an unprecedented demand for residential and rural residential lots. This Study has been undertaken to examine the impact of these changes and assess the adequacy of current planning instruments to cater for future development.

STUDY OBJECTIVES

The Study objectives are:

- to identify required modifications to Gloucester Local Environmental Plan 2000
- to provide Council with a basis for long term planning decisions
- to review residential and rural residential strategies
- to examine opportunities for diversification of agricultural production
- to review and update Local Environmental Study – Gloucester Shire Council 1997

EXISITNG ENVIRONMENT

Location, Description and History

The Shire of Gloucester encompasses an area of 2951.6 square kilometres and is located in the northern part of the Hunter Valley. It adjoins several other local government areas and includes significant areas of World Heritage-listed National Park and State Forests. The principal urban centre is the Town of Gloucester.

The Worimi People originally inhabited the Gloucester area. The Shire was first explored by Europeans in 1826 and with the influx of the white occupation of the area, there were many recorded incidents with local aboriginal tribes.

A significant proportion of Gloucester's early development was related to the activities of the Australian Agricultural Company, the recipient of the first land granted in the area. It

developed as an agricultural and forestry centre and has experienced consistent development to the present day.

Climate, Geology and Topography

The Shire has significant diversity in climate, topography, land use practices, soils and geology. It rises to a height of above 1500m in the Barrington Tops and falls to the township of Gloucester with an altitude of 100m. Rainfall over this area varies significantly due to the natural terrain. The wettest months of the year are January to March and the driest July to September.

Much of the Shire is hilly and steep which makes it unsuitable for various forms of land use. The diverse range of geology through the area, has given rise to a number of extractive materials, including precious stones, gold and coal. Coal deposits are clustered in the Gloucester Basin, running south from Gloucester, approximately 40km long and 13km wide. Methane gas resources in the Basin are also extensive.

Soils

Soils vary significantly throughout the Shire, due to the geological structure. They range from Alpine Humus Soils in the Barrington Tops/Gloucester Tops area, to alluvial soils along the drainage paths and river systems. There is however, a significant absence of those soils suitable for prime agriculture and continued cropping within this Shire.

Hydrology

The Gloucester local government area covers a significant proportion of the Manning River catchment and is dissected by a number of river valleys extending from the Barrington Tops to the east. The principal rivers are the Gloucester, Barrington and Avon.

Water supplies for the Town of Gloucester and the Village of Barrington are sourced from the Barrington River. Water quality in the river systems is generally good and is regularly monitored by Council.

Flora and Fauna

Due to the wide diversity of climate and the range of microclimates and soil types, vegetation and fauna vary dramatically in this area. Flora ranges from sub-tropical forests, dry forests and warm temperate forests to cleared grazing land in the river valleys.

There are a number of significant flora and fauna species known or expected to occur within the Gloucester district. The National Parks and Wildlife Service and NSW Fisheries list endangered species.

Heritage

The Shire has a wealth of historic and heritage items that are worthy of promotion and preservation. These include the significant cluster of inter-war buildings in the township of Gloucester, a number of archaeological and industrial archaeology sites in the Shire, together with a significant amount of Aboriginal heritage.

Environmental Hazards

Soil erosion is not particularly prevalent in the area; however, it does vary, depending on the diversity of the soil types. Soil erosion along the river systems is an area of concern in regard to the impact on the total catchment.

Flooding constrains development of the township of Gloucester and is prevalent along the river systems. A Floodplain Management Plan has been prepared and adopted by Council. The Rural Fire Service has mapped Bush fire prone areas.

Demographics

The population of the Gloucester local government area in 2001 was estimated at 4,927. The 2001 Census of Population and Housing recorded an apparent population decline; however, this is not reflected in other statistics and may be due to the absence of a significant number of residents on Census night. Development approvals for residential subdivision and housing have increased dramatically in the past two to three years and sales of residential land have similarly increased, both in numbers and lot values. A significant proportion of buyers are

from Sydney, Newcastle and the Central Coast, seeking lifestyle improvements and investment.

In comparison to the Hunter Region, Gloucester has a significantly lower proportion of its population in the 20-24 and 25-29 age groups and a much higher proportion in the over 60's age groups. This ageing trend is expected to continue and Gloucester will need to consider strategies to cater for an older population.

Agriculture remains the main employer in Gloucester (22%), although numbers are declining and aging. A diminishing workforce is also evident in the manufacturing, finance and insurance sectors. Overall, the total number of persons in the Gloucester workforce has declined at about 1.25% pa since 1991.

LAND USE

Agriculture

Agriculture is the principal source of income for the Gloucester local government area. In 2001 the total value of agricultural production was over $23M, and increase of 8.3% since 1997.

The Dairy industry has been significantly affected by State-wide reforms in 2000, with the number of farms in Gloucester falling from 60 in 2001 to 36 in July 2004. The beef cattle sector remains the major agricultural producer. Emerging agricultural industries include fruit, eggs, and lucerne.

Agribusiness, defined as "alternative farming practices on small acreages" is poised for expansion in the area, with significant marketing advantages associated with Gloucester's location and pristine image. Potential industries include aquaculture, small animal rearing, viticulture, olive and fruit growing and herb production. There is considered to be opportunities for greenhouse horticulture, hydroponics and organic farming.

Mining

Coal mining in Gloucester commenced at Stratford Mine in 1995 and continued in the main pit until 2003. The Bowens Road Open Cut Mine commenced in 2003 and is expected to be completed by 2009. The Stratford coal processing plant may remain in operation beyond that date to service the Duralie Mine 20 kilometres south. In all coal mining in the Gloucester Valley is unlikely to extend beyond 2015.

Significant resources of coal seam methane have been identified in the Gloucester Valley pre-production testing in progress. This may lead to the establishment of associated industries.

Gloucester and Upper Hunter Shire Councils have also issued development consent for mining of a ruby deposit, with works expected to commence shortly following approval by State authorities.

Tourism

Tourism is a major industry because of the natural beauty of the area and the proximity of Gloucester to the Barrington and Gloucester Tops. Barrington Tops is included in the World Heritage Listed Central Eastern Rainforest Reserves. In 2004/2005, the estimated visitor expenditure in Gloucester was $21M.

Council operates a Visitors Information Centre that is open seven days per week and handles an average of 45 enquiries per day.

There is a wide and increasing variety of accommodation available for visitors to the area. The Town of Gloucester also provides visitors with a choice of dining establishments.

Subdivision of Land

There has been an increasing demand in Gloucester for residential and rural residential land. At current rates of development and sales, the existing land supply in the respective zones will be exhausted within a few years.

A Local Strategy Statement, developed through a consultative process, has identified Gloucester's sustainable population at 12,000 persons. A land release strategy will be prepared to ensure that this population can be achieved in the long term in response to demand, environmental, economic and social constraints.

Gloucester and the immediate surrounds will eventually need to provide accommodation for approximately 6,700 persons, involving up to 3,000 additional dwellings. There is some opportunity, with an active urban consolidation approach, to provide additional accommodation in the developed areas, however, most new dwelling will be on green fields sites. The Village of Barrington has potential for further residential development.

Additional land needs to be identified for the development of agribusiness and rural lifestyle lots. At the same time, protection of prime agricultural land in the rural and scenic protection zones is essential for the preservation of Gloucester's agricultural base. Existing hobby farm provisions and 100-hectare minimum lot sizes are not responding to agricultural needs. Council has however, resolved to vary all rural zones to allow 40ha lots.

Land is available for light industrial lots near Gloucester, with opportunity for expansion of this zone. Land in the vicinity of Stratford Coal Mine may be suited to other industrial uses that require separation from residential areas.

Roads and Railways

Gloucester is situated on Bucketts Way (Regional Road 90), which extends from the Pacific Highway north of Raymond Terrace, rejoining the Highway south of Taree. The road is currently undergoing a $20M upgrade. Traffic on this road is approximately 2,600 vehicles per day (south – Golf course) and 1,600 vehicles per day (east – Avon River flats).

Thunderbolts Way (Regional Road 7719) links Gloucester to the north, with a traffic volume of 2,700 vehicles at Showground Road.

Council maintains 469 kilometres of unsealed roads and 270 kilometres of sealed roads. The road system is considered adequate for current traffic volumes.

Gloucester is located on the Main North Coast Railway line and has daily CountryLink rail and/or coach services.

Sewerage and Water Supplies

The Town of Gloucester is provided with a reticulated sewerage system. The sewage treatment plant was first constructed in 1937 and discharge water quality has been improved by the construction of artificial wetlands in 1996. Because of the recent increase in residential subdivision lots, the plant will shortly be operating at close to its design capacity.

Gloucester Shire Council provides reticulated water to Gloucester and Barrington in separate schemes. Gloucester's water is fully treated, with a capacity of 4.5 megalitres/day, serving a population of 2,650. Some spare capacity exists in the scheme. The Barrington water supply is provided directly from the Barrington River and is untreated, except for chlorination. Council is currently investigating possible upgrades to the water supply schemes, including linking Barrington to the Gloucester supply.

LEGISLATIVE FRAMEWORK

The principal planning instrument for Gloucester Shire Council is Gloucester Local Environmental Plan 2000. This plan was made under the provisions of the Environmental Planning and Assessment Act, 1979 and commenced on 8 September 2000. A number of State Environmental Planning Policies and the Hunter Regional Environmental Plan 1989 apply in the Gloucester local; government area. Other State legislation is also applicable.

1.0 INTRODUCTION

The Shire of Gloucester is situated on the eastern slopes of the Great Dividing Range, encompassing an area of 2951.6sqkm. Much of this area is protected land, either State Forest, National Parks or very steep and rugged terrain. It has a wealth of pristine natural beauty, combined with a viable agricultural base.

On a regional and national scale, agriculture has experienced significant pressures in recent years. Gloucester has also experienced a local decline in the timber and dairying industries. Available coal resources are diminishing and the area's employment base has been steadily eroding. At the same time, there has been an unprecedented demand for residential and rural residential lots, with buyers from metropolitan areas seeking a life style change. Together these factors have made it necessary to re-evaluate Gloucester's present position and identify options for future development.

Gloucester Local Environmental Planning 2000 (LEP) is in need of review, particularly in respect to residential and rural subdivision provisions. This Study builds on the previous Local Environmental Study carried out in 1997 and examines the existing environment, development trends and pressures, providing a basis for the preparation of a new LEP.

Gloucester Shire Council has a commitment to the community through its Corporate Objective to *"Enhance the Quality of life in the Gloucester Shire through the provision of service based on sound economic, social and environmental planning."*

Future choices and directions can best be examined with a full understanding of the present position and an awareness of the opportunities and constraints. Through this informed decision-making process, a more achievable and ultimately more beneficial and prosperous future can be planned.

2.0 STUDY OBJECTIVES

Gloucester Shire Council has resolved to carry out a review of Gloucester Local Environmental Plan 2000 to:

- Identify amendments that need to be made to the Gloucester Local Environmental Plan 2000 to ensure it meets the needs of the community and to clarify departures identified in the document that may mislead or misinterpret issues.

- To provide feedback from the public and statutory authorities under the Act as to the Shire residential and rural living strategy.

- To provide Council with a basis to establish long term planning focus and land release, utility provision and public direction.

The primary role of this Study is:

- Reviewing the current Gloucester LEP 2000 including amendments.

- Review and update the Local Environmental Study – Gloucester Shire Council 1997, to reflect the changes to development that are occurring in Gloucester Shire.

- To plan for and guide residential development (urban / village / rural residential / rural lifestyle / rural) over the next 5, 10 and 20 year periods.

- To review strategies for closer residential settlement (units, duplex and strata developments).

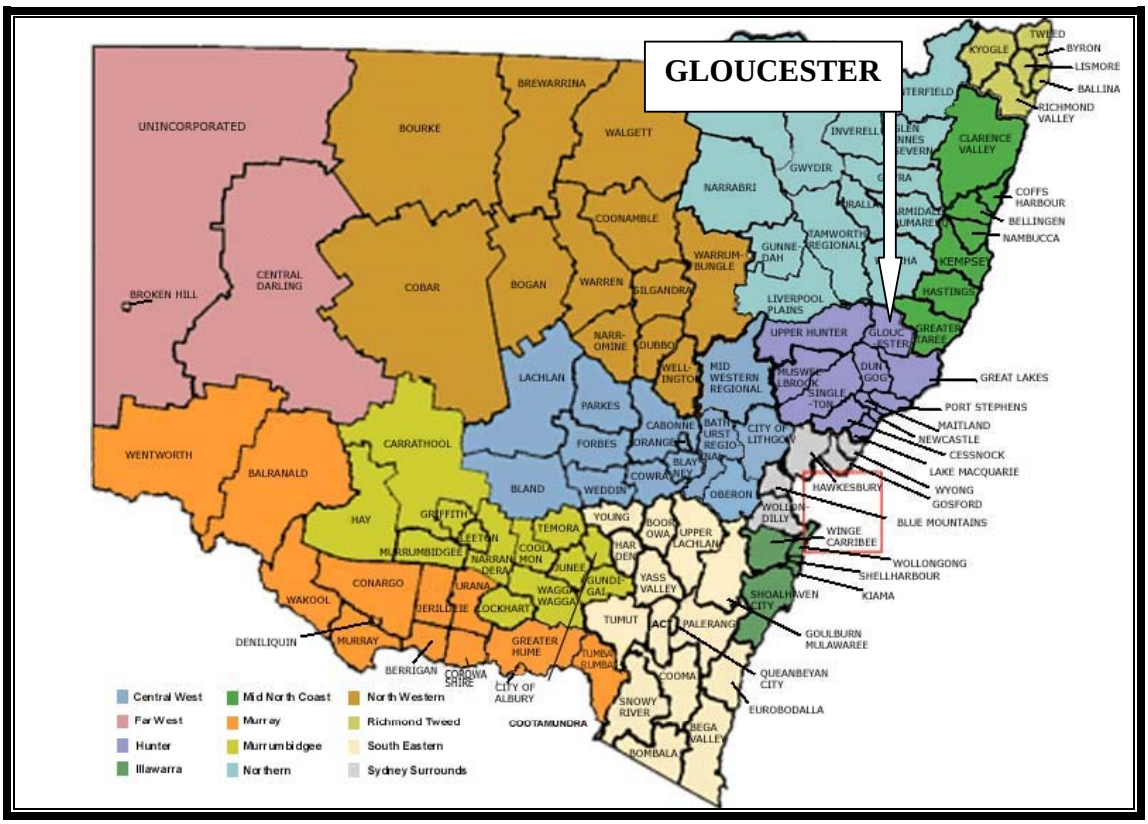
- To establish criteria and policies for rural lifestyle living (vineyards, orchards / boutique agricultural types).

- To provide the foundation for sustainable planning policy which balances growth with the natural, scenic and cultural assets of the Shire.

3.0 EXISTING ENVIRONMENT

3.1 Location and Description

Gloucester Shire Council district is located in the north-eastern corner of the Hunter Region, approximately 120km north of Newcastle, covering an area of 2951.6 square kilometres. The Council area adjoins the local government areas of Great Lakes, Dungog, Upper Hunter, Walcha and Greater Taree City Council. (**Refer Plan 3A, below**)



Source: NSW Department of Local Government

PLAN 3A – NSW Local Government Boundaries

The major commercial and urban centre of the Shire is the township of Gloucester, which is situated 310km north of Sydney, 125km north of Newcastle and 78km west of Taree. Approximately 53% of the Shire's population live in the town of Gloucester, with the remainder located within the small rural villages of Stratford, Craven, Barrington, Bundook, Copeland and surrounding rural areas, (principally within 20km of Gloucester).

The Council area is rurally based with the major rural industries being dairying and beef cattle. Coal mining is also an established industry to the Shire.

Gloucester Shire includes a significant part of the catchment for the Manning River, discharging to the sea through the Greater Taree City Council area. There are three main river systems contributing to the Manning in the Shire, these being the Gloucester, Barrington and Avon Rivers.

The World Heritage-listed Barrington Tops National Park and large areas of State Forest are located in the southern and western parts of the Shire. This generally encompasses less fertile land, which is significantly affected by constraints such as slope and topography. This area however, represents a significant tourism resource for the area and is relatively pristine and has a high conservation value.

The Main Street of the Gloucester township is significant for its comprehensive and relatively intact collection of buildings from the 1910's to 1950's. The predominance of buildings from this period has been bought about by the relatively recent development of the town. Private development was limited until 1902, when the land was sold by AA Co. and subsequently subdivided. The street grid, as laid out by the AA Co. (c. 1855) remains basically intact today.

The streetscape has few buildings of grand or imposing design and its general appearance is dominated by the surrounding natural landscape, particularly the Bucketts Range to the west.

The striking natural landscapes of the Gloucester area are a significant resource for the Shire and dominate the vistas into and out of Gloucester.

3.2 History

Aboriginal History

In 1788 there were about 300,000 Aborigines in Australia. They were divided into over 500 tribes, each with its own distinct territory, dialect, customs and history.

The Aborigines were hunters and gatherers who wandered within their own territory in response to seasonal availability of food, so that the land's resources could be naturally replenished.

The Worimi people occupied the land between Barrington Tops and Forster in the north and Maitland and the Hunter River in the south. The Worimi is made up of several tribes. These being the Buraigal, Gamipingal and the Garawerrigal. These tribes were also broken up into Nurras, which are local groups, each occupying a definite locality within the tribal territory.

The locations of these tribal territories are not known accurately because of the extensive de-tribalisation that occurred after European settlement. The Worimi tribe spoke dialects of the Kattang language.

The Shire was first explored by Europeans in 1826 and the Australian Agricultural Company was the recipient of the first land granted in the area. The Aborigines were treated kindly as they migrated towards the settlement and began to learn the white man's ways and language and were employed in many ways in exchange for food. This migration however, reduced the number of Aborigines following a traditional lifestyle.

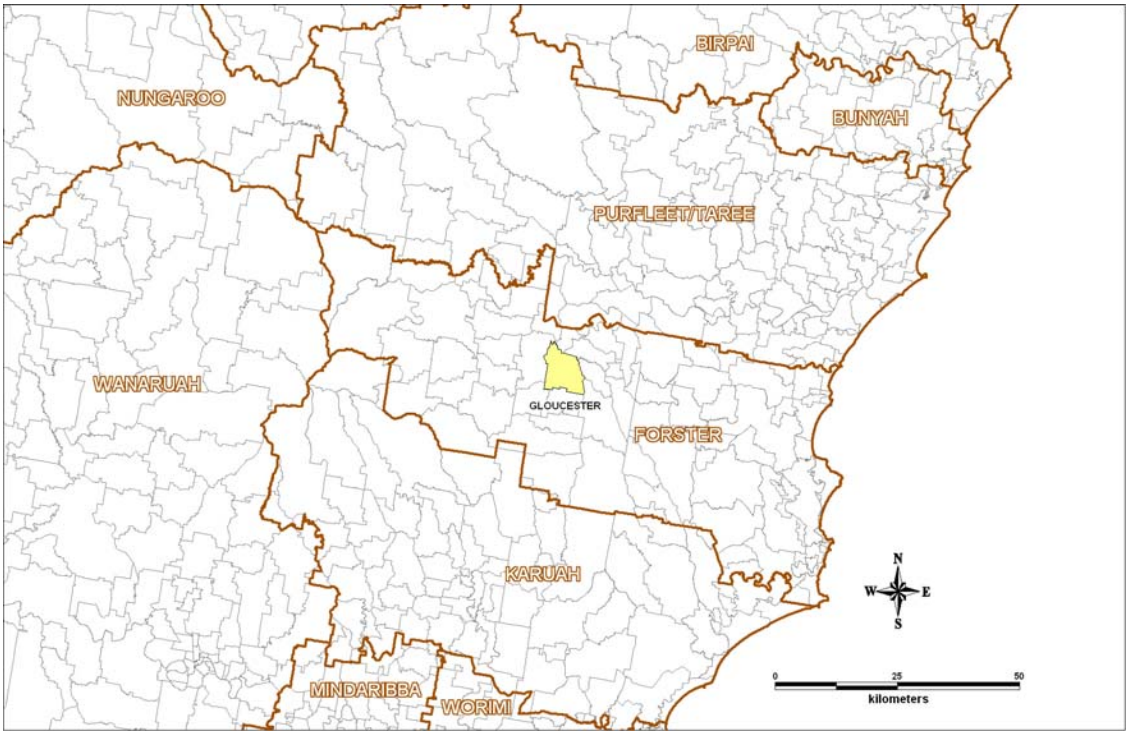
With the withdrawal of the Australian Agricultural Company in 1831, conditions deteoriated rapidly for the Aborigines. They lost land, sacred sites and hunting grounds as settlers took up land grants. Wildlife dwindled as a result of settler's guns, timber getting and cattle grazing. By 1840 the natural food supplies were almost exhausted.

When the Aborigines, who were suffering from starvation, began killing stock to supplement their food supply, the settlers retaliated and there were many recorded incidents with local aboriginal tribes.

Aboriginal numbers declined drastically as a result of the hostilities, exposure to European diseases to which they had no resistance, starvation, alcohol and low birth rates. By 1860 the total Aboriginal population had dropped to 22,200.

The Gloucester Local Government Area is within the Forster Local Aboriginal Land Council Area. The following plan **(PLAN 3A1)** shows the Local Aboriginal Land Council Boundaries.

Forster Local Aboriginal Land Council covers a geographical area from the Pacific Ocean in the East to the Central Highlands beyond Gloucester in the West, from Seal Rocks in the South to Hallidays Point in the North. Approximately 500 Indigenous people live within these boundaries with the majority of the population residing in the Forster/Tuncurry area (422 people - ABS 1996 Census).



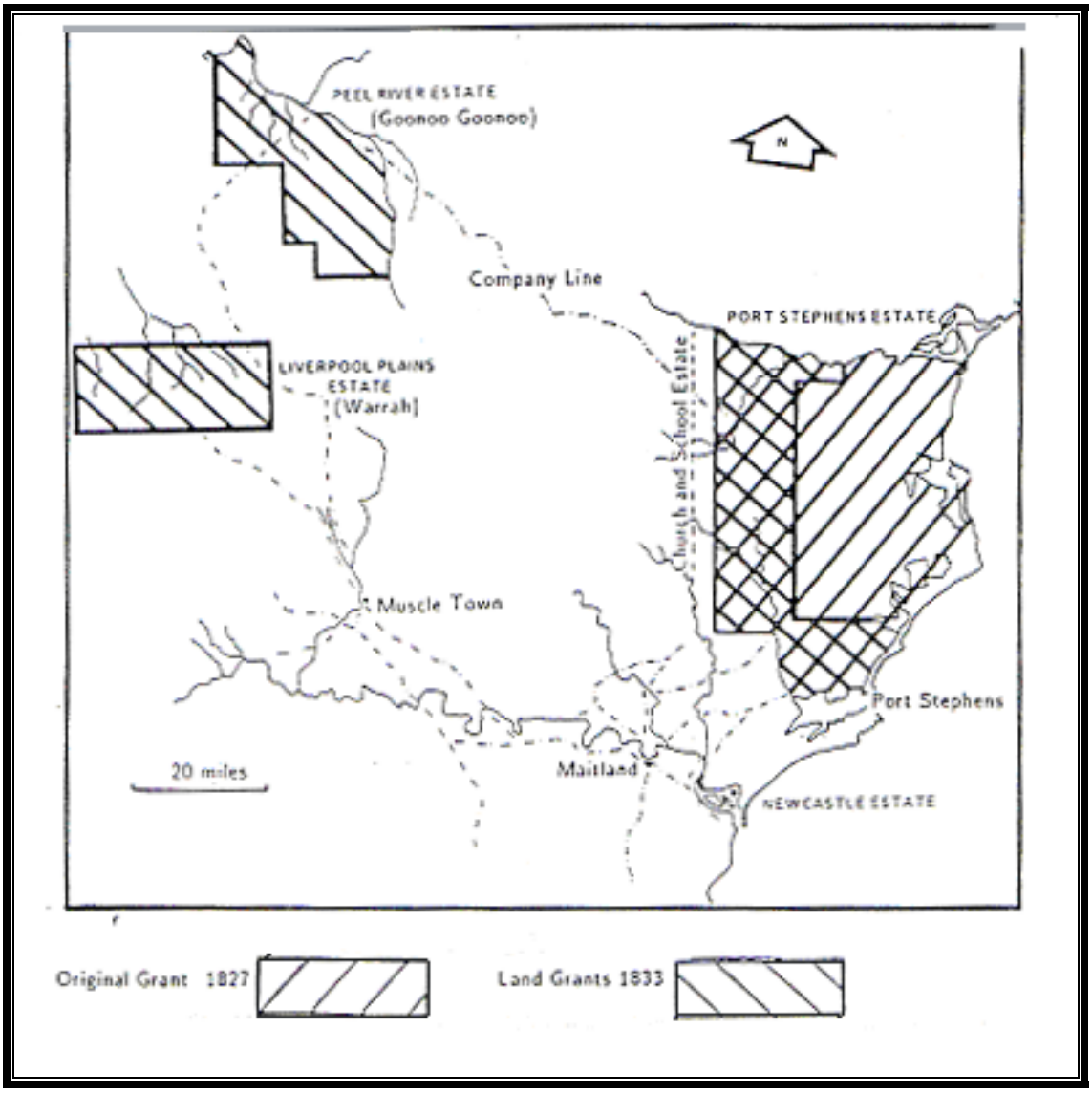
Source: Plan prepared by HDB Town Planning and Design (based on information from Department of Lands)

PLAN 3A1 – Local Aboriginal Land Council Boundaries

European History

Robert Dawson, the Chief Agent for the Australian Agricultural Company (AA Company), first discovered Gloucester in 1826. He named Stroud and the Vale of Gloucester after their English counterparts.

The Australian Agricultural Company was instrumental in the development of Gloucester and the surrounding districts to the coast. Formed in London in 1824, it raised one million pounds capital in the promise that it would receive one acre of the wastelands of New South Wales for each pound subscribed by its shareholders. The company selected their one million acres in the area bounded by Port Stephens in the South, the Manning River in the North, the Pacific Ocean to the east and the Great Diving Range to the west. (**See Plan 3B**)



PLAN 3B – Australian Agricultural Company Grants

In the early years, the land was first used for sheep growing, however, it was found that the climatic conditions made this unsuitable. Other industries such as cattle, dairy farming and timber became the major industries in the area.

Gold was discovered at Copeland, northwest of the Gloucester township, in 1876. This lead to the village of Copeland growing to over 3,000 people, all in search of gold, however, yields dropped from 1879 onwards and the population declined accordingly.

Prior to the discovery of gold, the township of Gloucester was slow to develop due to the control over land ownership by the AA Company. In the early 1900's, building and industry increased in Gloucester. By 1932, Gloucester had expanded from a handful of buildings at the turn of the century, to a thriving country town of about 1,500. Dairying and timber cutting were important factors in this growth as well as the arrival of the North Coast Railway to the town in 1913.

The Avon and Barrington Butter Factory, later trading as Australian Co-operative Foods, was established in 1906. In its first few months of operation, the Gloucester Dairy Factory catered for eighty-five suppliers and the establishment of the railway system lead to an expansion of the plant. It became part of the Dairy Farmers Co-operative and was closed in March 2001, with significant impact on the town's employment base.

Once more efficient transport to the great forests of the Great Dividing Range had been established, timber became a valuable mainstay of the Gloucester economy. A key figure in the development of this industry was Eric Carson of Carson's Northern Timber Company, who pioneered the transport of logs in the Giro State Forest, the Gloucester River, Gloucester Tops, Bowman, Craven Creek and Little Manning.

Although Gloucester had always been on the land route to the north coast, the development of the Pacific Highway in the 1920's increased its importance as a traffic route. The Main Roads Board decommissioned the road between Booral via Stroud and Gloucester to Taree in 1952.

The Gloucester Shire Council was formed in 1906 and as such, was on hand when the town began to develop. It was able to avoid unplanned growth and embraced the new technology of providing services. New streets were aligned; kerosene lights and gravelled footpaths were installed in 1911. Council bought land for a park in 1915, built an electric generator in 1923 and by 1928 water and sewerage services were available.

Gloucester is unique in that fact that it has a significant intact number of Inter-war buildings. The buildings by themselves are not the main feature but their relationship to each other and the overall intact built form is rare. The building facades in the Main Street typify this. Careful consideration should be given to preserving this feature and building upon the benefits that may be achieved from it.

3.3 Climate

3.3.1 Temperature

Gloucester's climate is characterised by warm summers and cool winters. However, because of the differences in elevation throughout the Shire and the impact of topographic features, temperature ranges vary significantly, throughout the Shire. The Bureau of Meteorology does not record data for Gloucester. Data for the Taree Station is shown in **Table 3A**, below.

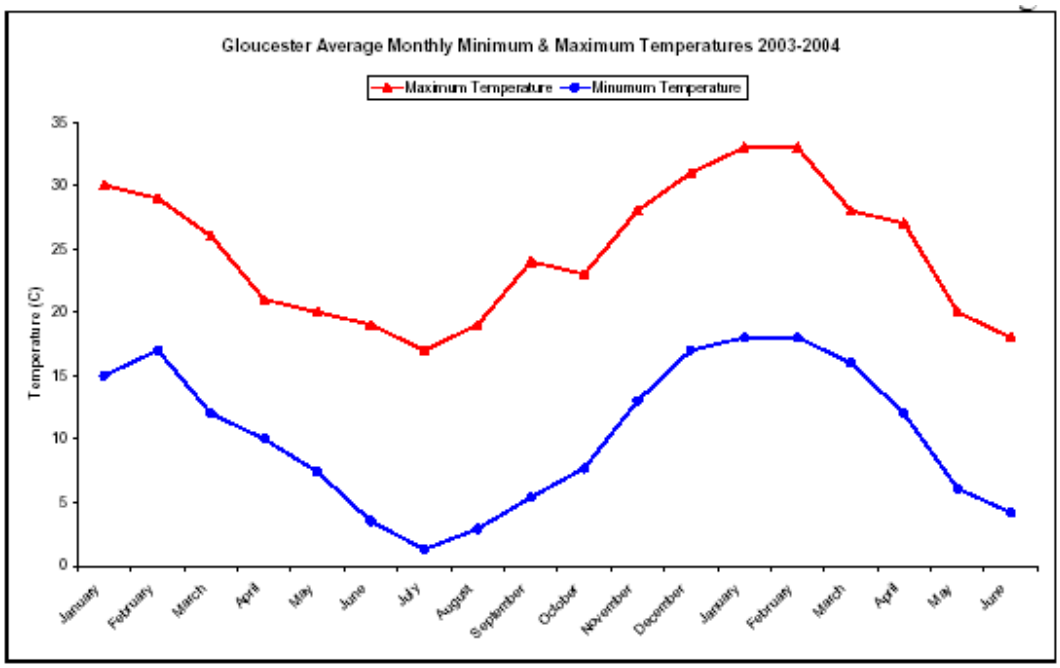
TABLE 3A TEMPERATURE DATA - TAREE

Climate averages for Station: 060030 TAREE (RADIO STATION 2RE) Commenced: 1881; Last record: 2004; Latitude (deg S): -31.8986; Longitude (deg E): 152.4834; State: NSW													
Element	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean daily maximum temperature - deg C	29	28.6	27.3	24.8	21.5	19.1	18.5	19.9	22.7	24.9	26.8	28.4	24.3
Mean no. of days where Max Temp >= 40.0 deg C	0.2	0.1	0	0	0	0	0	0	0	0	0.1	0.2	0.7
Mean no. of days where Max Temp >= 35.0 deg C	2.7	1.9	0.6	0.1	0	0	0	0	0.2	0.5	1.5	2	9.4
Mean no. of days where Max Temp >= 30.0 deg C	12.8	9.9	6.6	1.4	0	0	0	0.1	1.4	4.2	6.3	10.5	53.2
Highest daily Max Temp - deg C	42.5	45.2	41.4	37	30.3	28	28.9	31.4	38	40.1	43.4	42.7	45.2
Mean daily minimum temperature - deg C	17.5	17.6	16	12.9	9.8	7.3	5.9	6.4	8.6	11.4	14.1	16.4	12
Mean no. of days where Min Temp <= 2.0 deg C	0	0	0	0	0.4	2.1	4.8	3	0.5	0	0	0	10.9
Mean no. of days where Min Temp <= 0.0 deg C	0	0	0	0	0.1	0.5	1.3	0.6	0.1	0	0	0	2.6
Lowest daily Min Temp - deg C	9.3	10.7	7	3.3	-2.3	-1.7	-5	-1.8	-0.7	0.6	4	8	-5
Mean 9am air temp - deg C	23.2	22.5	21.4	18.8	15.2	12.5	11.3	12.8	16.4	19.5	20.9	22.8	18.1
Mean 9am wet bulb temp - deg C	20.2	20.2	19	16.4	13.1	10.6	9.3	10.3	13	15.7	17.3	19.1	15.4
Mean 9am dew point - deg C	18.4	18.8	17.3	14.4	11.4	8.6	6.9	7.6	9.8	12.7	14.6	16.7	13.1
Mean 9am relative humidity - %	75	80	79	77	78	78	77	71	67	66	68	70	74
Mean 3pm air temp - deg C	27.5	27.2	25.9	23.6	20.6	18	17.8	19.2	21.1	22.9	24.5	26.5	22.8
Mean 3pm wet bulb temp - deg C	22	21.9	20.8	18.4	15.9	13.7	12.9	13.6	15.3	17.4	18.9	20.7	17.5
Mean 3pm dew point - deg C	18.8	18.9	17.7	14.6	11.9	9.6	7.8	8.1	10.1	13.3	14.8	17.2	13.5
Mean 3pm relative humidity - %	61	62	63	59	60	60	54	51	52	58	57	59	58

Source: Bureau of Meteorology

In the short-term, temperature data for Gloucester has been recorded by the Gloucester Rural Fire Service. **Figure 3A** shows minimum and maximum monthly temperatures for 2003/2004.

FIGURE 3A GLOUCESTER TEMPERATURES 2003/2004

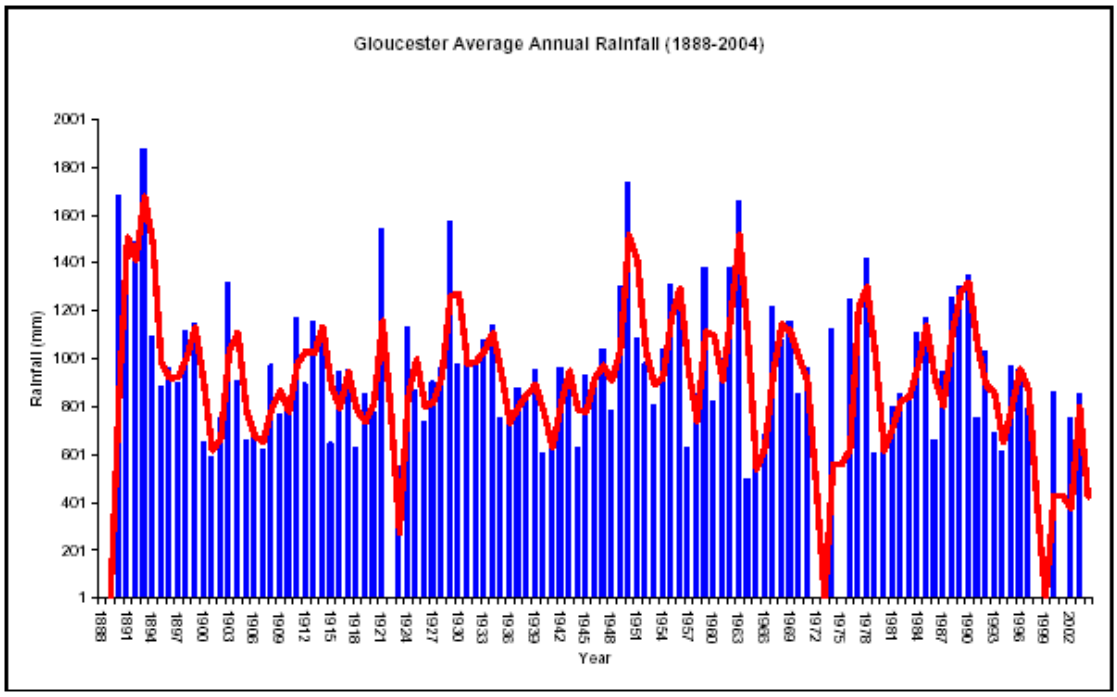


Source: Gloucester State of the Environment Report 2004

3.3.2 Rainfall and Evaporation

The topography and elevation in various parts of the Shire, affect rainfall patterns in the area, as with temperatures. Generally, information is available for the town of Gloucester through the Department of Agriculture, State Forests of New South Wales and Gloucester Post Office. Information used in relation to rainfall was recorded at the Gloucester Post Office. (See **Figure 3B**)

FIGURE 3B GLOUCESTER RAINFALL 1888 - 2004

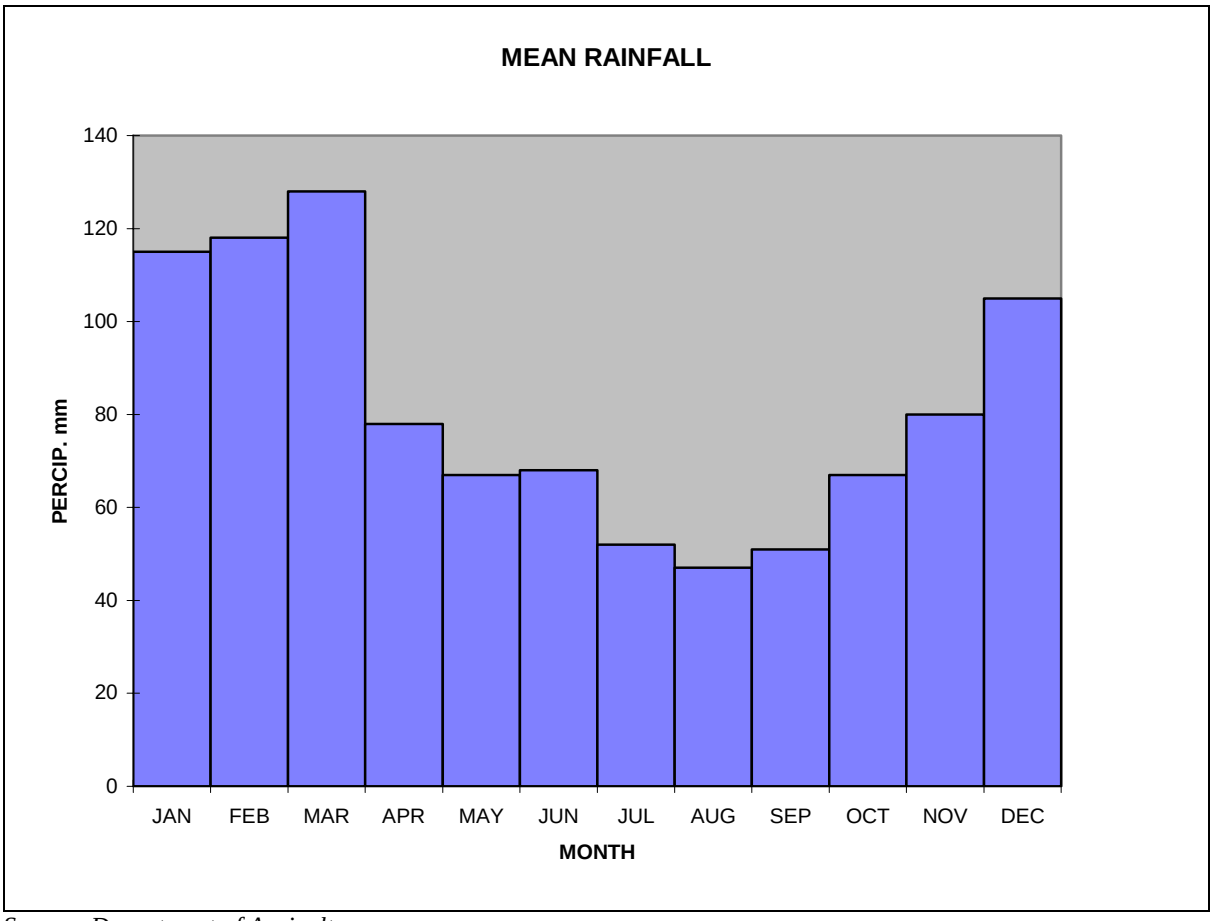


Source: Gloucester State of the Environment Report 2004

Blue lines indicate total annual rainfalls. Long-term averages (red line) in respect of rainfall indicate that the Shire is becoming drier. The 98-year mean to 1996 is 981.1mm per year. The lowest rainfall recorded is 498.4mm (1964) while the highest annual rainfall recorded is 1875.2mm (1893).

The wettest months are generally January to March, while the driest months are from July to September. (See **Figure 3C**)

FIGURE 3C MEAN RAINFALL - GLOUCESTER



Source: Department of Agriculture

Droughts are common in the area, as indicated in Table 3B, supplied by the Department of Agriculture. Over the past 18 years, the Shire has been drought declared over the whole of its area on nine occasions and a portion of the Shire on a further nine occasions.

TABLE 3B DROUGHT DECLARATIONS GLOUCESTER RURAL LANDS PROTECTION BOARD

January 1978 to August 1994

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1978												
1979												
1980												
1981												
1982												
1983												
1984												
1985												
1986												
1987												
1988												
1989												
1990												
1991												
1992												
1993												
1994												
Occurrence	6	4	5	5	3	4	4	5	3	5	5	3
Total Years	17	17	17	17	17	17	17	17	16	16	16	16
% in Drought	35%	24%	29%	29%	18%	24%	24%	29%	19%	31%	31%	19%
						All areas						
						Portion						

Source: Department of Agriculture

The mean daily pan evaporation for Taree as stated by the Bureau of Meteorology ranges between 6.2mm in December to 1.8mm in January, with an annual average of 4mm (25 year average), as shown in the Table 5. This would vary significantly throughout the Shire of Gloucester due to topography.

TABLE 3C MEAN DAILY PAN EVAPORATION

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANN.
MEAN DAILY PAN EVAP (mm)	5.8	5.3	4.3	3.4	2.1	1.8	2	2.8	3.8	4.7	5.3	6.2	4

Source: Bureau of Meteorology

3.3.3 Wind

The Hunter Region is located in the border zone between the belts of the subtropical highs and the mid latitude westerlies. The region is dominated by synoptic highs in the summer with low-pressure systems passing between these every three to five days. During winter the region is mainly under the influence of the mid latitude westerlies and high-pressure systems, alternated with true cold fronts.

There is no available wind data for the Shire of Gloucester, except that monitored during the operation of the Stratford Coal Mine, as shown in **Table 3D**.

TABLE 3D MONTHLY WIND SPEEDS STRATFORD COAL MINE

MONTH	MINIMUM WIND SPEED RECORDED (m/s)	AVERAGE WIND SPEED (m/s)	MAXIMUM WIND SPEED RECORDED (m/s)	DOMINANT WIND DIRECTIONS
July 2002	0.2	1.80	16.60	N, NNE
August 2002	0.2	1.94	17.54	NNE, S
September 2002	0.2	2.52	16.97	NNE
October 2002	0.2	1.77	17.01	ENE
November 2002	0.2	2.49	13.75	ENE, N
December 2002	0.2	1.69	13.93	ENE
January 2003	0.2	1.94	13.94	ENE, E
February 2003	0.2	2.30	13.37	N, ENE
March 2003	0.2	1.73	13.39	S
April 2003	0.2	1.60	12.81	S
May 2003	0.2	1.63	14.72	S
June 2003	0.2	1.33	12.92	NNE
July 2003	0.2	1.60	13.20	NNE
August 2003	0.2	2.00	18.20	NNE
September 2003	0.2	2.50	20.50	S
October 2003	0.2	2.46	21.37	S
November 2003	0.2	2.70	18.49	S
December 2003	0.2	2.67	16.50	S
January 2004	0.2	2.41	19.21	N

Source: Gloucester State of the Environment Report 2004

As experienced in comparisons of site-specific data, topographic features have a significant influence on wind directions and patterns. Gloucester Shire is dominated by significant mountain ranges with acute relief. These have a tendency to channel winds along the valley and, of a night, cold air drainage occurs down the valleys. This can result in temperature inversions that may increase fog and noise levels.

The expected summer winds would be generally east to north easterlies while the winter wind pattern would be dominated by the westerlies in the morning and south westerlies in the afternoon.

3.4 Topography

The Gloucester Shire reaches a height in excess of 1500m AHD on the Barrington Tops to the west and falls rapidly to the east to the town of Gloucester, which has an altitude of approximately 100m AHD.

The general topography is typified by steep mountain ranges falling to narrow river flats. The flatter land is concentrated along the drainage paths of the Avon, Barrington and Gloucester Rivers. The area immediately surrounding the township of Gloucester and to its north and generally along the more fertile river flats, has been cleared for agricultural purposes. The steeper mountainous country to the west is predominantly uncleared, however, there are some areas that have been cleared for low intensity agricultural purposes.

The topography of this area introduces a striking, visually dominant feature, dominated by steep heavily timbered mountain ranges and pristine mountain rivers and streams.

Gloucester Bucketts form the main topographic feature for the township of Gloucester. Generally the mountain ranges run in a north west south east direction, however, the Bucketts are orientated in a north south direction. They form a barrier between the Barrington and Gloucester Rivers, which join with the Bowman and Avon Rivers north of Gloucester. **(Plan 2)**

Slopes vary significantly within the Shire with the majority of the Shire having slopes greater than 8º (75% of the Shire). This is generally too steep to cultivate and is either used for open grazing or native forest. **Table 3E** shows the approximate area of the Shire affected by various slopes.

TABLE 3E GENERALISED LAND SLOPES - GLOUCESTER SHIRE

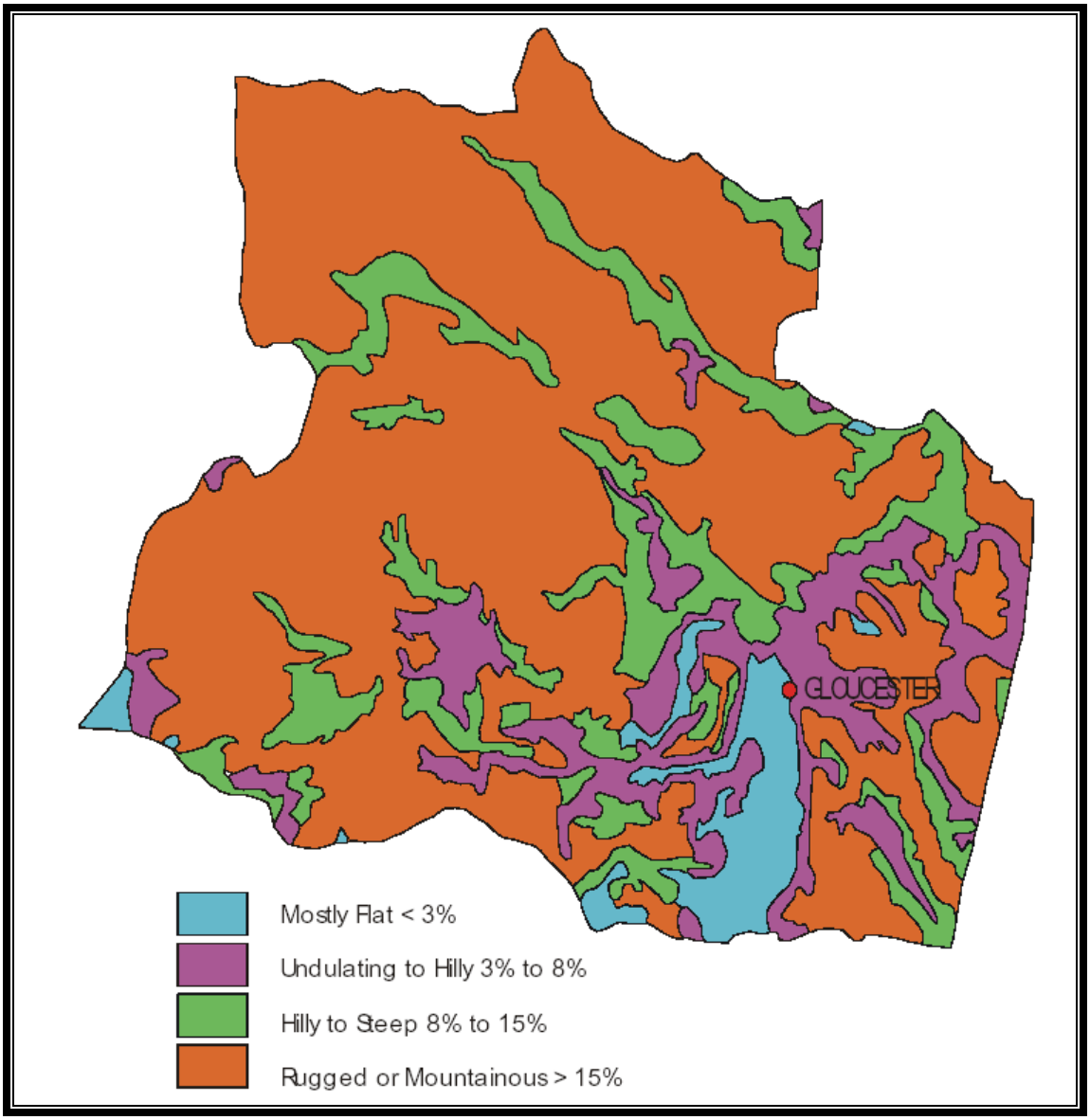
	Type I	Type II	Type III	Type IV
Area (km^2)	192	501	413	1843
% of total area	6.5	17	14	62.5

KEY:

Type I – Mostly flat (Not more than 3° slope)
Type II – Undulating to hilly (More than 3° slope & not more than 8° slope)
Type III – Hilly to steep (More than 8° & not more than 15° slope)
Type IV – Rugged (Over 15° slope)

Source: Survey of Resources, NSW Government

Plan 3C is a general representation of the land slopes described above and shows the flatter terrain following the river system, with more rugged land to the west.



PLAN 3C – Generalised Land Slopes

Source: Gloucester State of the Environment Report 2004

The topography can generally be broken into three zones.

i. *Plateau Zones*

The plateau zones which relate to several isolated plateaus to the west of the Shire with elevations between 900 - 1500m, slopes are mostly undulating and streams flow in broad valleys, with gentle grades. There are other remnant plateaus along the crests of the rugged Barrington and Gloucester Tops areas.

ii. Scarp zones and Interface

These represent the steeply sloping areas between the valleys and plateaus. Stream gradients are high and valleys are deep. There are no alluvial soils within this area.

iii. Valley Zone and Ridge

This represents the lower areas associated with the valley floors and slopes. It encompasses the higher quality agricultural land.

The topography of the Shire has played a major role in affecting the Shire's development. It has also produced significant diversity in flora and fauna, through climate variations and accessibility. Although the topography, has in the past, been a constraint to expanding agricultural activities, it has presented a significant opportunity to bring people to the Shire for various forms of tourism, or to live.

3.5 Geology

3.5.1 General Geology

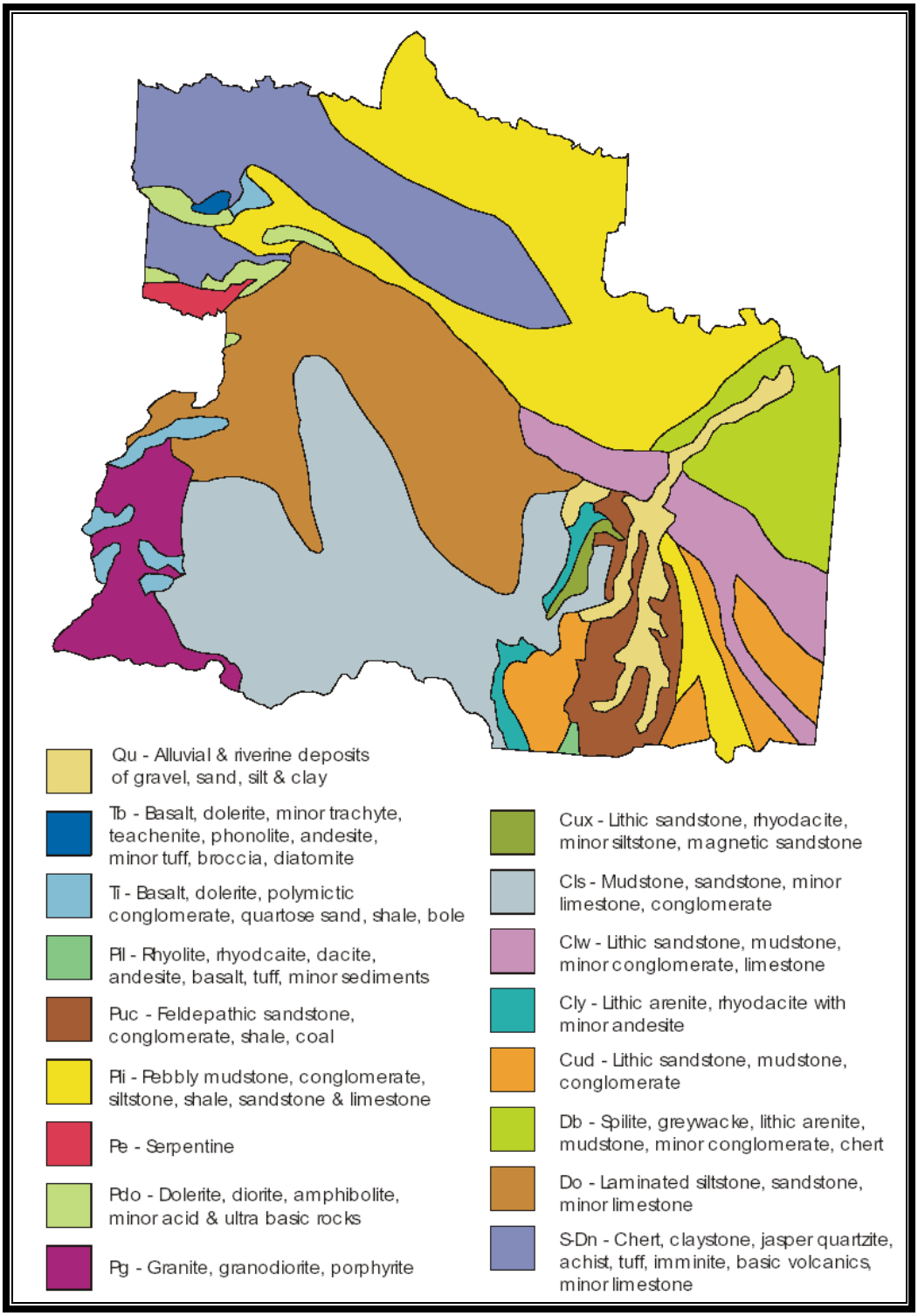
The Shire lies partly within two geological frameworks. The majority of the Shire lies within the Tamworth Belt and is separated from the Central Block by the Peel and Manning River Fault Systems.

The geology of the Shire varies extensively over its area. Fine to coarse grain sedimentary rocks interbedded with basic and acidic rocks are found in the south. The area between Gloucester and Stroud is part of the Gloucester Basin. This is a north south synclinal structure 40km long and 13km wide. It is of Permian Age containing sedimentary, conglomerates, sandstones, siltstones, mudstones and coal. This basin represents a significant coal resource, which is presently being developed.

The Permian Basin is surrounded by older carboniferous and devonian metasediments and volcanics. These generally extend from the Barrington Tops to the Coast.

The northern part of the Shire is dominated by coarse siliceous and other sedimentary rocks interbedded with volcanic rocks. The Kangaroo Range and the upper catchments of the Pigna, Barney and Manning Rivers show outcrops of basic rocks.

Acid volcanic rocks are interbedded with lithic sedimentary rocks to the south west of Gloucester. These typify the steeply dissected topography. The approximate geology of the Shire of Gloucester is shown as **Plan 3D**.



PLAN 3D – Geology

Source: Gloucester State of the Environment Report 2004

3.5.2 Extractive Mineral Resources

The Gloucester Shire has potential for various forms of extractive industries. The western section of the Shire has a number of smaller leases, primarily for exploration of existing quartz veins for gold bearing deposits. As well as gold, it also has the potential for other base metals, diamonds, sapphires and zircon.

Gold deposits, mainly occur as gold bearing quartz veins within the fractures and shear zones in the late devonian/early carboniferous mudstones and lithic sandstones of this western plateau area. Diamonds, sapphires and zircons are generally associated with alluvial deposits along the stream courses. Diamond occurrences are generally related to nearby igneous intrusions immediately to the west of Gloucester township.

Older pre-carboniferous rocks to the eastern side of the Gloucester township contain known limestone deposits.

Gloucester Shire Council advises that they currently operate 12 gravel quarries supplying approximately 18,000 cubic metres of road base material per year and one quarry supplying approximately 1900 cubic metres of sealing aggregate per year.

3.5.3 Coal Mining

The Gloucester Basin is a north/south trending syncline structure, measuring 40km long and 13km wide. The Basin is of Permian age and contains conglomerate sandstone, siltstone, mudstone and coal.

The present deposit, under Authorisation No. 311, is being mined by Gloucester Coal Pty Ltd. Authorisation No. 315 is held by CIM Resources. (Refer to **Section 6.3.1**)

3.5.4 Methane Gas

The discovery of methane gas obtained directly from coal seams is in the early stages of development, however there is considerable potential for the discovery and utilisation of coal seam methane in New South Wales, especially in the eastern portion of the state. (Refer to **Section 6.3.2**)

3.6 Soils

The Department of Land and Water Conservation (Dungog Soil Landscape Descriptions, 2000) has compiled detailed mapping and description of soils in the Gloucester local government area. The following summaries are derived form this information and extracted from Gloucester Shire Council State of the Environment Report 2004.

Barrington-Gloucester Plateau occurs on the undulating to rolling summit surface of Permian granodiorite, Carboniferous sediments and Tertiary basalt. The main soil landscape is Gloucester Tops (gp). The dominant soil types are moderately deep Red and Brown Dermosols, some Brown Kandosols and shallow Peaty Lithic Chernic Tenosols as well as very poorly drained Sapric Organosols in hanging swamps.

The **Barrington-Chichester Mountains** occupy highly dissected, steep to precipitous terrain on Carboniferous sediments in the centre and north-west of the area, including Chichester State Forest, Barrington Tops National Park and Chichester Dam catchment. The predominant soil landscape is Chichester (ci), with small areas of Williams Range (wi) and Wangat (wt). Soil types include moderately deep Red Dermosols, Brown Dermosols, Orthic Tenosols, Bleached-Leptic Tenosols, Chernic-Leptic Tenosols, Yellow Dermosols and some deep Yellow Kandosols.

The **Copeland Mountains** occupy steep hills and mountains on Devonian and Carboniferous sediments in the far north of the area. Dominant soil landscapes are Cockadilly Ridge (cd) and Mountain Maid (mm). Soil types include moderately deep Chernic Tenosols, shallow Leptic Rudosols, Brown Chromosols and deep Red Dermosols on sheltered colluvial midslopes.

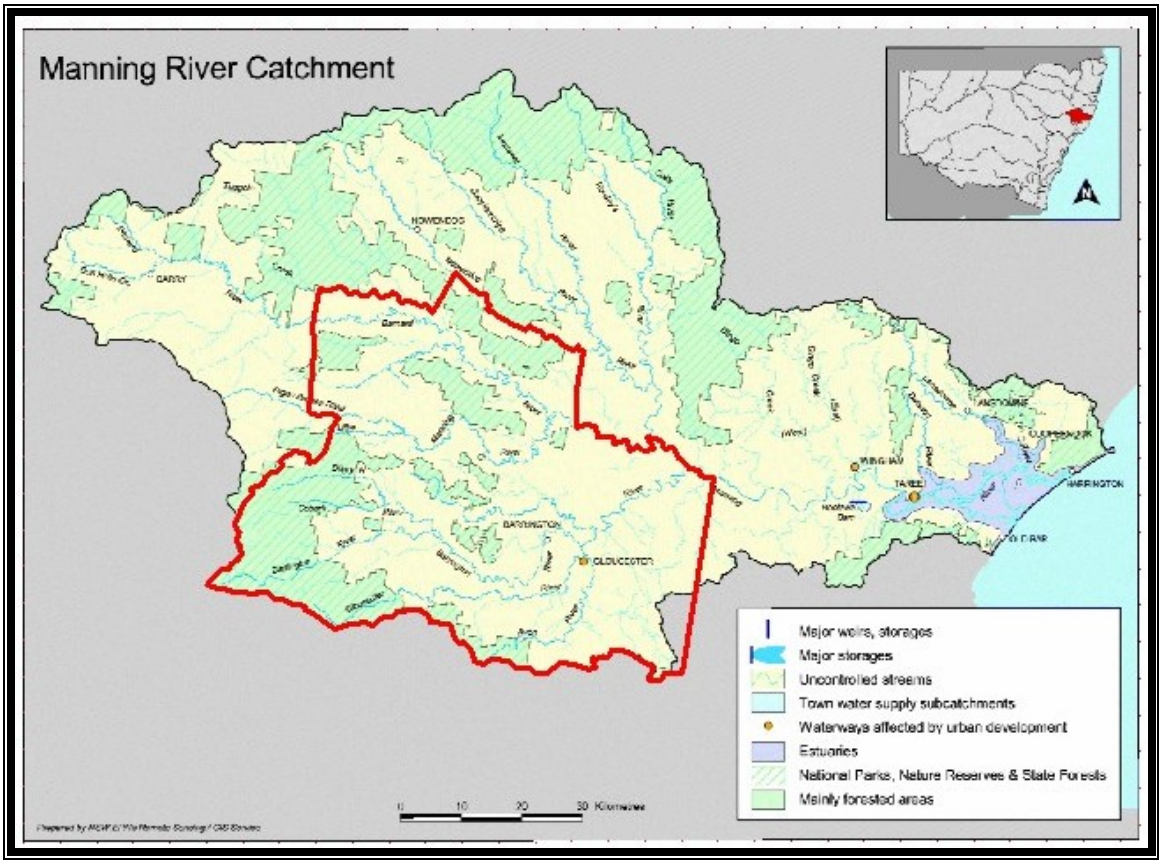
The **Berrico Hills** occur on rolling hills comprised of Carboniferous and Devonian sediment in the far north of the area. Typical soil landscapes include Berrico (bo), Lame Cow Gully (lc) and Cockadilly Ridge (cd). Major soil types include moderately deep Brown Sodosols, Brown Chromosols and Red Kurosols, with deep Chernic Tenosols on steep upper slopes and colluvial lower slopes. Some shallow Leptic Rudosols and deep Red Dermosols also occur.

The **Stroud-Gloucester Basin** occurs in the axial centre of the Stroud-Gloucester Syncline on mainly undulating to rolling Permian sediments, with occasional steep hills. The steeper eastern and western boundaries of the syncline comprise basic and acidic volcanics and some sediments. Typical soil landscapes are Gloucester (go), Wards River (wd), Gloucester River (gc), Stroud Road (sr), Gloucester Buckets (gb) and Karuah River (kr).

The dominant soil types of Gloucester are deep Brown Sodosols, shallow to moderately deep Brown, Yellow and Grey Kurosols, moderately deep Bleached-Leptic Tenosols on Permian sediments and deep Yellow Chromosols on plains. On basaltic parent material, moderately deep Brown Dermosols and Vertosols, Red Ferrosols and Chernic-Leptic Tenosols occur, with shallow Clastic Rudosols on rhyolites and acid volcanics. Deep Orthic Tenosols occur with Brown Sodosols on high terraces, and alluvial fans and plains (Soil Landscapes of the Dungog 1:100000 Sheet).

3.7 Hydrology

The Shire of Gloucester is dissected by a number of rivers running from west to east. They rise predominantly in the Barrington Tops and fall significantly thorough the escarpments to deep well defined drainage paths. They flow to the coast through the Manning River System. The Shire of Gloucester makes up a significant proportion of the Manning River Catchment. **(Refer Plan 3E)** Total Catchment Management is therefore an area of significant importance to the residents of Gloucester Shire and the adjoining City of Greater Taree.



Source: NSW Environment Protection Authority 2001

PLAN 3E – Manning River Catchment

The main rivers are:

1. **The Gloucester River**. This has a significant catchment, rising in the Gloucester Tops to the south west of Gloucester with good all season flows.

2. **The Barrington River**. This rises in the Barrington Tops west of Gloucester and is a major tributary of the Manning River. It has a permanent flow and is the largest river in the Shire.

3. **The Avon River**. This river rises to the south west of Gloucester and joins the Gloucester River north of Gloucester.

The town of Gloucester lies between the Avon and Gloucester Rivers with the Barrington River to the west of the Bucketts. All three rivers join to the north of Gloucester forming the major tributary to the Manning River System.

Due to the steep relief in Shire, many other smaller streams and seasonal rivers contribute to the Gloucester, Barrington and Avon Rivers.

Catchments are relatively small, however, being in the headwaters of the river systems, slopes and therefore velocities in many of the rivers can be high. All river systems are subject to flooding with the Avon and Gloucester Rivers encroaching on the town of Gloucester.

The Barrington River has a reliable year round supply of water, however, all rivers are affected to some degree by the land use practices along the catchments. The river systems of the Shire contribute significantly to the Shire, both by the supply of water for agriculture and urban settlement. The mountains form a significant visual contribution to the Shire and Total Catchment Management is a means by which to ensure their continued contribution and the continued viability of the Shire.

3.8 Water Quality

Catchment-wide water quality monitoring was undertaken by the Department of Infrastructure, Planning and Natural Resources for the period 2003/2004, as shown in **Table 3F**, below.

TABLE 3F – WATER QUALITY MONITORING

	River Catchment Monitoring Site. Median Result July 2003 – June 2004			
Parameter	Karuah River at Booral Bridge	Barnard River at Mackay Bridge	Gloucester River at Gloucester	Manning River at Killwarra Bridge
Electrical Conductivity (µS/cm)	289	140	96	148
pH	7.2	7.8	7.3	7.8
Turbidity (NTU)	4.9	2.8	3.7	3.8
Water Temperature (° C)	20.7	17.8	20.5	23
Faecal Coliforms CFU/100ml (7 samples*)	26	28	109	67
Soluble Phosphorus (mg/L)	0.021	28	0.013	0.007
Total Phosphorus (mg/L)	0.040	0.029	0.028	0.019
NOx (Nitrate + Nitrite) (mg/l)	0.04	0.02	0.05	0.03
Total Nitrogen (mg/L)	0.48	0.38	0.3	0.37

Source: Gloucester State of the Environment Report 2004

Council regularly monitors drinking water quality at Gloucester and Barrington. Failure results for these supplies in the period 2003/2004 are shown in the following Tables. Water discharged from Council's sewage treatment plant is also carefully monitored. For full details of monitoring regimes and test results, refer to Gloucester Shire Council *State of the Environment Report 2004.*

TABLE 3G – GLOUCESTER DRINKING WATER QUALITY TEST RESULTS (FAILURES)

Test Date	Total Coliforms /100ml	*E. coli* /100ml
21/01/2004	1	
17/03/2004	31	
NSW Dept of Health Drinking Water Limit	0	0

Source: Gloucester State of the Environment Report 2004

TABLE 3H – BARRINGTON DRINKING WATER QUALITY TEST RESULTS (FAILURES)

Test Date	Total Coliforms /100ml	*E. coli* /100ml
24/09/2003	>200	62
01/10/2003	>200	22
09/10/2003	6	
22/10/2003	>200	15
12/11/2003	>200	45
03/12/2003	>200	24
17/12/2003	>200	50
14/01/2004	>200	
04/02/2004	>200	
11/02/2004	56	
25/02/2004	22	
24/03/2004	100	
28/04/2004	>200	45
NSW Dept of Health Drinking Water Limit		

Source: Gloucester State of the Environment Report 2004

3.9 Water Usage

General agricultural requirements and the townships of Gloucester and Barrington, produce the main draw on water resources in the Shire. The township of Gloucester draws its supply from the Barrington River to serve a population of approximately 2700 people. The current system is capable of servicing 3,600 people without major infrastructure works.

The village of Barrington also draws its water supply form the Barrington River. It currently serves 72 premises with a population of 160 people. The peak daily demand of 3000litres/day/dwelling is considered likely and the current system is reaching its capacity. Council is examining the extension of the water supply from the town of Gloucester (6km) or the amplification and upgrading of the existing Barrington supply.

It is difficult to quantify the agricultural demands on water supply. Each of the river systems has a number of tributaries that flow into the system at various locations. The agricultural draw also varies with agricultural type, climatic conditions and agricultural intensity.

3.10 Land Capability

Plan 3F shows the land capability as defined by the Department of Land and Water Conservation's Land Capability Assessment Model. This divides the land capability into seven classes. These classes have been combined as follows into three broad Land Capability Categories.

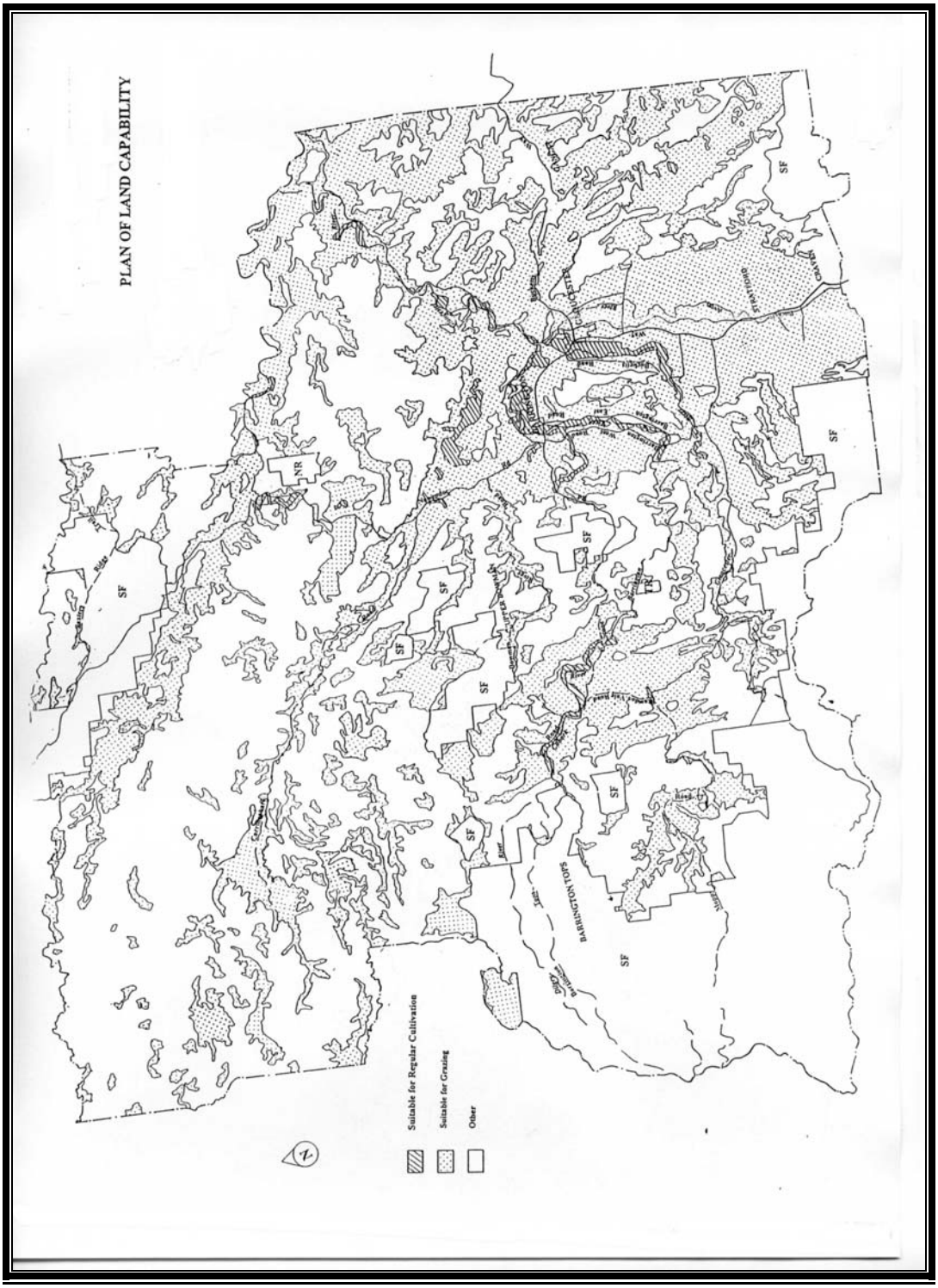
The first category is suitable for agricultural purposes and includes land classes I, II and III. This land is predominantly associated with the river flats where soils are fertile and able to be cultivated regularly up to areas that are sloping, also suitable for cropping on a rotational basis and may be subject to erosion hazards. The areas within the class III land may need graded contour banks and conservation practices within farm management.

The second category is land that is generally suitable for grazing. This includes areas that can be cultivated on an occasional basis and areas that should not cultivated at all. This includes classes IV, V, and VI. Generally, productivity varies between the soil depth and its fertility.

The third category comprises classes VII and VIII and generally relates to areas that are best left under green timber or affected by cliffs, swamps and other land unsuitable for agricultural or pastoral production.

There is limited category I land within the Shire of Gloucester. This is generally limited to the river flats of the Gloucester River, immediately south of Gloucester, some higher areas of the Barrington River and a small pocket of agricultural land on the Manning River.

There are extensive areas of category II land, again centred around the river systems. There are also some pockets of class VI land on the plateau areas, to the west of the Shire. The remainder of the Shire, as shown on **Plan 3F**, is category III, which is unsuitable for agriculture and is best left as green timber. Logging can be carried out within these areas, subject to management practices



PLAN 3F – Land Capability

Source: Department of Land and Water Conservation

3.11 Flora

The Shire of Gloucester has an extensive diversity of flora due to the range of microclimates and soil types. Vegetation ranges from sub-tropical rainforests, dry rainforests and warm temperate rainforests to cleared grazing land in the river valleys. Most of the agriculturally suitable land has been cleared for agricultural purposes.

Given that a significant proportion of the Shire, (75%) is above 8 degrees slope and much of this is hilly to steep or rugged, natural vegetation within these areas is relatively undisturbed. The variation in altitude, the difference in soil types, due to the difference in parent materials and the difference in topographical features running from the higher plateaus in the west through the steep rugged scarp zones to the valley floors, has produced a significant diversity of flora.

There have been many areas of the Shire examined in respect to the significance of flora. The Barrington Tops Plateau, for instance, was first examined early this century. Frazer and Vickery

in 1937, 1938 and 1939, Turner in 1976 and Floyd in 1983, produced comprehensive descriptions of rainforests of the plateau and surrounding slopes.

Further information was gathered in the preparation of the *Environmental Impact Statement for Forestry Operations in Gloucester and Chichester Management Areas.* From this information, a comprehensive plan of management was prepared and included a number of rare or threatened Australian plants.

These areas, however, are within either National Parks or State Forests and subject to the control of the relevant Government Department. It is however, likely that these species occur outside of the National Parks and State Forests.

The Atlas of NSW Wildlife (NSW National Parks and Wildlife Service) lists seven endangered flora species in the Gloucester local government area, as shown in **Table 3I** , below:

TABLE 3I LISTED THREATENED FLORA SPECIES

	Scientific Name	Common Name	Status (TSC Act)	Count
Asclepiadaceae				
	Cynanchum elegans		E1	28
Myrtaceae				
	Eucalyptus glaucina	Slaty Red Gum	V	1
Orchidaceae				
	Diuris venosa	Veined Doubletail	V	11
Rubiaceae				
	Asperula asthenes		V	1
Scrophulariaceae				
	Euphrasia ciliolata		V	11
Winteraceae				
	Tasmannia glaucifolia	Fragrant Pepperbush	V	7
	Tasmannia purpurascens	Broad-leaved Pepperbush	V	24

Source: NSW National Parks and Wildlife Service

With the introduction of agriculture into these areas, introduced weed species have proved a problem in certain parts of the Shire. Species such as cytisus scoparius, lantana camara and eupatorium have the potential to create serious long-term threats to existing flora and eco-systems throughout the area.

3.12 Fauna

As is the case with flora throughout the Shire, the diverse topography, altitude and soil types of the area, contribute significantly to an extremely diverse fauna type.

Part of the Shire of Gloucester is located within the southern sections of the overlap zones of two major zoogeographic regions, in eastern Australia. These are known as the McPherson Macleay Overlap. They include the Torresian (sub-tropical) elements Bassiam (temperate) elements.

The Torresian (sub-tropical) elements are experienced further to the south, in isolated pockets of sub-tropical habitat types. The Torresian elements are generally restricted to moist hardwood and rainforest habitats along the escarpments.

The Bassiam elements are generally related to drier hardwood and highland hardwood habitats, on the southern lowlands and high altitude tablelands to the west.

Fauna is less diverse in the lower areas along the river systems, which are subject to more intensive agricultural use. These areas are also affected more significantly by domesticated and feral animals.

The Atlas of NSW Wildlife (NSW National Parks and Wildlife Service) lists 37 endangered fauna species in the Gloucester local government area, as shown in **Table 3J** , below:

TABLE 3J LISTED ENDANGERED FAUNA SPECIES

	Scientific Name	Common Name	Legal Status (TSC Act)	Count
Aves				
Acanthizidae				
	Pyrrholaemus sagittatus	Speckled Warbler	V	2
Atrichornithidae				
	Atrichornis rufescens	Rufous Scrub-bird	V	48
Cacatuidae				
	Calyptorhynchus lathami	Glossy Black-Cockatoo	V	42
Ciconiidae				
	Ephippiorhynchus asiaticus	Black-necked Stork	E1	5
Columbidae				
	Ptilinopus magnificus	Wompoo Fruit-Dove	V	13
Pachycephalidae				
	Pachycephala olivacea	Olive Whistler	V	11
Pomatostomidae				
	Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subsp.)	V	20
Strigidae				
	Ninox strenua	Powerful Owl	V	16
Tytonidae				
	Tyto novaehollandiae	Masked Owl	V	18
	Tyto tenebricosa	Sooty Owl	V	16
Amphibia				
Hylidae				
	Litoria booroolongensis	Booroolong Frog	E1	2
	Litoria daviesae	Davies' Tree Frog	V	4
Myobatrachidae				
	Mixophyes balbus	Stuttering Frog	E1	43
Mammalia				

Burramyidae				
	Cercartetus nanus	Eastern Pygmy-possum	V	2
Dasyuridae				
	Dasyurus maculatus	Spotted-tailed Quoll	V	63
	Dasyurus viverrinus	Eastern Quoll	E1	3
	Phascogale tapoatafa	Brush-tailed Phascogale	V	12
	Planigale maculata	Common Planigale	V	1
Emballonuridae				
	Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V	1
Macropodidae				
	Macropus parma	Parma Wallaby	V	20
	Petrogale penicillata	Brush-tailed Rock-wallaby	E1	5
	Thylogale stigmatica	Red-legged Pademelon	V	6
Muridae				
	Mastacomys fuscus	Broad-toothed Rat	V	6
	Mastacomys fuscus	Broad-toothed Rat population at Barrington Tops in the Gloucester, Scone and Dungog LGAs	E2	6
Petauridae				
	Petaurus australis	Yellow-bellied Glider	V	11
	Petaurus norfolcensis	Squirrel Glider	V	3
Phascolarctidae				
	Phascolarctos cinereus	Koala	V	48
Potoroidae				
	Aepyprymnus rufescens	Rufous Bettong	V	3
	Potorous tridactylus	Long-nosed Potoroo	V	2
Pteropodidae				
	Pteropus poliocephalus	Grey-headed Flying-fox	V	4

Vespertilionidae				
	Falsistrellus tasmaniensis	Eastern False Pipistrelle	V	11
	Kerivoula papuensis	Golden-tipped Bat	V	5
	Miniopterus australis	Little Bentwing-bat	V	5
	Miniopterus schreibersii oceanensis	Eastern Bent-wing Bat	V	9
	Myotis adversus	Large-footed Myotis	V	5
	Scoteanax rueppellii	Greater Broad-nosed Bat	V	8
Reptilia				
Elapidae				
	Hoplocephalus stephensii	Stephens' Banded Snake	V	4

Source: NSW National Parks and Wildlife Service

3.13 Fish

TABLE 3K LISTED ENDANGERED FISH SPECIES

Endangered species

- Eastern freshwater cod (Maccullochella ikei)
- Green sawfish (Pristis zijsron)
- Grey nurse shark (Carcharias taurus)
- Murray hardyhead (Craterocephalus fluviatilis)
- Oxleyan pygmy perch (Nannoperca oxleyana)
- River snail (Notopala sublineata)
- Southern Bluefin Tuna (*Thunnus maccoyii*)
- Trout cod (Maccullochella macquariensis)

Endangered populations

- Western population of purple spotted gudgeon (Mogurnda adspersa)
- Western population of olive perchlet (Ambassis agassizii)

Endangered ecological communities

- Aquatic ecological community in the natural drainage system of the lower Murray River catchment
- Aquatic ecological community in the natural drainage system of the lowland catchment of the Darling River

Species presumed extinct

- Bennetts seaweed (Vanvoorstia bennettiana)

Vulnerable species

- Adams emerald dragonfly (Archaeophya adamsi)
- Black cod (Epinephelus daemelii)
- Buchanans fairy shrimp (Branchinella buchananensis)
- Great white shark (Carcharodon carcharias)
- Macquarie perch (Macquaria australasica)
- Southern pygmy perch (Nannoperca australis)
- Silver perch (Bidyanus bidyanus)

Key threatening processes

- Current shark meshing program in NSW waters
- Hook and line fishing in areas important for the survival of threatened fish species
- The introduction of fish to fresh waters within a river catchment outside their natural range
- The removal of large woody debris
- The degradation of native riparian vegetation along New South Wales water courses
- The installation and operation of instream structures and other mechanisms that alter natural flow regimes of rivers and streams - see also: cold water pollution
- River regulation and environmental flow

Source: NSW Fisheries

3.14 Landscape Quality and Heritage

The Shire of Gloucester is rich in natural beauty. The rugged mountain ranges and escarpments to the west provide a high visual contrast to the cleared cultivated alluvial plains.

The landscape is varied throughout the Shire, which makes it unique to many other areas of New South Wales. The higher plateau country to the west is typified by open forests; with vegetation and land use evolved and developed to suit the colder climate.

The escarpments between the valley floors and the higher plateau area are rugged and dominated by mass rock outcrops, extremely steep slopes and heavy vegetation. Deep valleys have been cut into the escarpment running to the east. These have produced alluvial deposits along their floors, which have been cleared and are currently used for more intensive agricultural. The width of the flood plain and their fertility varies significantly due to the diversity of rock structures within the area.

The Gloucester area sits at the headwaters of the Manning River Catchment. The Barrington and Avon Rivers flow into the Gloucester River, which in turn, flows into the Manning River. This is a major catchment of significant diversity and natural beauty.

The approach to Gloucester from Taree is through relatively rugged country. On approaching Gloucester, the vista opens showing the wide expanse of flood plain, the townships and the dominant Bucketts Range behind Gloucester.

The approach from the south is less dramatic as the road follows in the most part, the flood plain of the Avon River, however on approaching Gloucester, the Bucketts again form the major landscape relief. Singularly, the Bucketts are the major landscape feature in the area.

The village of Barrington is a small village on the road to Barrington Tops. It is ideally located close to the mountain ranges and adjacent to the river flats. It produces a quaint hamlet vista and sensitive development has produced an area that has a sense of prestige, significant heritage elements and tourism potential.

3.14.1 European Heritage

The Shire of Gloucester has an interesting past in that it was first created by the Australian Agricultural Company, by a grant in 1825. The area, which covered one million acres, was used by the Company for agricultural purposes.

It later found that parts of the holding were unsuited for agriculture and its holdings were downsized. The town of Gloucester was laid out in 1855, however, it did not expand significantly until the town was subdivided for closer settlement and sold to individuals at the turn of the century.

The economy of the area was based on agriculture, however, the discovery of gold at Copeland in 1877 realised a brief boom based on gold mining.

The township of Gloucester is located on higher ground between the Avon and Gloucester Rivers. It is flanked to the west by the Bucketts, and to the east by the Mograni Ranges. The township itself has fine examples of Inter-War buildings, which are relatively intact. This in itself is rare and could be developed as an opportunity in the future. The prominent building material in the area is brick and timber, typical of this era.

VIEWS OF CHURCH STREET GLOUCESTER

Schedule 5 of Gloucester Local Environmental Plan 2000 lists those places and item in the local government area that are given statutory heritage protection, as listed below.

TABLE 3L HERITAGE CONSERVATION SCHEDULE

Part 1 - Heritage conservation areas

- Gloucester Main Street precinct

Part 2 - Heritage items

Items of State significance

- Barrington Tops National Park (Gloucester part)
- Woko National Park, via Curricabark Road
- Camel's Hump Nature Reserve, Nowendoc Road
- former Mountain Maid Gold Mine, Copeland
- Cyanide Treatment Works (Rainbow Battery), Copeland
- "Airlie", Rawdon Vale Road, Rawdon Vale
- "Stobo", The Moppy Road, Rawdon Vale

Items of Regional significance

- Gloucester Police Station, 8 Church Street
- Gloucester Courthouse, 10 Church Street
- former ABC Bank building, 23 Church Street
- Gloucester Coop Dairy Co factory buildings, Railway Street
- Australian Agricultural Company Manager's House (formerly known as "Gloucester Cottage") and outbuildings, Bucketts Way
- Australian Agricultural Company Dam, Bucketts Road
- Barrington Pioneer Cemetery, East Barrington Road, Barrington
- Copeland No 2 General Cemetery, Scone Road, Copeland
- Copeland Tops Forest Preserve, including former Hidden Treasure Gold Mine, Scone Road, Copeland

Items of local significance

- former Presbyterian church manse, 7 Barrington Street
- former timber worker's house, Barrington/Cowper Street
- St Andrews Presbyterian Church and Hall, Barrington/Tyrell Streets
- former "Hillcrest" hospital, Barrington/Tyrell Street
- "Roma", Barrington/Gregson Streets
- War Memorial clocktower, Bent Street
- original Shire Council Chambers, 12 Church Street
- Sellicks Chambers, 42 Church Street
- Westpac Bank, 47 Church Street
- School of Arts, 56 Church Street
- McRae's building, 73 Church Street
- Majestic Theatre, 78 Church Street
- Avon Valley Inn, 82 Church Street

- Payless building, 84 Church Street
- Masonic Temple, Church/Cowper Streets
- St Clement's Park historic site, Church/Oak Streets
- "Easton's" house, 16 Cowper Street
- "Gloucester Cottage", 61 Denison Street
- former Sisters of St Joseph convent, Denison Street
- Federation house, Gardiners Lane
- "Narraweena", 10 Gregson Street
- original Gloucester Public School building, Hume Street
- St Pauls Anglican Church and Rectory, Hume/Ravenshaw Streets
- "Fairview" (concrete block house), 1 Market Street
- Gloucester Post Office, 9 Queen Street
- former Bank of NSW building, 2 Queen Street
- former CBC Bank building, 10 Queen Street
- former Abbotts Auctioneer's building, 16 Queen Street
- second "Hillcrest" hospital, 16 Tyrell Street
- Water tower, Tyrell Street
- John McKenzie's grave, Gloucester Cemetery
- disused Upper Avon Road Bridge, Avon State Forest
- Gloucester Sports Ground Grandstand, Barrington Road
- Gloucester Showground precinct, Barrington Road
- Thunderbolt's Cave, via the Bucketts Road
- Free Presbyterian Church, Barrington
- early (1910) Barrington Public School building, Barrington
- original school residence, Barrington East Road
- slab house, 402 Barrington East Road
- Barrington House, Barrington
- Barrington Rover bridge, Scone Road, Barrington
- "Faulkland", Faulkland Road, Faulkland
- "Rawdon Vale", The Moppy Road, Rawdon Vale
- "Bonnie Doon", Rawdon Vale Road, Rawdon Vale
- Presbyterian Church, Rookhurst
- Original Public School building, Rookhurst
- "PGK" survey peg mark, Nowendoc Road

Part 3 - Archaeological sites

- none at present

Part 4 - Potential archaeological sites

- The Glen/Craven logging tramline, Glen Road, Craven
- Mount McKenzie massacre site, Barrington National Park
- Gloucester Main colliery site, King George Park
- Avon Valley Colliery site, Waukivory Road

The Heritage Provisions of Gloucester Local Environmental Plan 2000 (Part 4) should be reviewed in any future LEP. The NSW Heritage Office has prepared Heritage Model Provisions that can be adapted to Gloucester Shire Council's needs.

3.14.2 Aboriginal Heritage

Aboriginal sites and artefacts in New South Wales are protected by the National Parks and Wildlife Acts 1974. This act defines a relic as a deposit, object or material evidence relating to indigenous and non-European habitation of the area that comprises New South Wales. It is illegal to disturb, damage, deface or destroy a relic without the prior written consent of the Director of the National Parks and Wildlife.

National Parks and Wildlife Service, through investigation, has found that *"there is now clear evidence from sites, that aboriginal people modified waterways and landscapes, produced grain, established permanent villages and used well developed trading networks throughout their history. Aboriginal societies changed as they adjusted to internal and external pressures. Archaeologists believe that understanding these changes can help us to know more about how different cultures developed. This evidence of the past remains in many sites in New South Wales, so it needs to be carefully preserved."*

The Gloucester area was originally inhabited by the Worimi People. Their native language was Kattang. In 1820 Robert Dawson came into contact with the local aboriginal people and with the influx of the white occupation of the area, many recorded incidents with local aboriginal tribes occurred. Many of these incidents are recorded in the journals of early explorers and that of the Australian Agricultural Company.

The National Parks and Wildlife Service have a recorded of a number of sites in the Gloucester local government area. (See **Table 3M**) These however, are not exhaustive and as the aboriginal occupation of the area was extensive, there would be many other unrecorded sites throughout the Shire. The Gloucester area also held a number of reserves, such as that at Barrington and gazetted as AR35673 on the 31st January, 1903 and revoked in 1957 and also 50 acres in1890 being AR36574 and revoked in 1957, also at the Barrington River.

Provisions should be made to require appropriate levels of investigation where there is a likelihood that aboriginal sites may exist and could be destroyed by any proposed development.

TABLE 3M ABORIGINAL SITES RECORDED BY DEPARTMENT OF ENVIRONMENT AND CONSERVATION 2004

Site Feature	Number
Aboriginal Resource & Gathering	-
Aboriginal Ceremony & Dreaming	-
Art (Pigment or Engraved)	-
Artefact	14
Burial	1
Ceremonial Ring (Stone or Earth)	6
Conflict	2
Earth Mound	-
Fish Trap	-
Grinding Groove	2
Habitation Structure	-
Hearth	-
Non-Human Bone & Organic Material	-
Ochre Quarry	-
Potential Archaeological Deposit (PAD)	-
Shell	-
Stone Arrangement	1
Stone Quarry	-
Modified Tree (Carved or Scarred)	4
Water Hole	-
Total	30

Source: Gloucester State of the Environment Report 2004

4.0 ENVIRONMENTAL HAZARDS

4.1 Soil Erosion

Soil erosion is a natural feature that occurs constantly over land surfaces. Erosion is caused by wind, flowing water and rain. The amount of erosion from any one area is affected by the slope of the land, the type of soil and its erodibility, the vegetation cover and the volume and intensity of the weathering agent (water or wind).

This naturally occurring process in undisturbed sites, is generally low. Problems occur when alternate land uses are introduced which effect one of the contributing factors to erosion.

Mass movement is another form of erosion, which is generally related to slopes greater than 25º, and may be in the form of land slips, soil creep or mud flows. This generally occurs when the soil is saturated after heavy periods of rain.

Wind erosion is not as prevalent in this Shire, due to ground cover. The topography of the western parts of the Shire is significantly affected however, by water erosion. Rainwaters gathered on the plateau areas, flow down the steep scarp zones, at high velocity, cutting deep gullies and gorges to form river systems draining to the ocean. Soil eroded in the scarp area is deposited on the valley floor, forming higher quality alluvial soils.

Due to the transportation of soils through the catchment system, soil erosion is a problem that should be addressed on a Catchment basis. It primarily relates to land management practices and varies significantly between areas.

Soil profile mapping and erosion hazard mapping carried out by Sate Forests in the Gloucester Chichester Management Areas have found that the majority of the area has a low to medium soil erosion hazard. Some areas in the steeper slopes have a high hazard, however, there are negligible areas, with extreme hazard. The predominant factor affecting the erodibility in this area is the vegetation cover and slope.

An area of potential erosion hazard is the banks of streams and rivers in the area. Inappropriate management practices including allowing cloved and hoofed animals direct access to streams has

reduced vegetation along the stream banks and increased their erodibility. The major affect occurs in flood periods when high amounts of sediment are transported. The decrease of vegetation along the stream banks also increases velocities within the streams, which again increases the risk of erosion.

Problems have occurred within the Manning Catchment due to the movement of sediments downstream to mid-river locations. Finer materials are creating problems in the lower river, especially in the tidal portions of the river. These problems relate to an increase in flooding due to displacement of waters by the build up of sediments and reductions in waterway areas, problems in relation to navigation of the channel due to changing channel paths and sediment build up, impacts on the ecology of the waterways, due to a change in the structure of the river and a restriction in recreational activities.

Increased awareness of erosion hazards and educational programs will ultimately reduce erosion, however, other controls through the planning system may be applicable, regulating land use in high hazard areas or areas adjacent to major waterways.

4.2 Flooding

The impact of flooding on Gloucester forms a constraint to its future development. Council has prepared a Floodplain Management Plan that identifies land in the vicinity of Gloucester township, which is prone to flooding. The Plan specifies a planning flood level and strategies for development of flood affected buildings and land**. Plan 4A,** extracted from the Floodplain Management Plan, shows the design 1% AEP and PMP flood extents.

Flooding is a constraint on future development, however, it also represents a risk and a cost to infrastructures, including roads and bridges, services etc. Such services and riverbank protection measures need to be designed to withstand flooding. Much of the damage caused to services and infrastructure such as bridges, occurs due to a build up of debris against the structure and increasing velocities washing the structure and debris away.

There are various solutions to this, including:

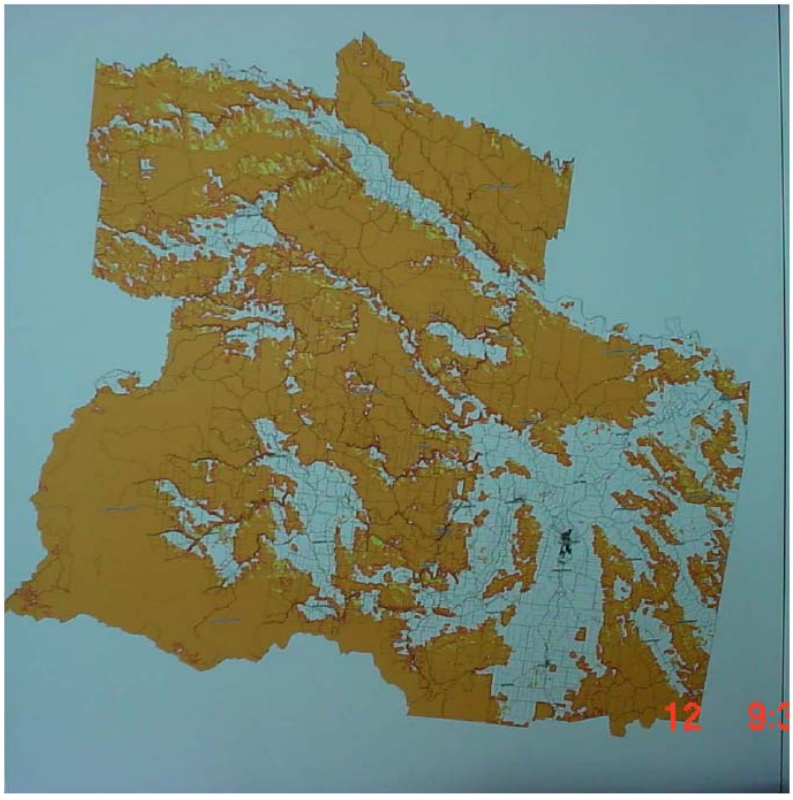
- the construction of structures above the flood level, with sufficient free board to allow debris to pass under,
- the construction of structures at relatively low levels, where they will be overtopped, before debris has built up against them
- the construction of structures with adequate strength to withstand impact loads, buoyancy forces and debris build-up.

PLAN 4A – Flood Plan

4.3 Bush Fire

The NSW Rural Fire Service has produced a Bush Fire Prone Land map (See **Plan 4B**) for the Gloucester local government area. All new development within the area is to consider the possible impacts of bush fire and must incorporate appropriate controls and safeguards. Guidelines for Councils, planners, fire authorities, developers and home owners are published in "*Planning for Bushfire Protection*", (NSW Rural Fire Service and Planning NSW, December 2001). New LEPs should consider the provisions of this document and must also incorporate the matters referred to in the Minister for Planning's Section 117 (Environmental Planning and Assessment Act, 1979) Direction No G20 "Planning for Bushfire Protection".

The Shire of Gloucester is serviced by 22 Bushfire Brigades, in addition to the facilities of National Parks and Wildlife Services and the NSW State Forest. The service is constantly controlled and well placed to respond to outbreaks.



PLAN 4B – Bushfire Prone Land

Source: Gloucester State of the Environment Report 2004

4.4 Mines Subsidence

The Mine Subsidence Board has advised that no areas of this Shire are affected by mine subsidence. Mining, in relation to Stratford and Duralie, is open cut, however, there may be some possibilities for high wall mining in relation to the final void. The area of subsidence that may be associated with underground mining at Stratford is unknown at this time.

4.5 Waste Disposal

Waste disposal is addressed in detail in the Gloucester Shire Council's annual State of the Environment Report.

At present Council operates one Waste Disposal Facility approximately 4km north west of the town of Gloucester. The facility is the only registered recovery point for solid wastes generated within the local government area.

A kerbside garbage collection service is conducted in Gloucester, with drop-off points provided in remote areas. The introduction of a kerbside recycling collection in 2003 has dramatically increased the total amount of recyclable materials collected. Council also conducts an annual unused chemical collection service at the Waste Disposal Facility.

The Environment Protection Authority has advised Council of three unhealthy, contaminated sites in Gloucester Shire. These are:

- Site 4803 Gloucester, the present Waste Disposal Facility on Thunderbolts Way
- Site 165, gazetted under the Unhealthy Building Lands Act and is the former Waste Sanitary Depot on Thunderbolts Way
- Site 4750 Stratford, the Stratford Tip on Craven Road

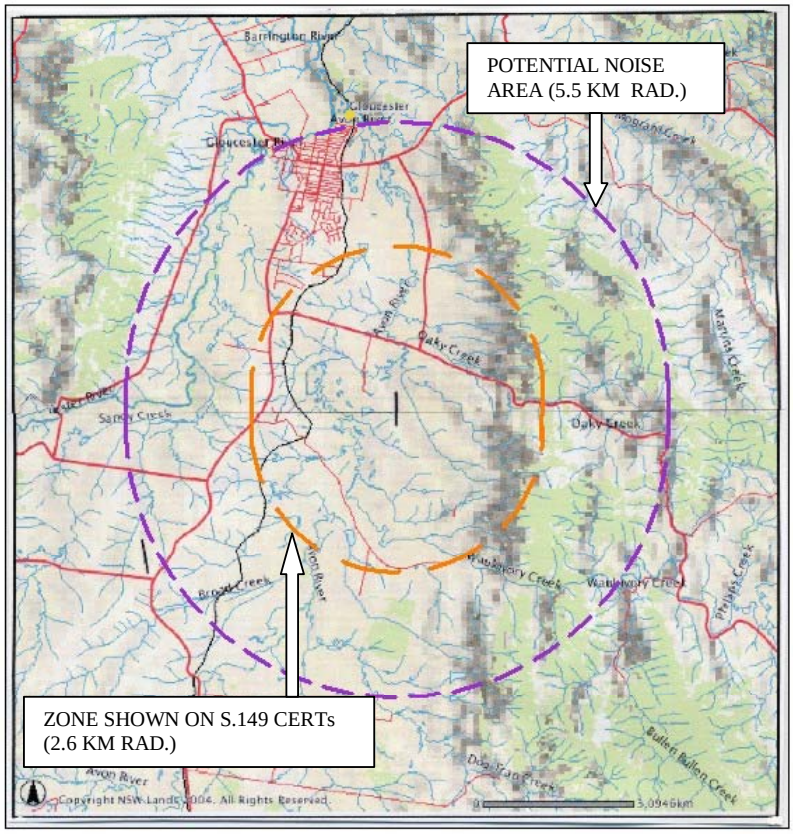
There are two further potentially contaminated sites, being the former waste disposal sites at Parkers Road, Craven and Baker's Creek Road, Bundook.

Due to the existence of mining in the Shire, prior to the turn of the century and the extended history of agricultural activities throughout the area, together with mechanised timber and forestry activities, it is likely that there are other sites throughout the Shire that may have the potential to be listed as contaminated. These may include sheep dip sites, petroleum stores and gold separation areas.

4.6 Noise

Regular noise monitoring is carried out at the Stratford Coal Mine and emissions are controlled under EPA Licence conditions. The Gloucester State of the Environment Report 2004 records 34 noise reports associated with the Stratford Mine in the period 2003/2004.

Council has identified areas that may possibly be affected by aircraft noise from the Gloucester Aerodrome. Properties within the possible affectation zone are identified in planning certificates issued by Council under section 149 of the Environmental Planning and Assessment Act 1979. **Plan 4C** shows the extent of the identified noise zones.



PLAN 4C – Noise Zones

5.0 DEMOGRAPHICS

5.1 Population

Based on the 2001 Census information, the Shire of Gloucester has a population of 4687 people. This represents a decrease of 129 (2.8%) on the 4816 recorded in the 1996 Census or a - 0.54% annual growth rate. A comparison with previous Census periods and ABS projections is shown in **Table 5A**.

TABLE 5A POPULATION (GLOUCESTER SHIRE COUNCIL AREA)

CENSUS YEAR	POPULATION	ANNUAL % INCREASE
1976	4280	
1981	4436	0.72%
1986	4513	0.35%
1991	4650	0.60%
1996	4816	0.70%
2001	4687	-0.54%
2001 (ABS Regional Profile)	(4927)	(+0.46%)

Source: Australian Bureau of Statistics

The apparent negative population growth rate during the 1996 – 2001 Census period is not reflected in other indicative statistics. It may be possible to attribute this discrepancy to the absence of a significant number of residents on Census night 2001 (7 August 2001). The Australian Bureau of Statistics National Regional Profile for Gloucester (ABS cat. No.1379.0.55.001) estimates Gloucester's population at 30 June 2001 to have been 4927 persons. This represents an annual growth rate since 1996 of + 0.46% and is more consistent with demonstrated increases over previous Census periods and with other indicators of growth in Gloucester.

Statistics relating to persons on the Electoral Role in Gloucester clearly show gradually increasing numbers (refer to **Table 5B**), below.

TABLE 5B PERSONS ON THE ELECTORAL ROLE

Date of Count	Number of Persons	Increase (%pa)
June 1997	3422	
June 2001	3599	1.3
June 2003	3606	0.1
February 2004	3614	0.3
December 2004	3655	1.4

Other statistical support for continued population growth can be found in data published by The Transport and Population Data Centre (*NSW Population Projections, 2004 Release, Department of Infrastructure Planning and Natural Resources*). Gloucester is expected to achieve modest population increases largely because of "rural residential development attracting people seeking a rural lifestyle close to the amenities and employment opportunities of Newcastle".

Whilst projections of population growth prepared by the Australian Bureau of Statistics and the Department of Infrastructure, Planning and Natural Resources are positive, it is considered that the growth rates predicted are likely to be very conservative. Such predictions are largely based on historical Census data, whereas Gloucester has recently experienced unprecedented demand for residential and rural residential lots. In the last review of Council's planning provisions (Gloucester Local Environmental Plan 2000), sufficient land was identified to meet projected needs for both residential and rural resident land for the foreseeable future (up to 20 years). Most of that land has now been developed and demand remains strong. The following figures indicate the extent of this recent development:

FIGURE 5A DEVELOPMENT APPROVALS

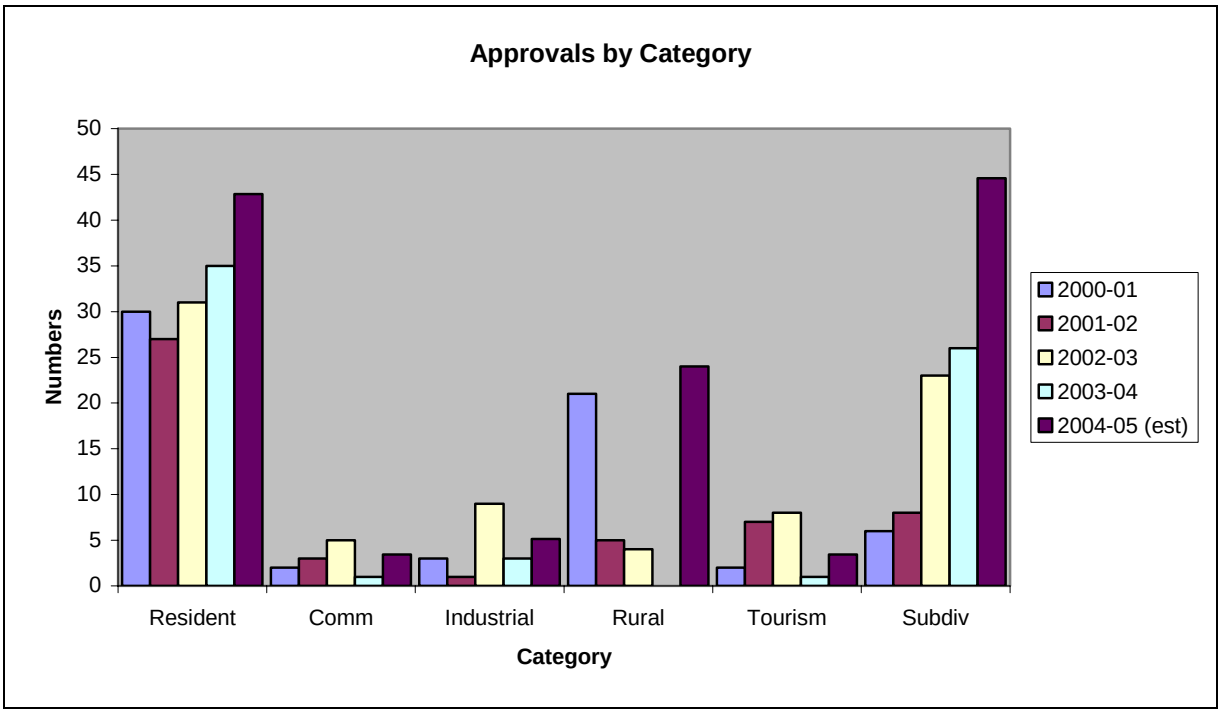
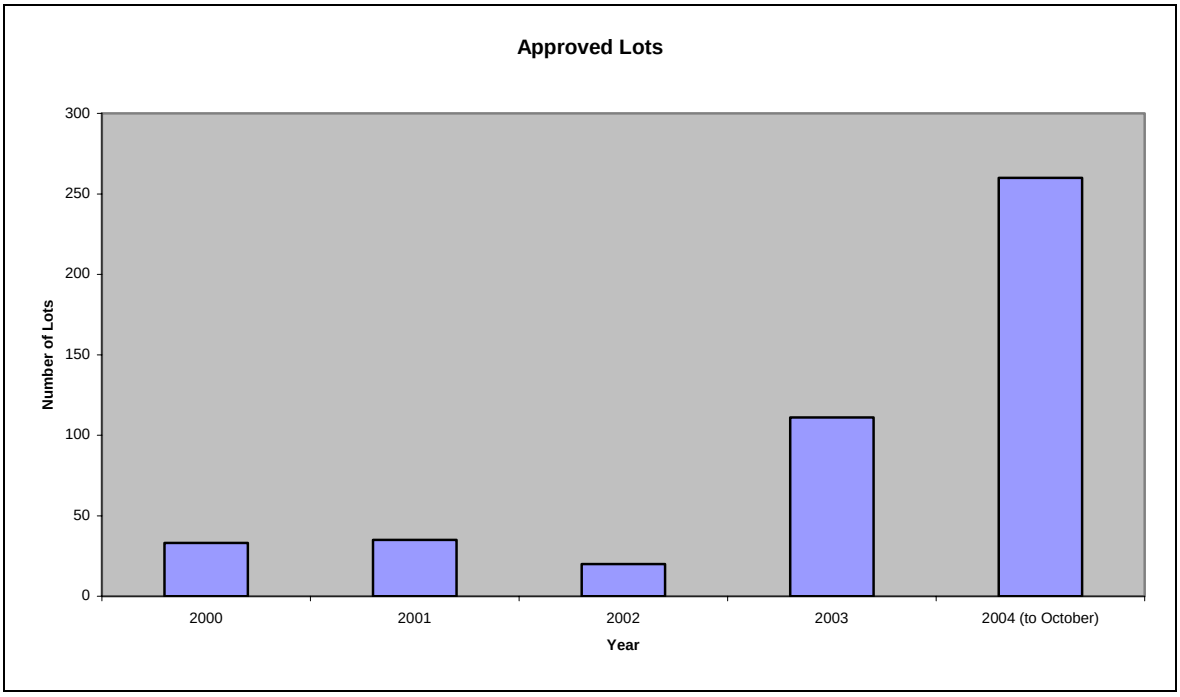


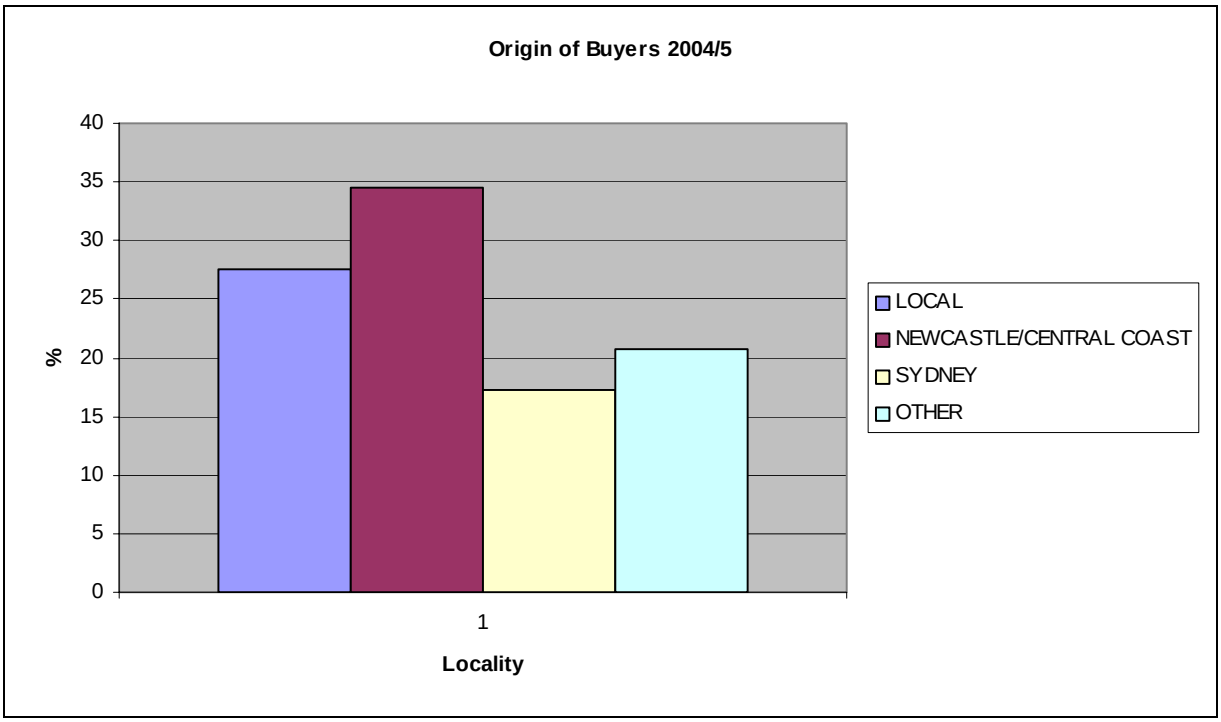
Figure 5A demonstrates the continued growth in approvals for residential dwellings and subdivisions. Since the 2001 Census, dwelling approvals have risen at an average of over 16% pa and subdivisions at around 78% pa. Other categories exhibit reasonably steady rates of approvals. The number of approved subdivision lots also shows greatly increased numbers. (See **Figure 5B**, below).

FIGURE 5B NUMBER OF APPROVED LOTS



Anecdotal information also supports continued increase in demand for residential and rural residential lots. Local real estate agents report a significant shift in market interest, beginning from low, locally driven, demand ten years ago. Despite realistic pricing residential and rural residential lots then sold at a slow rate. From about 2000, Gloucester began to attract interest from outside buyers, including absentee owners approaching retirement age. Initially prices increased only marginally, however from about 2002/3, the market for land boomed, prices increased dramatically and available lots sold quickly. Buyers are largely from out of town, generally people wishing to relocate to Gloucester (See **Figure 5C**). Rural residential lots are particularly attractive with almost 100 lots selling within a 2-year period. The interest in lifestyle lots located in secluded areas, with views or on waterways still remains strong, however the availability of such lots is limited by planning controls. Other professionals associated with the real estate and development fields also report strong demands, with emerging interest in strata units and tourism investment.

FIGURE 5C ORIGIN OF BUYERS



The available statistics and other supporting information strongly indicate continued growth in Gloucester. It is recognized that the strong land development and sales figures that have dominated the property scene in Gloucester for the last 2 to 3 years may largely be a reflection of a much wider real estate boom. For this reason, the Study does not attempt to predict population growth rates based on this limited data. It is, however, encouraging that a significant proportion of buyers are from other localities, particularly the more densely populated areas of NSW. Gloucester has much to offer those seeking lifestyle advantages and it is expected that the influx of these new residents will continue.

5.2 Age Structure

Table 5C, from the 2001 Census, shows an age structure approximately similar to the Hunter Average, except for two population sectors. Gloucester Shire has a significantly lower proportion of its population in the 20-24 and 25-29 age groups (variance: – 2.4% to –2.8%) and a higher proportion in the 60-64, 65-69 and 70-74 age groups (variance: +1.6% to +1.8%). For the purposes of this comparison, an age group displaying 1.5% or more variation in proportional population is considered to have significant variance from the regional average.

Table 5D provides a similar comparison, using the Hunter Balance Region adopted by the Department of Infrastructure, Planning and Natural Resources. (*2001-2005 NSW State and Regional Population Projections, 2004 Release*). The Hunter Balance Region consists of the local government areas (as at 2001) of Dungog, Gloucester, Great Lakes, Merriwa, Murrurundi, Muswellbrook, Scone and Singleton. Excluded from the Hunter Region shown on Table 12A are the local government areas of Cessnock, Lake Macquarie, Maitland, Newcastle and Port Stephens. There is less variance in the proportion of population in age groups when Gloucester is compared with the Hunter Balance. Nevertheless, Gloucester still exhibits a significantly lesser proportion of population in the 20-39 age sector and a higher proportion in the over 60's than the regional average.

TABLE 5C POPULATION BY AGE DISTRIBUTION (1)

TOTAL POPULATION BY AGE - GLOUCESTER/HUNTER COMPARISON 2001									
Age Group	Glouc. Male	*Hunter Male*	Glouc. Female	*Hunter Female*	Glouc. Total	*Hunter Total*	Glouc. %	*Hunter %*	Variance (>1.5%)
0-4	126	*18,911*	113	*17,963*	239	*36,874*	5.1	*6.6*	
5-9	195	*20,648*	177	*19,808*	372	*40,456*	7.9	*7.2*	
10-14	193	*20,711*	181	*19,963*	374	*40,674*	8.0	*7.2*	
15-19	151	*20,077*	122	*18,997*	273	*39,074*	5.8	*7.0*	
20-24	74	*17,409*	79	*16,520*	153	*33,929*	3.3	*6.0*	-2.8
25-29	79	*17,146*	97	*17,358*	176	*34,504*	3.8	*6.1*	-2.4
30-34	119	*18,273*	137	*19,031*	256	*37,304*	5.5	*6.6*	
35-39	160	*19,736*	152	*20,406*	312	*40,142*	6.7	*7.1*	
40-44	179	*20,750*	183	*21,166*	362	*41,916*	7.7	*7.5*	
45-49	165	*19,495*	141	*19,554*	306	*39,049*	6.5	*7.0*	
50-54	166	*18,454*	173	*18,480*	339	*36,934*	7.2	*6.6*	
55-59	158	*15,349*	160	*15,078*	318	*30,427*	6.8	*5.4*	
60-64	149	*12,583*	140	*13,001*	289	*25,584*	6.2	*4.6*	1.6
65-69	128	*10,875*	146	*11,803*	274	*22,678*	5.9	*4.0*	1.8
70-74	137	*10,553*	125	*12,031*	262	*22,584*	5.6	*4.0*	1.6
75-79	79	*8,325*	83	*10,376*	162	*18,701*	3.5	*3.3*	
80-84	51	*4,602*	70	*7,190*	121	*11,792*	2.6	*2.1*	
85-89	18	*1,973*	40	*4,137*	58	*6,110*	1.2	*1.1*	
90-94	10	*567*	23	*1,607*	33	*2,174*	0.7	*0.4*	
95-99	0	*138*	3	*414*	3	*552*	0.1	*0.1*	
100 years and over	0	*14*	0	*50*	0	*64*	0.0	*0.0*	

Source: Australian Bureau of Statistics

TABLE 5D POPULATION BY AGE DISTRIBUTION (2)

TOTAL POPULATION BY AGE - GLOUCESTER/HUNTER BALANCE COMPARISON 2001									
Age Group	Glouc. Male	*Hunt. B Male*	Glouc. Female	*Hunt. B Female*	Glouc. Total	*Hunt. B Total*	Glouc. %	*Hunt. B %*	Variance (>1.5%)
0-4	126	*3,074*	113	*2,942*	239	*6,016*	5.1	*6.5*	
5-9	195	*3,491*	177	*3,448*	372	*6,939*	7.9	*7.5*	
10-14	193	*3,677*	181	*3,408*	374	*7,085*	8.0	*7.6*	
15-19	151	*3,282*	122	*2,785*	273	*6,067*	5.8	*6.5*	
20-24	74	*2,242*	79	*1,896*	153	*4,138*	3.3	*4.5*	
25-29	79	*2,486*	97	*2,417*	176	*4,903*	3.8	*5.3*	1.5
30-34	119	*2,854*	137	*2,886*	256	*5,740*	5.5	*6.2*	
35-39	160	*3,214*	152	*3,264*	312	*6,478*	6.7	*7.0*	
40-44	179	*3,572*	183	*3,432*	362	*7,004*	7.7	*7.6*	
45-49	165	*3,298*	141	*3,115*	306	*6,413*	6.5	*6.9*	
50-54	166	*3,240*	173	*2,999*	339	*6,239*	7.2	*6.7*	
55-59	158	*2,845*	160	*2,655*	318	*5,500*	6.8	*5.9*	
60-64	149	*2,533*	140	*2,497*	289	*5,030*	6.2	*5.4*	
65-69	128	*2,179*	146	*2,155*	274	*4,334*	5.9	*4.7*	
70-74	137	*2,067*	125	*2,104*	262	*4,171*	5.6	*4.5*	
75-79	79	*1,487*	83	*1,705*	162	*3,192*	3.5	*3.4*	
80-84	51	807	70	1,161	121	1,968	2.6	*2.1*	
85-89	18	325	40	632	58	957	1.2	*1.0*	
90-94	10	114	23	279	33	393	0.7	*0.4*	
95-99	0	26	3	59	3	85	0.1	*0.1*	
100 years and over	0	0	0	7	0	7	0.0	*0.0*	

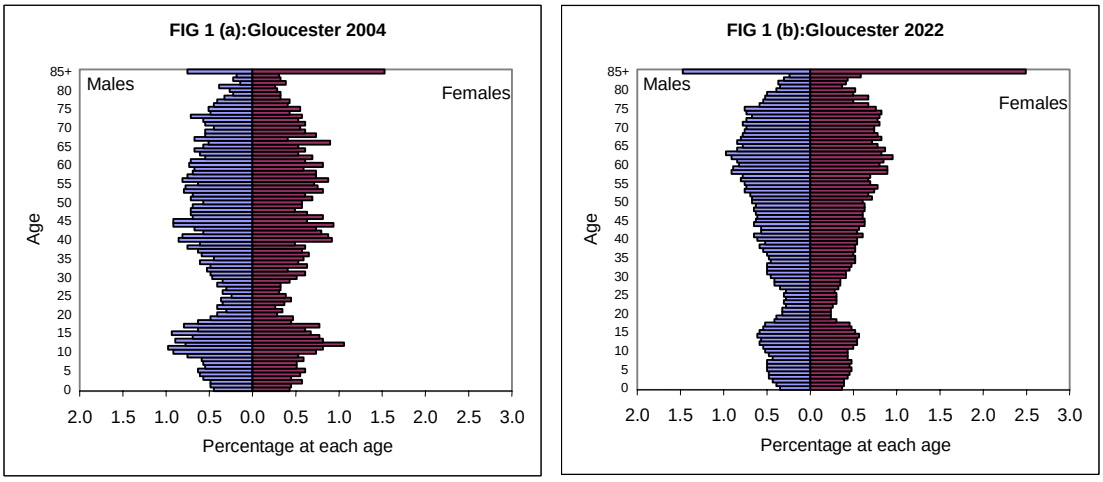
Source: Australian Bureau of Statistics

The trends identified in previous Census periods for Gloucester's population are confirmed in current statistics. These trends are a continuing loss of population in the working-age sectors and an increasing population in older sectors. In 1991, Gloucester had 1081 (22.5%) persons aged between 20 and 39: in 2001 this number had dropped to 897 (19.1%). For age groups from 65 on, the population increased from 816 (16.9%) in 1996 to 913 (19.5%) in 2001.

The loss of working-age population is an issue for many country towns and the decline in rural-based employment opportunities is widespread. Gloucester has also experienced significant job losses in recent years through reforms to the timber and dairying industries. Employment at the Stratford Mine will also decrease as the operation approaches the end of production, expected in about 2009. The loss of young adult population to other parts of Australia is forecast for the Hunter Balance Region as a whole (DIPNR, 2004).

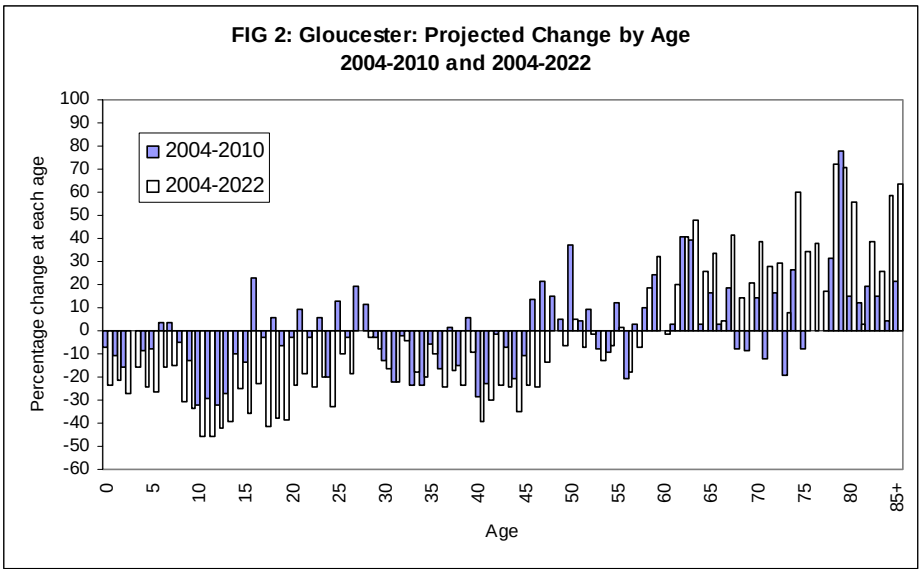
The NSW Local Government Population Aging Project (Jackson, N.O., 2004) identified Gloucester as the sixth oldest local government area in NSW. In 2004, the over 65 population of Gloucester was estimated at 1006 (20.5%) and is expected to grow to around 1354 (29%) by 2022. Accompanied by the increasing proportion of aged, the report projects that the total working age population (15-64 years) will decline from 60% of the population, to around 56% in 2022. Whilst the Project's overall population projection for Gloucester (decline of 6% by 2002) is not supported by other indicators, the changing age profile is consistent. **Figure 5D** shows the age distribution of Gloucester residents in 2004 and the projected age distribution in 2022. **Figure 5E** shows the projected change in the age groups 2004 to 2010 and 2004 to 2022.

FIGURE 5D AGE DISTRIBUTION



Source: NSW Local Government Population Ageing Project (2004)

FIGURE 5E PROJECTED CHANGE BY AGE



Source: NSW Local Government Population Ageing Project (2004)

The aging of Gloucester's population is a significant issue in the formulation of planning strategies for the local government area. There are special needs that accompany aging including:

- Aged and community care facilities,
- A range of housing choices that are affordable and appropriate, including short-term and long-term support accommodation,
- Particular needs for Indigenous residents, or persons with mental health, disabilities, drug or alcohol dependence,
- The provision of adequate transport services providing accessibility to services

Gloucester Shire Council has formally listed existing aged facilities and services, and identified issues and gaps. (*Gloucester Shire Council Community Plan, 2004*) The Plan makes recommendations and implementation strategies, including the formation of an Aged Care Working Group, which will develop an action plan. The Community Plan has a twenty-year development cycle, with a five-year rollover and annual review of objectives. Close liaison with the Aged Care Working Group during formulation of any new planning instrument is recommended.

One of the principal recommendations of the Community Plan, in respect to older people, is support for the "Havencourt" retirement village. This proposal, involving the construction of a

100-unit retirement village, with associated facilities, has received Council consent. However, it is understood that the project is unlikely to proceed in the approved configuration. Consultation with project developers may establish alternative means by which the proposal can still be undertaken, in conjunction with residential development of the land.

The availability of suitable housing choices is critical for older people or people with a disability. It is also an issue that can be addressed through the planning processes. The current provisions of Gloucester LEP 2000 severely restrict the creation of small lots, dual occupancies and medium density residential developments. Sections 6.6.3 and 6.6.4 of this Study examine opportunities and strategies that could improve this situation.

At the other end of the demographic scale, a decline in numbers in the younger age groups is apparent.

For school-age children, the projected decline is supported in enrolment statistics for Gloucester schools, as shown in **Table 5E**.

TABLE 5E SCHOOL ENROLLMENTS

YEAR (January)	Gloucester High School	Gloucester Public School	St Josephs Primary School	Average Annual Change (%)
2000	490	336	89	
2001	485	352	(not recorded)	1.33
2002	485	345	73	-0.84
2003	465	323	70	-4.98
2004	455	315	68	-2.33
2005	429	304	66	-4.65

Whilst the trend since 2002 has been towards lower school enrollments, verbal advice from individual school principals suggests that this has eased in 2005. St. Josephs Primary School this year has the largest Kindergarten for seven years and Gloucester High School enrollment figures are skewed by the unusually low numbers in the higher years, particularly Year 12.

5.3 Employment/ Workforce

Table 5F compares the number and percentage (of total workforce) of persons employed in various sectors of the workforce for the Census years 1991, 1996 and 2001 and with the Hunter for 2001. Census categories were changed in 1996, making a direct comparison with previous years difficult, however overall trends are apparent.

TABLE 5F WORKFORCE

INDUSTRY	CENSUS YEAR							
	1991		1996		2001		*Hunter 2001*	
	No	%	No	%	No	%	*No*	*%*
Agriculture, Forestry and Fishing	448	25	418	23	403	22	*6,641*	*3*
Mining	0	0	75	4	74	4	*6,811*	*3*
Manufacturing	196	11	190	10	153	8	*25,656*	*12*
Electricity, Gas and Water Supply	16	1	3	0	6	0	*2,914*	*1*
Construction	86	5	84	5	128	7	*16,494*	*7*
Wholesale Trade	290	16	69	4	60	3	*10,338*	*5*
Retail Trade			217	12	241	13	*36,646*	*17*
Accommodation, Cafes and Restaurants			111	6	102	6	*12,146*	*6*
Transport and Storage	82	5	85	5	70	4	*8,613*	*4*
Communication Services	15	1	13	1	17	1	*2,617*	*1*
Finance and Insurance	98	5	31	2	35	2	*5,561*	*3*
Property and Business Services			66	4	99	5	*19,190*	*9*
Government Administration and Defence	66	4	79	4	64	4	*9,852*	*4*
Education	240	13	111	6	99	5	*16,082*	*7*
Health and Community Services			160	9	159	9	*24,565*	*11*
Cultural and Recreational Services			3	0	19	1	*3,995*	*2*
Personal and Other Services	116	6	36	2	45	2	*7,765*	*4*
Non-classifiable economic units	3	0	18	1	6	0	*866*	*0*
Not stated	147	8	43	2	43	2	*3,891*	*2*
Total	**1803**	**100**	**1812**	**100**	**1,823**	**100**	***220,643***	***100***

Source: Australian Bureau of Statistics

Employment in the agricultural sector has been steadily declining. It is considered that this trend will continue into the next Census period and beyond, principally because of rationalisation of the dairying industry. Agriculture will however remain one of the principal employment sectors in Gloucester. Manufacturing employment is also declining, as is the finance and insurance sector.

Forty-four more people were employed in the construction industry in 2001 than in 1996, a significant increase representing an additional 2% of the total work force. This increase is also evidenced in the number of building approvals issued and it is expected that the 2006 Census will record a further dramatic increase in this sector.

In comparison to the Hunter Region, Gloucester has a significantly larger proportion of the workforce in the agriculture, forestry and fisheries sector and a lesser in proportion in other industries.

Employment in Gloucester over the last two Census periods has been supported by the mining industry. Employment in this sector will decrease as the Stratford Mine approaches the end of operations approaches. Some employment may be generated in the mining sector through other ventures such as ruby mining and coal-bed methane gas production.

Table 5G compares Gloucester's workforce / unemployment statistics with those of the Hunter over the 1991 to 2001 Census periods. The unemployment rate in Gloucester has fallen from above the regional average to significantly below, however this may be largely attributable to the diminishing numbers in Gloucester's workforce. Other factors influencing the lower recorded unemployment rates are a reluctance to register as unemployed, changes in measurement techniques and benefit payment regimes. Unemployment, particularly amongst youth, is a recognized problem in Gloucester (*ref: Gloucester Shire Council Community Plan, 2004*).

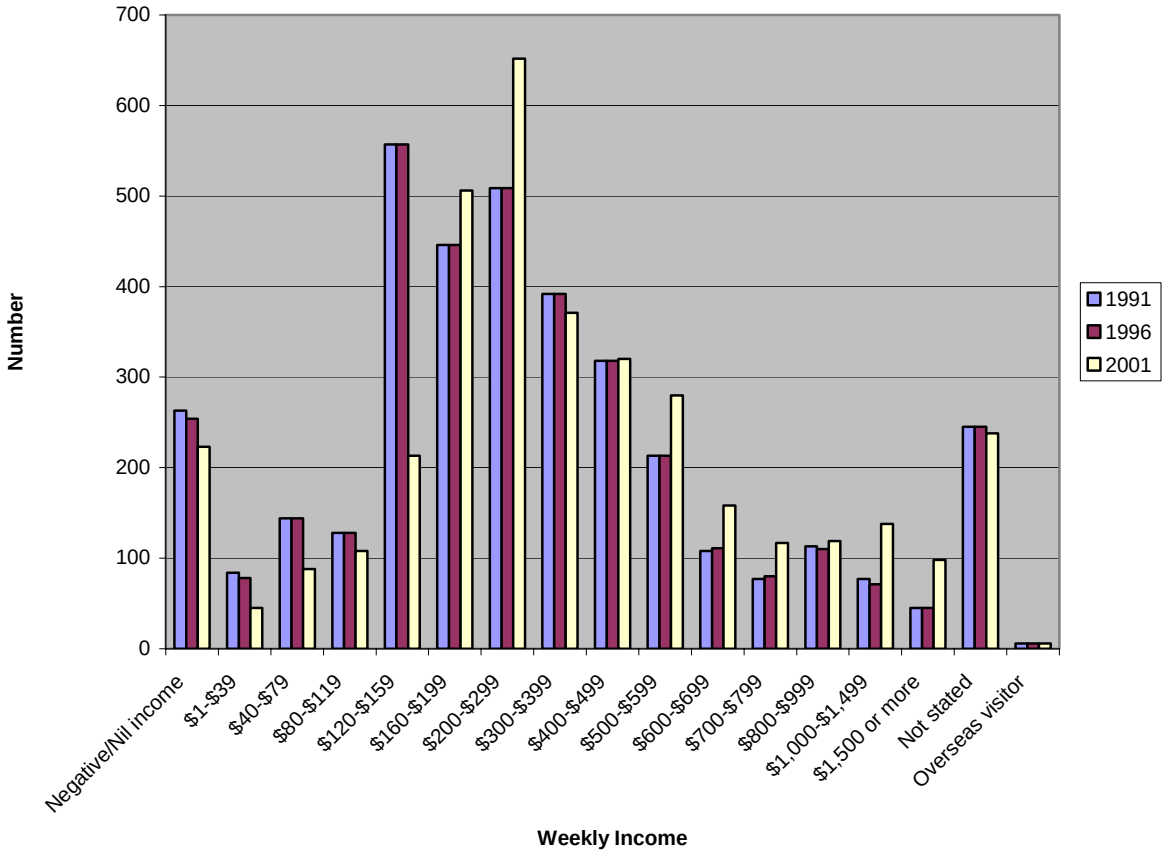
TABLE 5G EMPLOYMENT PROFILE

	1991	1996	2001	Average Change (%pa)
Population (Gloucester)	4664	4816	4687	
Number in Workforce (Gloucester)	2231	2028	1968	-1.25
Number Unemployed (Gloucester)	261	194	147	-5.58
Percentage Unemployed (Gloucester)	11.7	9.6	7.5	
Population (Hunter)	532180	563716	563587	
Number in Workforce (Hunter)	250443	243973	244820	-0.23
Number Unemployed (Hunter)	27268	25166	24177	-1.20
Percentage Unemployed (Hunter)	10.9	10.3	9.9	

Source: Department of Employment Education and Training
Other Data: Australian Bureau of Statistics

5.4 Household Incomes and Expenditure

FIGURE 5F INDIVIDUAL INCOMES



Source: Australian Bureau of Statistics

The distribution of incomes between ranges in Gloucester for the 1991 and 1996 Census periods was reasonably constant. The 2001 Census recorded some notable changes, with a shift from the very low-income ranges (up to $159 per week) to higher brackets. This may be partly due to normal inflationary changes in the economy, however it is noticeable that a larger proportion of persons are now in the higher income ranges. Household incomes (see **Table 5H**) show similar trends. In comparison to the Hunter, Gloucester has a higher proportion of households with incomes in the lower ranges. This reflects Gloucester's relatively high proportion of the workforce in the agriculture, forestry and fisheries sector (see **Table 5F**).

TABLE 5H HOUSEHOLD INCOMES

	1991		1996		2001		*Hunter 2001*	
	No	**%**	**No**	**%**	**No**	**%**	***No***	***%***
Negative/Nil income	13	1	16	1	12	1	*1060*	*1*
$1-$299	480	29	461	25	302	17	*30457*	*14*
$300-$499	302	18	386	21	422	23	*42039*	*20*
$500-$699	241	14	290	16	249	14	*25190*	*12*
$700-$999	215	13	231	13	251	14	*28219*	*13*
$1,000-$1,499	98	6	158	9	208	11	*31513*	*15*
$1,500-$1,999	16	1	32	2	94	5	*17427*	*8*
$2,000 or more	7	0	42	2	50	3	*11534*	*5*
Partial income stated	237	14	148	8	151	8	*14952*	*7*
All incomes not stated	73	4	51	3	79	4	*8007*	*4*
Total	**1,682**	**100**	**1,815**	**100**	**1,818**	**100**	***210,398***	***100***

Source: Australian Bureau of Statistics

6.0 LAND USE

6.1 Agriculture

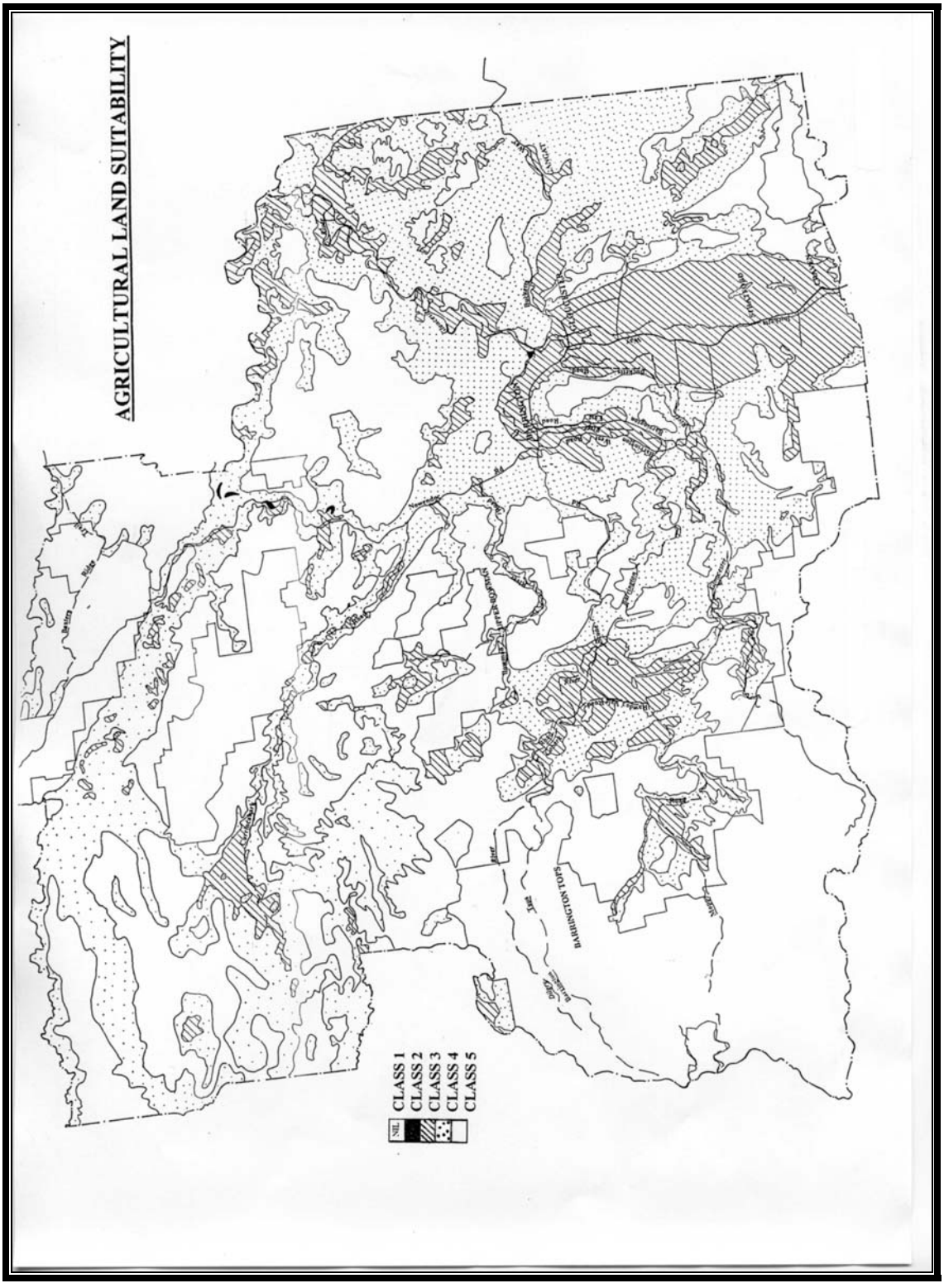
The Shire of Gloucester covers an area of 2198 km² (ABS, 2001 Census). All privately-owned rural land in the local government area has been classified and mapped according to its Agricultural Suitability by the NSW Department of Primary Industries (refer to **Plan 6A**). Areas excluded from the mapping include national parks, state forests and urban zones. **Table 6A** summarizes the land areas in each classification and **Table 6B** sets out the Department's land classification criteria. Classes I, II and III land are defined as "prime crop and pasture land" under section 29 of the Hunter Regional Environmental Plan 1989 and section 5 of Gloucester Local Environmental Plan 2000.

TABLE 6A AGRICULTURAL CLASSIFICATION OF LAND BY AREA

	Area (hectares)	Percentage of Total Area
Class I	0	0
Class II	410	0.2
Class III	3845	16.9
Class IV	108209	47.5
Class V	80720	35.4

Source: Department of Primary Industries

Agriculture provides the principal source of employment and income for the Gloucester local government area. Although the proportion of workers employed in this industry has shown a decline in recent Census periods (see **Table 5F**), greater than 20% of the workforce currently relies on this industry. The total value of agriculture in Gloucester in 2001 was over $23M, an increase of 8.3% since 1997 (see **Table 6C**).



Source: Department of Primary Industries / Australian Bureau of Statistics

PLAN 6A – Agricultural Land Suitability

TABLE 6B AGRICULTURAL LAND SUITABILITY CLASSES

	DESCRIPTION
CLASS 1	Land capable of regular cultivation for cropping (cereals, oilseeds, fodder etc) or intensive horticulture (vegetables, orchards). Has a very good capability for agriculture, where there are only minor or no constraints to sustained high levels of production. Will include irrigated areas with high production.
CLASS 2	Land suitable for cultivation for cropping but not suited to continuous cropping or intensive horticulture. Has a capability for agriculture but where constraints limit the cropping phase to a rotation with improved pastures and thus reduce the overall level of production.
CLASS 3	Land suitable for grazing. Well suited to pasture improvement and can be cultivated for an occasional cash crop or forage crop in conjunction with pasture management. Overall level of production is moderate as a result of high environment costs which limit the frequency of ground disturbance. Has moderate capability for agriculture. Pasture lands are capable of sustained high levels of production although conservation measures may be required.
CLASS 4	Land suitable for grazing and not suitable for cultivation. Agriculture is based on native pasture or improved pastures relying on minimum tillage techniques. Overall level of production is low. Environmental constraints make arable agriculture uneconomic.
CLASS 5	Land suitable only for rough grazing or land not suitable for agriculture. Agricultural production is very low or zero. Severe or absolute constraints to production imposed by environmental factors.

Source: Department of Agriculture

The following Tables show the extent of agricultural production in Gloucester and compares these to State-wide production in the corresponding sectors.

TABLE 6C SUMMARY OF AGRICULTURAL PRODUCTION

ABS Census Comparison Hunter Statistical Division	New South Wales	New South Wales	%	Gloucester (A)	Gloucester (A)	%
	ABS 1997	ABS 2001	variation	ABS 1997	ABS 2001	variation
Agriculture						
Respondents - Total Area Of Holding (ha)	42,758	41,951	-1.9%	303	293	-3.3%
Total Area of holding (ha)	60,900,623	61,007,388	0.2%	161,521	162,890	0.8%
Total value of fruit - Value ($)	576,859,874	643,846,768	11.6%	22,374	133	-99.4%
Total value of crop (excl Pastures & Grasses) - Value ($)	4,834,482,000	4,788,750,597	-0.9%	365,879	280,024	-23.5%
Total value of crops - Value ($)	4,935,951,379	4,909,252,637	-0.5%	584,918	614,880	5.1%
Total value of livestock slaughterings - Value ($)	1,709,773,992	2,403,408,149	40.6%	7,007,993	12,876,993	83.7%
Total value of livestock products - Value ($)	1,629,329,567	1,523,935,852	-6.5%	13,997,876	9,882,084	-29.4%
Total value of agriculture - Value ($)	8,275,054,938	8,836,596,638	6.8%	21,590,787	23,373,957	8.3%

Source: Department of Primary Industries / Australian Bureau of Statistics

Table 6C clearly highlights the continuing importance of agricultural production to Gloucester. The number of farm operators and the total holding of land utilized for agriculture has remained reasonably constant over the 4-year period. There has been considerable fluctuation in sectors of the industry, however the overall value of production has increased significantly and in excess of the State average.

Table 6D examines the major local agricultural sectors. Significant variations are evident in the lesser-established agricultural industries such as cut flowers, fruit production, poultry and pigs. Because of the small number of producers in these industries, such variations over a relatively short period are not unexpected.

Statistics for the dairy industry reflect the effects of industry reforms in 2000. NSW dairy farmers suffered an average 30% loss in farm gate price for milk following deregulation, with an average loss of $53,000 per annum. Two hundred dairy farmers in NSW left the industry on deregulation, with a further 30% expected to leave within five years. (*Ref: Australian Bureau of Agricultural and Resource Economics Report to the Minister for Agriculture, Fisheries and Forestry, January 2001*). The dairy industry reforms had significant impact in Gloucester, which is a major dairying centre, producing around 2.5% of the total NSW output. The effects of these reforms are expected to continue as more producers move out of the industry and remaining farmers seek to consolidate and embrace new technology. The Department of Primary Industries advises that the number of dairy farms in Gloucester has fallen from 60 in 2001 to 36 in July 2004, although the total number of dairy cattle has decreased only marginally. (*Ref: Department of Primary Industries, pers. comm. 24/11/04*).

The beef cattle industry remains Gloucester's major agricultural producer. Whilst the number of producers has declined slightly, cattle numbers, sales and slaughterings have increased significantly. It is significant to note that the workforce in agriculture generally and particularly in the beef cattle sector is older than in other industries: 47% over 55 years of age, compared to 23% of the total workforce in this age group. (*Ref: Department of Primary Industries, pers. comm. 24/11/04*).

The statistics indicate that some sectors of agriculture may be emerging as important producers in the Gloucester area. Fruit (including grapes) and lucerne production have both seen an influx of

producers, whilst pig production has doubled. The potential for new forms of agriculture to establish in Gloucester is examined further in this Study.

TABLE 6D AGRICULTURAL PRODUCTION SELECTED INDUSTRIES

ABS Census Comparison Hunter Statistical Division	New South Wales	New South Wales	%	Gloucester (A)	Gloucester (A)	%
	ABS 1997	ABS 2001	variation	ABS 1997	ABS 2001	variation
Cut Flower Industry						
Respondents - Cut flowers - Area (ha)	312	373	19.4%	3	3	-15.0%
Cut flowers - Area (ha)	739	843	14.0%	6	5	-17.9%
Cut flowers - Value ($)	22,568,606	(N/A)		189,267	(N/A)	
Fruit Industry						
Respondents - Orchard trees (incl nuts) - Area (ha)	2,840	3,517	23.8%	1	7	639.0%
Orchard trees (incl nuts) - Area (ha)	35,238	43,183	22.5%	5	28	524.0%
Respondents - Fruit (incl grapes) - Total Area (ha)	4,100	4,945	20.6%	1	7	639.0%
Fruit (incl grapes) - Total Area (ha)	59,734	82,570	38.2%	7	28	332.0%
Total orchard fruit incl nuts - Value ($)	355,788,516	309,327,365	-13.1%	13,716	133	-99.0%
Small berry and tropical fruit - Value ($)	64,284,732	80,998,833	26.0%	8,658	(N/A)	
Dairy Industry						
Respondents - Total Whole Milk Equivalent-quantity (no)	(N/A)	1,468		(N/A)	60	
Total Whole Milk Equivalent-quantity (L)	(N/A)	1,228,517,592		(N/A)	28,024,717	
Milk cows (in milk and dry) at y/e Ref Period (No)	243,959	267,776	9.8%	6,855	6,858	0.0%
Milk - Value ($)	494,003,609	385,497,000	-22.0%	13,880,999	9,873,254	-28.9%
Respondents - Dairy cattle (excl house cows) at y/e Ref Period (No)	2,313	2,230	-3.6%	73	68	-6.5%
Dairy cattle (excl house cows) at y/e Ref Period (No)	392,521	428,443	9.2%	10,990	11,496	4.6%
Poultry Industry						
Eggs						
Respondents - Eggs produced for human consumption (Doz)	179	285	59.3%	2	3	32.5%
Eggs produced for human consumption (Doz)	74,870,077	62,214,106	-16.9%	1,200	1,705	42.1%
Eggs produced for human consumption - Value ($)	123,086,404	112,545,317	-8.6%	1,973	3,085	56.4%
Pig Industry						
Respondents - Pigs - Total (No)	1,032	988	-4.3%	2	4	93.5%
Pigs - Total (No)	729,379	845,002	15.9%	1,960	2,628	34.1%
Sales of pigs (No)	1,361,164	1,593,604	17.1%	3,268	5,551	69.9%
Pigs slaughtered - Value ($)	214,274,711	277,565,426	29.5%	514,449	966,861	87.9%

Cattle Meat Industry						
Respondents - Meat cattle at y/e Ref Period - Total (No)	28,492	25,203	-11.5%	267	247	-7.3%
Meat cattle at y/e Ref Period - Total (No)	6,118,095	5,786,094	-5.4%	57,877	58,150	0.5%
Respondents - Sales of cattle and calves - Total (No)	23,148	23,700	2.4%	243	262	7.7%
Sales of cattle and calves - Total (No)	2,404,375	2,854,040	18.7%	20,090	25,011	24.5%
Cattle and calves slaughtered - Value ($)	772,557,425	1,358,538,832	75.8%	6,455,182	11,905,519	84.4%
Sheep & Wool Industry						
Respondents - Sheep and lambs - Total number (at y/e Ref Period) (No)	19,592	17,880	-8.7%	15	9	-40.9%
Sheep and lambs - Total number (at y/e Ref Period) (No)	42,388,251	40,887,342	-3.5%	4,531	372	-91.8%
Sheep and lambs slaughtered - Value ($)	247,510,153	340,284,488	37.5%	2,325	1,821	-21.7%
Respondents - Wool Production (kg)	19,101	17,483	-8.5%	13	3	-80.1%
Wool Production (kg)	193,333,058	191,397,582	-1.0%	18,782	823	-95.6%
Wool - Value ($)	989,428,017	1,008,642,337	1.9%	114,904	5,745	-95.0%
Horse Industry						
Respondents - Horses - Stud (No)	1,775	1,627	-8.4%	14	11	-19.2%
Horses - Stud (No)	24,485	26,511	8.3%	109	101	-6.9%
Respondents - Horses - Total (No)	8,388	9,312	11.0%	123	99	-19.4%
Horses - Total (No)	85,206	69,116	-18.9%	684	564	-17.5%
Lucerne, Hay, Silage						
Respondents - Lucerne (pure) - Area at y/e Ref Period (ha)	5,238	6,245	19.2%	15	18	19.3%
Lucerne (pure) - Area at y/e Ref Period (ha)	375,035	553,752	47.7%	225	144	-36.1%
Pure lucerne cut for Hay - Production (Tonnes)	412,336	513,390	24.5%	405	364	-10.3%
Pure lucerne Pastures cut for Hay - Value ($)	64,198,117	76,069,590	18.5%	63,087	53,875	-14.6%
Respondents - Crops and Pastures for Hay - Total Area (ha)	9,184	7,366	-19.8%	54	45	-16.3%
Crops and Pastures for Hay - Total Area (ha)	271,075	233,869	-13.7%	752	729	-3.1%
Crops and Pastures for Hay - Total Production (Tonnes)	1,011,038	1,099,693	8.8%	2,495	2,548	2.1%
Pastures - Total cut for Hay - Total value ($)	92,846,374	112,094,227	20.7%	215,307	295,474	37.2%
Respondents-Silage made during y/e Ref Period (Tonnes)	1,575	1,827	16.0%	37	46	24.5%
Silage made during y/e Ref Period (Tonnes)	482,342	666,111	38.1%	5,680	6,680	17.6%

Field Crops						
Respondents - Crops (excluding Pastures and Grasses) - Total Area (ha)	24,221	22,479	-7.2%	28	23	-17.0%
Crops (excluding Pastures and Grasses) - Total Area (ha)	5,589,288	6,723,253	20.3%	524	351	-33.0%
Total value of crop (excl Pastures & Grasses) - Value ($)	4,834,482,000	4,788,750,597	-0.9%	365,879	280,024	-23.5%
Cereals						
Respondents - Cereals for grain - Total Area (ha)	16,527	13,176	-20.3%	10	5	-51.8%
Cereals for grain - Total Area (ha)	4,676,449	5,062,355	8.3%	185	157	-15.1%
Cereals for grain - Total Production (Tonnes)	12,699,712	12,270,336	-3.4%	321	70	-78.3%
Cereals for grain - Total value ($)	2,653,675,247	2,305,216,020	-13.1%	73,055	36,116	-50.6%
Respondents - Oats for grain - Area (ha)	8,111	3,656	-54.9%	6	2	-59.2%
Oats for grain - Area (ha)	392,717	167,892	-57.2%	100	45	-54.6%
Oats for grain - Production (Tonnes)	607,233	245,692	-59.5%	118	49	-58.6%
Oats for grain - Value ($)	87,323,771	26,275,292	-69.9%	17,027	5,240	-69.2%
Respondents - Maize for grain - Area (ha)	333	311	-6.5%	4	2	-40.8%
Maize for grain - Area (ha)	30,731	26,420	-14.0%	21	8	-60.3%
Maize for grain - Production (Tonnes)	255,857	177,619	-30.6%	85	21	-75.4%
Maize for grain - Value ($)	51,102,548	33,411,696	-34.6%	16,877	3,913	-76.8%
Oilseeds						
Respondents - Oilseeds - Total Area (ha)	2,540	4,133	62.7%	2	1	-36.5%
Oilseeds - Total Area (ha)	246,640	569,148	130.8%	90	32	-64.6%
Oilseeds - Total Production (Tonnes)	431,984	893,686	106.9%	90	37	-59.0%
Oilseeds - Total value ($)	164,655,615	273,281,638	66.0%	36,979	12,448	-66.3%
Pastures						
Sown Pastures - Total Area sown/resown during y/e Ref Period (ha)	592,057	1,030,884	74.1%	3,865	6,790	75.7%
Sown Pastures at March - Total Area (ha)	4,436,331	6,701,984	51.1%	12,542	27,016	115.4%
Total area of all pastures (ha)	(N/A)	29,417,999		(N/A)	95,056	
Respondents - Native or naturalised pasture at March (ha)	12,817	21,141	64.9%	101	194	92.5%
Native or naturalised pasture at March (ha)	10,313,878	22,716,015	120.2%	36,059	68,040	88.7%
Pastures and Grasses - Total value ($)	101,469,379	120,502,040	18.8%	219,039	334,856	52.9%

Irrigation						
Respondent - Irrigation Pastures - Area (ha)	3,958	(N/A)		82	(N/A)	
Irrigation, Pastures - Area (ha)	346,163	(N/A)		1,620	(N/A)	
Respondents - Irrigation, cereals - Area (ha)	1,797	2,193	22.1%	2	(N/A)	
Irrigation, cereals - Area (ha)	279,528	391,895	40.2%	78	(N/A)	
Irrigation - Pastures (native or sown) (ha)	(N/A)	331,322		(N/A)	1,378	
Irrigation - Total Area reported (ha)	38,649	1,073,046		5	1,472	
Irrigation - Total Area (ha)	907,051	1,126,788	24.2%	1,698	1,398	-17.7%

Source: Department of Primary Industries / Australian Bureau of Statistics

The statistics in **Table 6D** for production of poultry (eggs) and pigs, although based on relatively few respondents, do indicate a significant increase in production. This may suggest there is a potential for further expansion of these industries in the Gloucester area. Both industries are usually operated on an intensive scale; although there is an increasing market for free range production in the poultry industry. The land and other requirements are similar with an emphasis on separation from sensitive receptors, adequate water supplies, suitable areas available for waste treatment and disposal and access to good transport routes. Ideally these industries should be separated from residential, scenic and tourist areas. Stringent planning and environmental requirements relating to buffers around intensive agricultural establishments and effluent treatment areas result in land requirements being reasonably large, although a minimum lot area of 100 ha may not be required in all circumstances.

6.2 Agribusiness

The Strategic Plan for the Economic Development of Gloucester (*Gloucester Economic Development Committee, August 2003*) identifies agribusiness as one of six principal markets in which Gloucester is seen to have a competitive advantage. The development of agribusiness is targeted as a basis for growth of the community. Agribusiness is generally defined as "alternative farming practices on small acreages."

The following sections examine a number of possible uses of agricultural land, which may be suited to Gloucester, having regard to climate, availability of necessary services, access to markets and product demand. It is clear that many alternative farming practices involve the intensive use of rural land, often requiring only relatively small areas, well below 100 hectares. Agribusiness often requires better quality farming land and should preferably be located near to facilities, transport and markets. Some forms of agribusiness, such as viticulture, are suited to joint tourism ventures and their close proximity to Gloucester would be advantageous.

Under the current subdivision requirements for rural land, Gloucester Local Environmental Plan 2000 specifies a minimum area of 100 hectares. Statistics provided by the Department of Primary Industries (see **Table 6C**) show that the average gross return from traditional farming techniques in the area (principally beef cattle and dairying) is $143.50 / ha. Research into current agricultural holdings in the Gloucester local government area reveals an average holding area in 2001 of 556 ha, generating an average gross return of $79,800. The total number of productive holdings fell by 3.3% in the 4-year comparison period.

Real estate agents confirm that many subdivided 100-hectare lots and similar sized holdings (particularly disused dairies) are being sold as "lifestyle" lots, often to part-time occupants. There are very few holdings within the LGA that remain unsubdivided. These cannot be reinstated. As a result of this, Gloucester Shire Council and the Department of Agriculture accept that a 100ha minimum will be the minimum.

As a means to encourage agribusiness to establish in Gloucester, subdivision controls in candidate areas need to be more flexible, possibly to the extent that proposals are assessed on their individual merits. Council has also resolved to vary all rural zones to allow 40ha lots.

6.2.1 Aquaculture

Aquaculture is one of the fastest growing food sectors. Already producing 25% of all seafood consumed, by 2010 it is estimated that aquaculture will produce 40-50% of the world's seafood supplies.

The Department of Planning has recognized that NSW, because of its temperate climate and reliable water supplies, is poised to capture a significant proportion of the projected growth in aquaculture and has made State Environmental Planning Policy No. 62 – Sustainable Aquaculture (SEPP 62). The aims of SEPP 62 are to encourage sustainable aquaculture, to make aquaculture permissible in certain areas, to establish site and operational requirements and to establish a graduated environmental assessment regime. To date SEPP 62 applies to only one region of the State (North Coast). The Draft Hunter and Central Coast Sustainable Aquaculture Strategy was on public exhibition during 2002. When finalized, it will be incorporated into SEPP 62. The Gloucester local government area is included in this Strategy.

The Mid North Coast Regional Development Board identified aquaculture as one of three emerging industries for the region and has commenced an 18-month program to assist the profitability and development of the industry. The other identified emerging industries are herbs and organics. The relevance of these industries to Gloucester is also discussed in this study.

The Gloucester local government area already has an established aquaculture industry centred on the production of Silver Perch (*Bidyanus bidyanus*). Silver Perch is a native freshwater species and is highly suited to intensive culture. The Department of Primary Industries (Fisheries) advises that there are seven licenced aquaculture farms in the Gloucester region, which in 2003/04 produced 24,617 kg of Silver Perch at a total value of $196,797.50. Other production from these farms was valued at $5,325. There is a total of 7.5 hectares of ponds used for the production of these fish. (*pers. comm. 31 March 2005).*

6.2.2 Other Animal Rearing

There are opportunities for the intensive rearing of other animals as an agricultural pursuit, including goats, rabbits, turkeys and other table-birds, alpaca, sheep, etc. Animals are raised for meat and/or fibre production. A number of producers are already operating in the Gloucester

district. In some cases further value adding is possible as is exampled in Gloucester with a successful goat-cheese enterprise. In many instances these enterprises are subsidiary to other farming operations or are carried out on a hobby-scale.

The commercial farming of rabbits (other than wild rabbits) is an industry that has expanded in recent years to satisfy domestic and overseas demand, principally for meat production. Some breeds are also raised for fibre production.

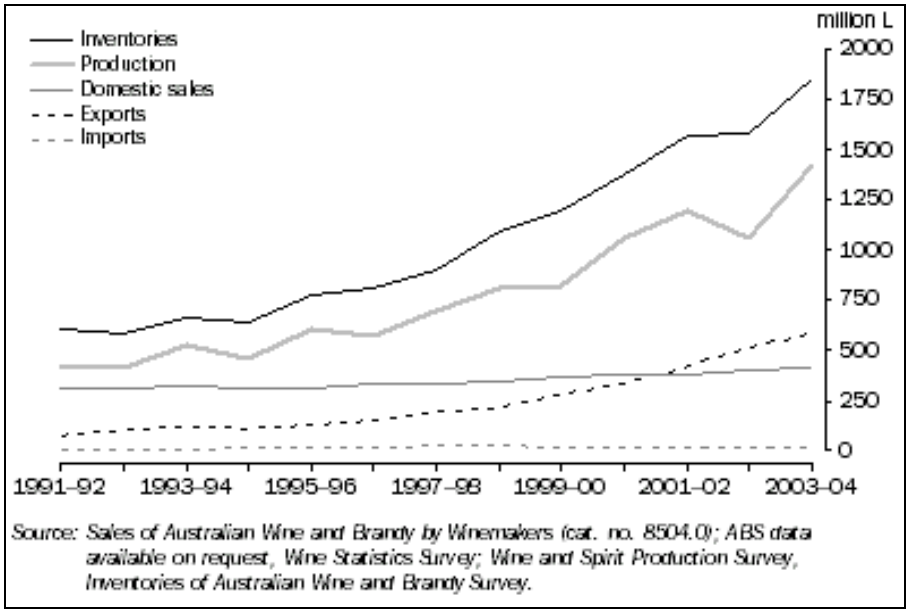
Small intensive animal enterprises can be disadvantaged by remoteness from markets and processing facilities. The formation of co-operatives can assist producers in these industries to compete more successfully. In this regard, a number of producers in Gloucester are investigating the advantages of product aggregation to achieve storage, transport and sales advantages. A further outcome may be the establishment, in Gloucester, of a processing facility capable of handling a diverse range of small animals.

6.2.3 Viticulture

Viticulture, the cultivation of grapes for wine production is a nationally expanding industry. A record harvest in 2003/04 resulted in a total national grape production of over 2M tonnes, a 34.6 % increase from the previous (drought affected) year. Domestic and export sales of wine continued to grow. More than 50% of Australian produced wines are exported. The total value of wine produced in 2004/04 was $4,465M. (*Ref: Australian Bureau of Statistics*). **Figure 6A** shows the continued growth of the Australian wine industry.

Prospects for the industry remain optimistic, however continued growth is significantly dependent upon export sales. Favourable exchange rates are currently supporting exports to the United Kingdom, United States of America and Japan. Competition from developing regions in the wine industry such as South America, New Zealand and South Africa may make sustained growth hard to sustain.

Figure 6A - Wine Production in Australia



Gloucester is located close to the Hunter Valley, which is one of Australia's principal grape and wine production regions and has a similar climate. Studies undertaken by Meteorologist, Martin Babakhan, at the University of Newcastle indicate that Gloucester's climate and rainfall pattern is conducive to viticulture, having a saturated temperature of 22°C and is unlikely to be affected by climate change (*pers. comm., 21 September 2004*). Other requirements include well-structured soils, 350mm to 600mm deep (not excessively fertile), and a reliable, good-quality water supply (3 – 5ML of storage per hectare of vines or a delivery rate from a supply source of 1500L/hr/ha of vines). Protection from strong winds, frost-free Spring weather and access to supporting facilities are also important benefits.

The profitability of viticulture depends upon yield, price, market demand and quality. Estimated net profits of around $3,000 to $6,000 per hectare can be expected. Capital costs should be returned in about 7 to 10 years. The establishment of a winery is a significant investment. A winery capable of crushing around 50 tonnes of grapes is estimated to cost around $150,000. (*Ref: Queensland Government Department of Primary Industries and Fisheries, February 2004*) A successful viticulture enterprise could, subject to favourable circumstances, be operated on a relatively small rural holding of around 30 to 40 hectares. Managing a winery is a labour-intensive undertaking and it is not ideally suited for integration into other farming activities. Few

small to medium vineyards would require the minimum area of 100 hectares currently specified for rural zones in Gloucester Local Environmental Plan 2000.

In 1999 it was estimated that about 68% of wineries (usually at the smaller end of the industry) relied fundamentally on cellar door sales for their income. However, as the tourist number to wine regions have grown, the wineries and surrounding areas have introduced food, arts and crafts and merchandising to attract more tourists. The Australian wine industry has a vision of becoming more competitive as an international wine and food destination for tourists around the world, to the point where it becomes competitive with France and Italy.

Winery visitors include both the dedicated wine lover, and the majority for whom it is an ancillary experience. Wineries attract small groups of family and friends, organised wine tours, and larger tour groups on general sightseeing trips. Those with restaurants and other facilities can tap into a variety of other market segments, including private functions and corporate meetings. Winery visitors tend to do so regularly, and visit more than one per trip. For most visitors, buying wine is a major motivator. However, patronage of winery restaurants is also important.

6.2.4 Olive Growing

Olives are principally grown and processed for oil production. Olive oil is an international commodity, with markets dominated by Spain, Italy, Greece and Tunisia. In Australia, olive oil production has become a substantial horticultural industry, servicing increasing domestic demand and potential for export markets. In 2002/03, Australia imported 32,748 tonnes of olive oil, valued at $139M. Imports have been increasing at 10% pa for the last 10 years. It is estimated that about 1,500 tonnes of olive oil were produced in Australia in 2003. Local production is increasing rapidly as the estimated 8 million trees planted in the last 10 years come into full production. It is estimated that local demand will satisfied from Australian production in 5 to 10 years, making it important for the industry to develop both domestic and export markets. To date, Australian olive oil has achieved higher prices than imported oil because of consistently higher quality, however competitive prices from imported product and from other products such as canola, mean that the local industry must compete price-wise or differentiate itself to maintain consumers. (*Ref: Australian Olive Association Ltd, 2003*)

Olives favour a Mediterranean climate (cool, wet winters and warm dry summers) and grow well in those parts of Australia with a similar climate. Most soil types will support olive growth, providing they are well-drained and have a subsoil pH range of 6.5 – 8.5. Steep slopes should be avoided. Plantings are usually at 250 to 300 trees / ha. Irrigation is sometimes necessary to prevent water stress. Expected gross return is currently about $11,000 / ha (based on world parity price of $4 / litre). Establishment costs range from $3,000 to $7,500 / ha with production costs between $6,000 and $8,500 / ha. (*Ref: Australian Olive Association Ltd, 2003*)

The Gloucester climate is considered suitable for olive production and, with suitable soils, water and management, there is potential for the industry to develop. The land area requirement for a small successful enterprise would be around 40 hectares.

6.2.5 Fruit Growing

The successful cultivation of fruit (pomiculture) on a commercial basis is largely determined by climatic conditions. For example citrus fruit favour hotter climates, such as the Riverina region. The Department of Primary Industries has also identified additional potential citrus production areas, such as central and north-western NSW. Bananas, avocados, mangoes, etc. are tropical fruits and are difficult to successfully cultivate and manage in sub-tropical zones. Apples and pears do better in cooler climates. Some fruits may be suited to conditions in Gloucester, including more exotic varieties that are now gaining in popularity. Examples include persimmon, fig and pomegranate. Nut varieties and many vegetables may also be successfully grown in Gloucester. In all fruit and vegetable production, access to markets is important for enterprise success. It is likely that this factor will limit commercial fruit and vegetable enterprise development in Gloucester. It is possible that as an offset to climate and isolation, producers concentrate on the expanding organics market, where Gloucester's unique image could be a positive advantage, and on greenhouse and hydroponic growing techniques (see following sections).

As with other agribusiness, prospective orchardists or market gardeners may be discouraged by the minimum land area requirement of 100 hectares required by Council's current planning controls.

6.2.6 Boutique Agricultural Enterprises

The Australian market place is relatively diverse and there are existing and emerging opportunities for small producers in boutique agricultural activities. Boutique agricultural industries can often be incorporated with tourism enterprises and can be operated successfully on relatively small lots. Some industries in this category are already established in Gloucester, often as an adjunct to traditional farming operations or as a hobby pursuit. Such industries include herb farming, lavender growing and associated products, and flower growing. One herb producer in Gloucester is now sourcing products from contract growers. The Mid North Coast Regional Development Board (MNCRDB) has identified the herb growing industry as an important emerging industry in the region.

6.2.7 Organic Farming

The NSW organic farming industry is considered to have considerable potential to fill domestic and export markets, which are expanding at between 10% and 30% per year, depending upon the product sector. (*NSW Department of Primary Industries, April 2004).* Retail sales of organic produce in Australia are estimated to have increased from $28M in 1990 to $200M in 2003. Growth sectors included beef, milk and horticulture. In 2000, a Rural Industries Research and Development Corporation project identified a range of organic products and their priority for further development, as shown in the following **Table 6E**.

Table 6E – Organic Products for Further Development

Organic products for further development		
Priority	**Likely**	**Possible**
Beef Carrots Citrus Wheat Wine	Apples Asparagus Banana Canola Dairy products Honey Oats Rice Soybean Safflower Sugar Onions	Broccoli Eggs Fish Grapes Herbs Nectarines Pears Plums Poultry Potato Sunflower

Source: Rural Industries Research and Development Corporation, 2000

Organic and bio-dynamic farm products are those produced using management practices that focus on holistic farming practices encouraging biodiversity and a balance soil ecosystem. Synthetic chemicals, artificial fertilizers or genetically modified organisms are not used. The *National Standard for Organic and Bio-Dynamic Produce (3rd ed., December 2003)* defines appropriate management practices as those that "create soils of enhanced biological activity, as indicated by the humus level, crumb structure and feeder root development, such that plants are fed through the soil ecosystem and not principally through soluble fertilisers added to the soil.

Organic farming systems rely upon crop rotations, use of residual crops, animal manures, legumes, green manures, mechanical cultivation, cultural control, minimal application of approved mineral-bearing rocks and aspects of biological pest management to maintain soil productivity and tilth, to supply plant nutrients and to control diseases, insects, weeds and other pests." Bio-dynamic farming is a specific type of organic farming, based on the principles of Austrian philosopher, Dr. Rudolf Steiner, involving special composts, preparations and plant activators.

Organic products are certified in accordance with the National Standard, with all exports required to have this certification. There are currently seven AQIS-accredited certification organizations operating in Australia.

Gloucester has considerable potential to develop an organic farming industry. The beef and milk sectors are two major and expanding organic producers and are also Gloucester's principal agricultural industries. Other agricultural industries that are suited to Gloucester, including wine, herbs, poultry (eggs) and aquaculture also have significant growth potential for organic products. Agribusiness undertakings generally are likely to benefit if managed in accordance with organic farming principles.

Land requirements will vary according to the product sector, however it is considered likely that many successful enterprises could be conducted on relatively small rural holdings.

6.2.8 Greenhouse Horticulture and Hydroponics

A number of agricultural products are suited to intensive greenhouse or hydroponic production. About one-third of flower crops are grown in greenhouses (*.NSW Department of Primary Industries, April 2004).* Vegetable crops often associated with greenhouse production include mushrooms, tomatoes, capsicums, cucumbers, asparagus and lettuce. Nursery products are also typically grown in greenhouses. Greenhouses are usually located in or near urban areas, with easy access to markets.

Hydroponics is an extension of greenhouse farming, involving soil-less crop production. Nutrients are supplied directly to plants in balanced quantities required for optimum plant growth.

Greenhouse production is intensive and enables higher yields from small areas. Environmental issues arise because of the concentrated use of water, fertilizers and chemicals and the disposal of waste materials. Additional site area may be required to accommodate suitable waste handling facilities. The Nursery Industry Association of Australia publishes guidelines to assist proper management of greenhouse enterprises.

6.2.9 Timber Production

Prior to forestry reforms by the NSW State Government from 1995, the hardwood timber industry was a major source of employment in Gloucester. Following the reforms, most of the timber resource in the Gloucester region became unavailable for commercial logging. The loss of the timber and associated industries had a significant impact in Gloucester. Only a few timber-related specialist industries remain in production.

The future for the timber industry, in respect to major logging enterprises, is uncertain at this time. Opportunities do exist for development of timber plantations and agroforestry pursuits. Forests NSW has a program of developing hardwood and softwood plantations on suitable private land. There may also be advantages associated with private harvestable plantations, through potential markets for carbon credits. Planting of non-harvestable forests on private lands may also be an advantage from sale of carbon credits, where the plantation is associated with significant environmental advantages, such as salinity, land repair and biodiversity enhancement.

6.3 Mining

6.3.1 Coal

There are limited coal-bearing deposits in the Gloucester Shire. These are found in an elongated basin measuring 40km long and 13km wide, lying to the south of Gloucester. Coal Authorisations 311 and 315, held by Gloucester Coal Pty Ltd, cover the known coal deposit areas.

Coal mining and processing operations commenced at the Stratford open cut coal mine in June 1995, following a 6-month construction phase. Initial out put of product coal was 1.2 Mtpa, rising to 1.7Mtpa and 2.7Mtpa when in full production. The open cut closed in mid 2003, with the void utilized for reject emplacement. Bowens Road North open cut coal mine was commenced in 2003 and is expected to remain in production until 2009. The coal handling and preparation plant at Stratford currently processes coal from Bowens Road and from the Duralie Coal Mine, located within Great Lakes Council area 20 kilometres south of Gloucester.

Coal production in the Gloucester Basin is unlikely to extend beyond 2015. As part of planning for the end of mining, in November 2003 Gloucester Coal Pty Ltd entered a 4-year agreement with the University of Newcastle. The company is funding scientific, economic and community studies to determine the use of company land and assets over the next 5 to 10 years. The studies will cover issues such as water quality, soil quality, appropriate vegetation post mining and likely economic feasibility of various types of post mining usage.

Stratford Coal Mine - Equipment on Site

- Aerial View

6.3.2 Coal Seam Methane

Gloucester is located in the northern section of the Sydney Coal-Bearing Basin and, has potential for coal seam methane production. Pacific Power sank six test wells in the period 1993 to 1997. The exploration was carried out under Gloucester Petroleum Exploration Licence (PEL) No 285. The Licence covers an area of approximately 200 sq km, and contains a 5 sq km Stratford prospect, which is estimated to contain as much as 90 petajoules of gas-in place.

PEL285 STRATFORD PROSPECT

Source: Molopo Annual Report 2004

A joint offer by Molopo Australia NL and AJ Lucas Coal Technologies Pty Ltd to Pacific Power, for purchase of Gloucester Petroleum Exploration Licence (PEL) No 285, was accepted in April 2002. Initially Lucas will have an 81.82% and Molopo an 18.18% in PEL285 with Molopo able to increase its stake to 50% by catch-up funding in Phase 2 of the project. A three-year work program is to be undertaken by the venture in two phases: Phase 1 relating to resource and completion appraisal and Phase 2 relating to a pilot appraisal. A fracture simulation of Well No. LMG03 was successfully completed in June 2004, with medium term production testing to continue for up to 12 months. A second vertical production evaluation well (LMG01) has been successfully drilled to a depth of 600 metres and a lateral well (LMG02) recommenced in December 2004.

Whilst the extent of the gas resource in Gloucester has not yet been confirmed, initial indications are encouraging. There are opportunities to develop the resource and related industries, such as power generation. A number of electricity generation facilities in NSW are currently using gas as a fuel. The recently commissioned 12MW Wilga Park Power Station (near Narrabri) is providing its generation output to Country Energy and is capable of further expansion. Eastern Star Gas, developer of gas reserves in the Coonarah Gas Field has dedicated 11.3 petajoules to the power station, which is sufficient for operation at full load for the 10-year purchase agreement with County Energy. Gas delivery pipelines are planned to Narrabri, Tamworth and Newcastle. (*Ref: Eastern Star Gas, 24 February and 31 August 2004*). Construction of the Power Station created 30 jobs, with two full-time positions required during the operational phase.

6.3.3 Rubies

Local prospector, Mr. A W Chubb, discovered ruby deposits in the upper reaches of the Little Manning River in the early 1970s. Audminco Ltd and Cluff Resources carried out exploration work at the site, culminating in the excavation of a 10,000 tonne bulk sample by Cluff Resources in 2003. The inferred resource at the site is 14,000,000 carats. Gloucester and Upper Hunter Shire Councils have issued development consent for mining of the deposit, with works expected to commence shortly following approval by State authorities.

Cluff Resources Ruby Mining Site Gummi

Source: Cluff Resources Pacific NL

6.4 Tourism

Tourism is recognized as one of Gloucester's principal competitive advantages (*Strategic Plan for the Economic Development of the Gloucester District, Gloucester Economic Development Committee, August 2003).* The Gloucester local government area has a rich natural environment and a relaxed friendly country lifestyle. Key features which attract visitors to the area include:

- A unique geographical destination
- World Heritage – (Barrington Tops is included in the World Heritage Listed Central Eastern Rainforest Reserves)
- Wilderness Areas – these areas include the Barrington Wilderness
- The Barrington Tops
- National Parks and State Forests
- Rural/Farm life
- Beautiful scenery
- Attractive country town and villages
- Varying types of accommodation
- Wide range of activities
- Lifestyle environment

The majority of visitors to the area, travel by car and make their own travel arrangements while in the area. Autumn, spring and winter appear to be the most popular times of the year for visitors.

TABLE 6F VISITOR STATISTICS

	1993/1994	1994/1995	1995/1996	1996/97
Visits	44,000	53,000	63,000	69,000
Visitor Nights	132,000	139,000	163,000	190,000
Visitor Spending	$8M	$9M	$11M	$13M
Average Stay (Nights)	3	2.6	2.6	2.8

Source: Tourism NSW

Council has estimated that the value of tourism expenditure in 2004/2005 was $21M.

Tourism management and marketing falls under the umbrella of the Gloucester Shire Council and the Gloucester District Tourism Committee, which is a committee of Council. The Tourism Committee comprises eight local representatives of the local community and tourism operators.

The role of this committee is to advise Council on tourism matters and to undertake some marketing activities.

The Gloucester Visitors Information Centre is located in the Library Building in Denison Street. It is open seven days per week and is manned by the Tourist Officer and approximately 20 volunteers. The Visitors Information Centre handles an average of 45 enquiries per day.

6.4.1 Accommodation

There are a variety of accommodation types in the Gloucester Shire area, ranging from bed and breakfast, farm stays, country retreats, and motels/hotels, to resort style accommodation and caravan and camping facilities. The following Tables summarise the tourist accommodation available in Gloucester. The number of tourist accommodation options has increased from 26 in 1997 to 65 in 2005, with total bed capacity and number camp sites also increasing at a similar rate.

TABLE 6G AVAILABLE VISITOR ACCOMMODATION

NAME	KING	QUEEN	DOUBLE	SINGLE	BUNKS	P/SITES	NP/SITES	SOFA	MAX OCC
Arrowee			3	6					12
Barnhouse		1		2					8
Cockatoo		3							6
Gloucester Cottage		3	1	5					12
Bellbirds			1	4					6
Goldies		3							6
Valley View		3							6

Valley View Cottage			1	2				1	5
Belbora House		3							6
A Room with a View			2						4
Avon Valley Inn			2	4					8
The Roundabout Inn			8	17					25
Bucketts Way Motel			28	58					86
Gloucester Country Lodge Motel			25	30					70
Ashmar		1	1	4					8
Avonlea			1	6					8
Avonleigh Cottage		1	1	2				1	8
Avoca		2		6					10
Aysgarth Cottage		1		2					4
Olive Grove		2	1	2					8
Barkeldine Cottage		2	3						10
Barrington River Cottage		2		3				1	9
Kia Ora Retreat		2							4
Cockadilly		2	1					2	8
Mansfield			2	3					7
Never Never Lodge			3	4				1	10
Orchard Cottage		1	2	2					8
Roseleigh			2	3					7
Sunrise			2	2					6
Tallow-wood	1			4				2	8
The Bower Cottage		1	1	4					8
Twistops Retreat		2	1	5				2	10
The Steps River Cottage		2		2					6
Steps Cabin			1	4					6
Watergums			2	5					9
Waterhens Ramble			1	4					6
Waterhens Retreat			2	1					5
Victory Cottage		1		2					4
Monastery Guesthouse			4	3					11
Monastery			1	15					17
Monastery Gunya Chira				24					24
Yeranda Cottages		4		2				1	12
Rawdon Vale Cottage			2	2					8
Belbora Cottage			1	2					4
Monkerai School House		1	1	1					6
Country Haven Cottage		2		3				1	8
Peacehaven Cottages		2	2	2					10
Coolibah		2	1	2					8
Barrington Riverside Retreat		1		2					4
Gloucester Art House		2		1					5
Majestic Budget Accommodation			5	15					
Woko River Retreat		2	2						8

Eaglereach Wilderness		70		60					250
Hookes Creek Forest Retreat		11	3	7				5	45
Riverwood Downs		72		112					266
Gloucester River Getaways		7		12					26
Gloucester Getaways Lodge		2	1	4					10
The Great Escape Lofts	8			16					32
Barrington River Lodge			1	9					11
Canoe Barrington				60					60
Gloucester Holiday Park			11		15	156	400		80
Gloucester Tops Caravan Pk		1	1	2		20	120		
The Steps Riverside Camping			4	64					72
Korusakira Bush Retreat			3						6
Poley's Place			9	36			600		2500
The Willows		2		7					8
Camp Cobark				20					20
Cundle Flat	2	2	2						8
Cundle Flat Camping									100MAX
Total	11	221	152	681	15	176	1120	17	3956
CAMPING SITES		**SITES**		**MAX OCC**					
Barrington Reserve		50		200					
Bretti Reserve		350		1350					
Gloryvale		30		120					
Copeland		50		200					
Woko		100		400					
Gloucester Tops Caravan Prk		300		1300					
Manning River		35							
Dilgry Circle		10							
Banksia		10							
Horse Swamp		10							
Gloucester River									
Devils Hole									
Polblue									
The Glen									
Total		945		3570					

Source: Gloucester Visitors Information Centre

TABLE 6H ACCOMMODATION TYPE 2005

TYPE OF ACCOMMMODATION.	NO.
Bed & Breakfast	9
Farm Stay	1
Self Contained	34
Unit Style	2
Hotels	1
Resort	5
Bunkhouse	2
Motels	3
Camping/caravan Cabin	8
TOTAL	**65**

Source: Gloucester Visitors Information Centre

The Gloucester area is well serviced by a variety of restaurants, coffee shops, cafes, and food and beverage outlets.

TABLE 6I DINING OUT FOOD AND BEVERAGE

Dining Out Food & Beverage	
Liquor	7
Take Away	3
Restaurant	8
Bistro	2
Coffee Shop	2
Cafe	8
Supermarket	2

Source: Gloucester Visitors Information Centre

6.4.2 Activities and Attractions

For visitors to the Gloucester area, there are many different types of attractions and activities to enable them to experience a different lifestyle. These include rural experiences such as farmstays, day visits to farms, rural scenery and the saleyards. For those visitors wishing to experience nature, the National Parks, State Forests, Barrington Tops and many walking trails are available.

Tourism operators have developed a range of tours that take advantage of Gloucester's natural assets. These include, canoe hire, overnight trail rides, National Parks Night Walks, self-drive 4WD trails.

As well as the natural beauty of the Shire, there are many attractions including a gold mine, folk museum, historic cemeteries, saleyards and local retail outlets. Some of the attractions are summarised below.

"Farm Trails" are a developing form of visitor tours and include organised site visits to various district enterprises. Some of the current participants include Barrington Perch, Barrington Beef, Gloucester Gold, Hillview Herb Farm, Capparis Goat Cheese, alpaca and fish farming.

TABLE 6J ACTIVITIES

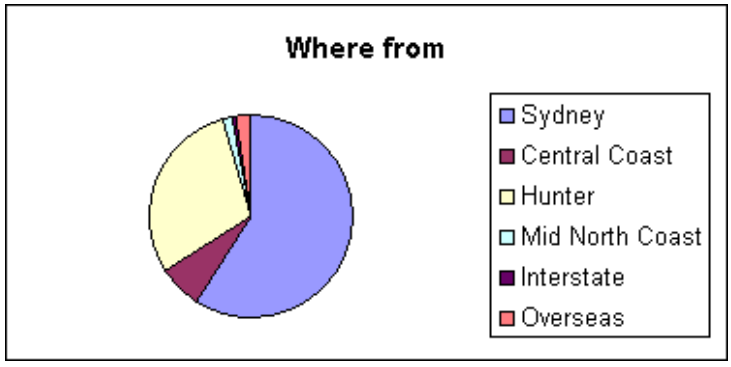
Activity	
Canoeing	3
Horseriding	3
Bushwalking	2
Arts/Crafts	4
Scenic Flights	1
Skydiving	1
Goldtown	1
Bush Barn	3

Source: Gloucester Visitors Information Centre

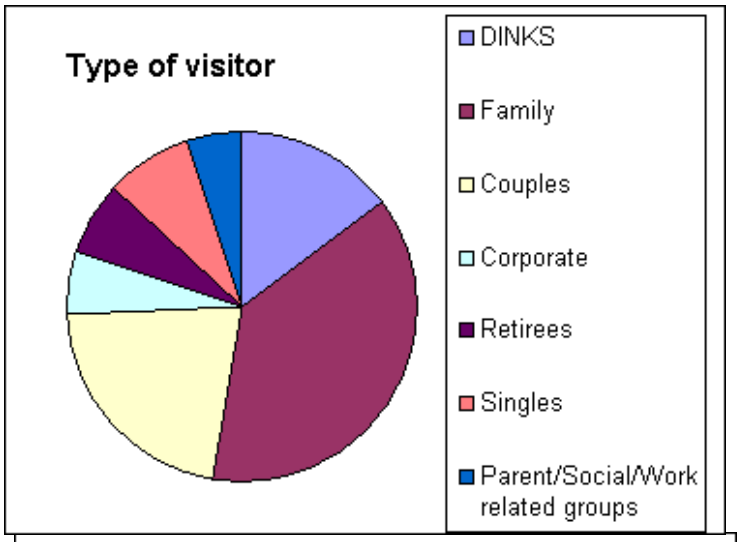
Visitation Statistics provided by 15 (out of 50) tourist operators are shown below.

TABLE 6K VISITATION STATISTICS

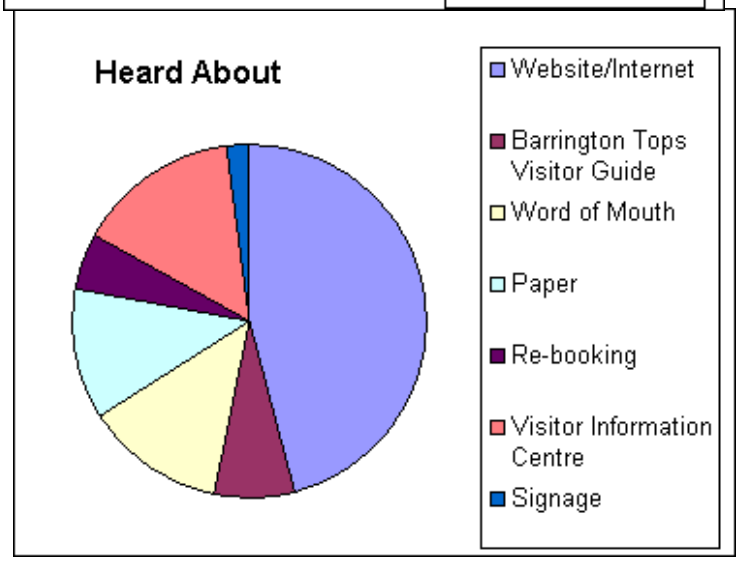
Where From		
Sydney	627	59%
Central Coast	74	7%
Hunter	322	30%
Mid North Coast	18	1%
Interstate	5	1%
Overseas	23.3	2%
Total	1069.3	100%



Type of Visitor		
DINKS	167	15%
Family	421.4	37%
Couples	242	22%
Corporate	65	6%
Retirees	77.5	7%
Singles	89.1	8%
Parent/Social/Work related groups	56.5	5%
Total	1062	100%



Heard about		
Website/Internet	590.5	46%
Barrington Tops Visitor Guide	91.8	7%
Word of Mouth	163.2	13%
Paper	154.5	12%
Re-booking	69	5%
Visitor Information Centre	192	15%
Signage	24	2%
Total	1285	100%



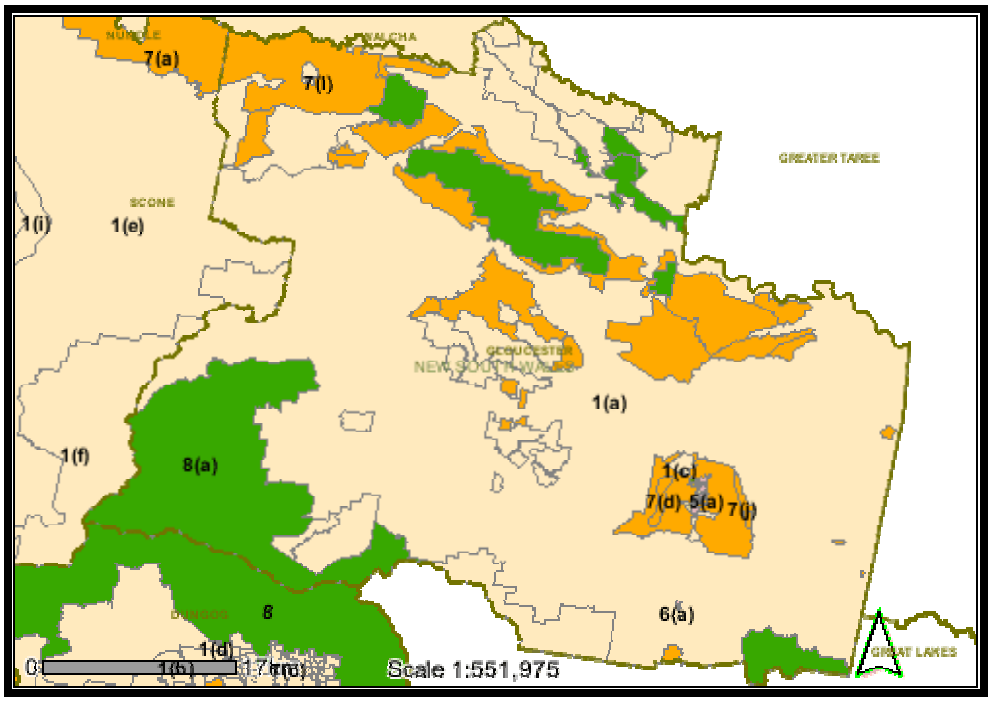
Source: Gloucester Visitors Information Centre

6.5 Protected Lands

The Shire of Gloucester has a number of areas that may be considered protected and not suitable for development. These include the National Parks, State Forests, and the wilderness areas and are normally under the control of State authorities, operating through specific legislation.

Through Gloucester Local Environmental Plan 2000, Council has also established environmental protection zones which place restrictions within other areas that are deemed unsuitable for many forms of development because of scenic, scientific or wildlife habitat features.

Plan 6.4 shows areas of National Park and State Forest (coloured green) and Environment Protection Zones under Gloucester LEP 2000 (Coloured orange).



PLAN 6B – Protected Lands

Source: Department of Infrastructure, Planning and Natural Resources (iPlan)

6.6 Subdivision of Land

6.6.1 Existing Situation

Section 5 analyses demographic statistics relating to Gloucester and identifies an increasing demand for residential and rural residential lots. It is likely that this demand will continue and strengthen as retirees seeking lifestyle changes move to Gloucester. The statistics and projections are supported by evidence of number of lots approved (see **Figure 6B**, below), lot sales, enquiries

(see **Figure 6C**, below) and waiting lists of potential buyers, which are growing as the current supply of lots becomes exhausted.

Figure 6B – Approved Lots

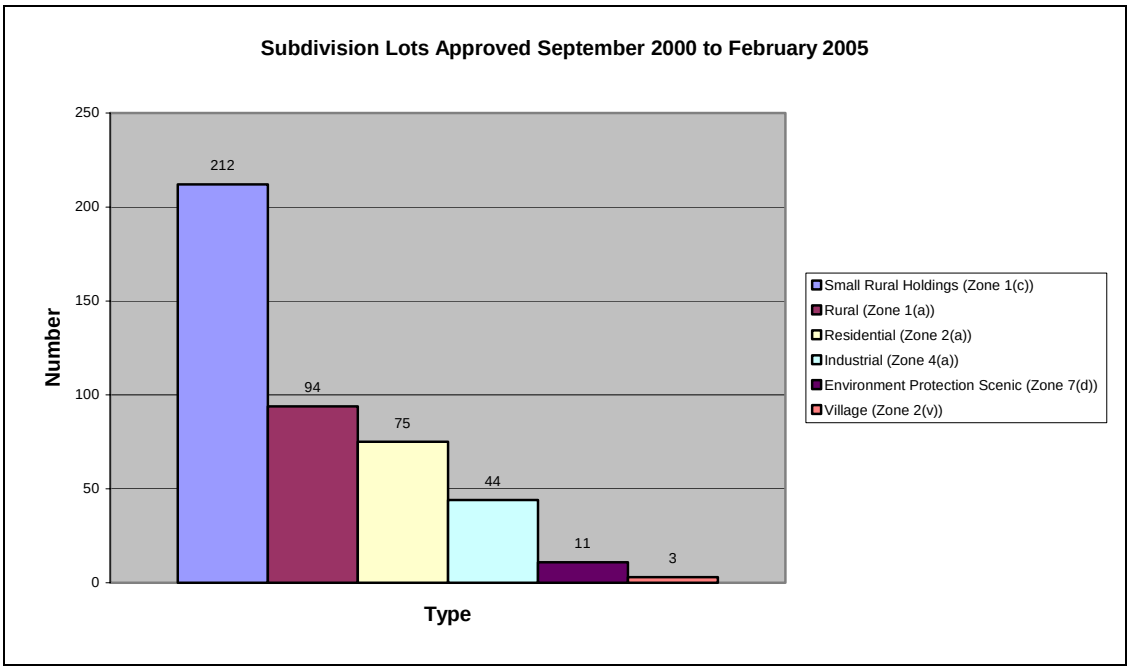
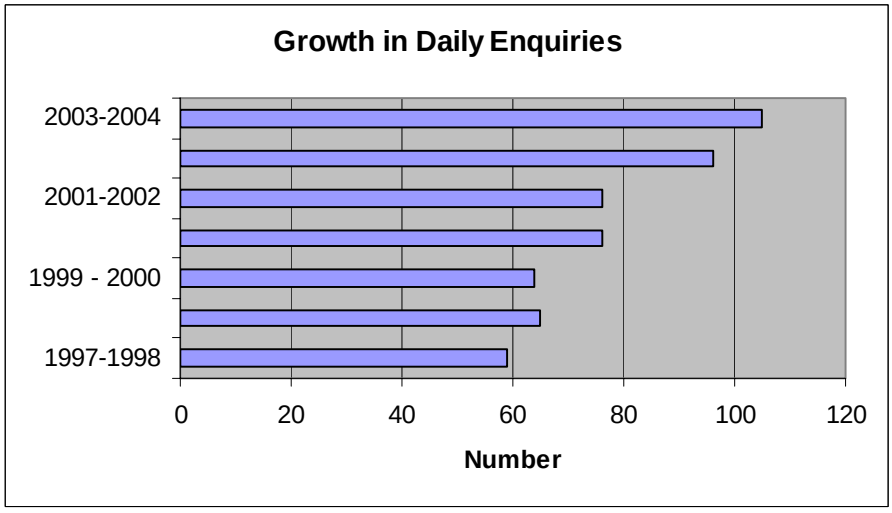


Figure 6C – Development Enquiries



In the period September 2000 to February 2005, under the provisions of Gloucester LEP 2000, Gloucester Council approved subdivisions comprising a total of 439 lots. Real estate agents

report that most of these lots are sold or under contract. It is also reported that about 20% of rural residential lots sold were purchased for investment purposes and have been re-listed.

The estimated potential number of lots that could be achieved from remaining greenfield, appropriately zoned, land under Gloucester LEP 2000 is as follows:

Residential	100
Rural Residential	120
Industrial	40

If the subdivision rates established in 2004/2005 were to continue, the existing land supply within each zone will be taken up within a few years. This is considered to be unlikely to occur in respect to rural residential lots because of the number of approved lots that have remained undeveloped and the relatively large proportion of those lots being offered for resale. Available residential and industrial lots however, are likely to be exhausted within 5 years at current development rates.

6.6.2 Projected Demand

As discussed in Section 5, this Study does not attempt to predict demand for residential and rural residential lots, based on the strong land development trends of the past 2 to 3 years. The process of community and State Government consultation carried out during the compilation of this Study identified that the ability of Gloucester to support growth in a sustainable way is a far more significant issue.

A Local Strategy Statement has been developed through the consultation process, which identifies factors that will limit sustainable growth in Gloucester. Environmental, physical, social, economic, cultural and community identity factors are included. Following from the Local Strategy Statement, the community determined that a population base of up to 12,000 persons could be supported in Gloucester without substantial impact. This study assesses the growth trends in recent years and aims to establish the basis for a land release strategy that will guide Gloucester towards a sustainable population of 12,000 persons. The strategy will include a program of land release that responds to demand, environmental constraints and to the ability of the community to provide adequate physical and social services.

Additional residential opportunities can be provided in Gloucester in a number of ways, including urban consolidation, rezoning and release of additional residential, village and rural residential land and the provision of agribusiness lots in selected rural areas. These options are discussed in the following sections. It has been assumed that provisions under Gloucester LEP 2000 allowing "concessional lots" in rural areas will no longer apply under a revised planning instrument.

6.6.3 Urban Consolidation

Much of the Gloucester urban area, particularly from Philip Street to the northern extremity of the town, has been subdivided in a traditional grid pattern, comprising lots of approximately 900m² to 1000m² in area serviced by 20m road reserves and 6m laneways. Subdivision of these lots into areas of less than 550m² is prohibited under Gloucester Local Environmental Plan 2000 (LEP) and is further restricted by Council's Policy of not permitting development fronting the laneways. It is also recognized that there has traditionally been reluctance by Council and the community to accept smaller urban lot areas: the view being that Gloucester should retain and "open, village atmosphere".

The LEP also hampers urban consolidation in that it imposes significant restrictions on the development of residential flat buildings and cluster housing in the 2(a) – Residential Zone (Clause 31). The minimum lot size for medium density development in residential areas is 1,000 m² and the maximum density of bedrooms is 6/1,000 m². Subdivision of medium density development is restricted to Strata subdivision for lots of less than 1,100 m², effectively prohibiting dual occupancy of most existing town lots.

Urban consolidation has a number of advantages. Existing infrastructure can be fully utilized without the need for major upgrades or extensions. The "footprint" of the urban area is not increased, minimizing additional environmental impacts. Development costs are reduced with positive benefits for housing affordability.

The existing density of residential development in the area generally bounded by Philip, Barrington, Manning Street and the North Coast Railway is approximately 7 to 8 dwellings / ha. As a guide to typical residential densities, the Department of Infrastructure, Planning and Natural Resources has published *"Residential Densities – a handbook illustrating the urban design*

characteristics of different densities", March 1998. Typical densities are shown in **Table 6L**, below.

Table 6L – Typical Housing Densities

DENSITY (dwellings/ha)	EXAMPLE	AVERAGE LOT SIZE (m^2)	AVERAGE FRONTAGE (m)	TYPICAL ROAD RESERVE (m)
11	***Westleigh*** (detached housing, expansive, spacious, irregular street pattern)	680	23.5	20
16	***Cammeray*** (detached housing, regular grid pattern)	400	12	19
21	***Manly*** (equal mix of detached and semi-detached housing, generous road reserve accommodating parking and street trees, regular grid pattern)	360	10	20
35	***North Ryde*** (attached town houses, private access roads leading off cul-de-sacs)	N/A (Strata Title development)	N/A	N/A
69	***Eastlakes*** (low-rise flats, regular grid pattern with short cul-de-sacs)	1400	40	17

Ref: Department of Infrastructure, Planning and Natural Resources

Gloucester can provide additional opportunities for residential development by encouraging further subdivision in existing urban areas. Reducing the minimum subdivision area to 450 m^2, permitting development along existing laneways (with widening) and easing requirements for medium density could potentiality provide approximately 160 to 220 additional dwellings in the area referred to above.

Any amendment to LEP requirements for smaller lot subdivision and/or medium density residential development should be accompanied by a Development Control Plan (DCP) that sets appropriate design standards and guidelines. The DCP will need to address design issues such as siting of buildings, heights, site coverage, solar access, privacy and private open space.

6.6.4 Potential Urban Land in Gloucester

In the Local Strategy Statement, the community identified an optimum population of 8,000 to 10,000 persons serviced by the Town of Gloucester. The town currently has an estimated population of 2,500. The additional population serviced by Gloucester is more difficult to estimate, however is in the order of 600 to 800 persons (excluding Barrington). Gloucester and the surrounding rural residential development will therefore need to accommodate up to approximately 6,700 persons.

Dwelling occupancy has been steadily declining over the past three Census periods at approximately 0.85% pa. In 2001 the occupancy rate was 2.49 persons per dwelling *(ABS, Time Series Profile, 2003)* and, if the current trend persists, by 2020 could be less than 2.2 persons per dwelling. An additional 3,000 dwellings would be required in Gloucester and surrounds. If the additional population is distributed similarly to at present, approximately 2,300 of these dwellings will be required in the urban area, with the remainder located on rural residential or rural lifestyle lots near Gloucester. Most of these dwellings will be located on Greenfield sites.

Recent residential subdivision of land in Gloucester has maintained a relatively low density (approximately 8 dwellings per hectare). In the most recent residential land subdivision carried out by Council (extension of Woodward Street), lot areas ranged from 741 m² to 1235 m². This equates to a gross residential density of approximately 8.5 dwellings per hectare. Four of the lots are over 1,000m² in area and, if these four were developed as dual occupancy sites, the residential density would increase to almost 10 dwellings per hectare.

In respect to the Sydney Metropolitan Region, NSW planning authorities have set a goal of 15 dwellings per hectare for gross residential density for new housing estates on greenfield sites. (*Cities for the 21st Century, Department of Urban Affairs and Planning, 1995)* At a local level, many urban consolidation policies aim to encourage higher densities.

Whilst it is considered inappropriate for Gloucester to aim at densities of this magnitude, a better mix of residential lot sizes and development types can achieve more efficient utilization of urban resources and can also provide opportunities for a variety of living styles. With an aging population, there will be an increasing desire and need for smaller, manageable lots, dual occupancies and medium density development, as well as specialized aged and disability care

accommodation. This can be achieved without compromising the intrinsic qualities that Gloucester possesses. If planning strategies can achieve a density of 10 to 12 dwellings per hectare, Gloucester will need to provide approximately 200 hectares of additional residential land.

As an example of the density that would need to be achieved, 12 dwellings per hectare in Council's most recent subdivision would have yielded an additional six potential dwelling sites, with an overall average site area of over 600 m² per dwelling.

6.6.5 Village Expansion

It is expected that the village centres will expand to accommodate additional population in the future. Servicing of the smaller villages, particularly with water and sewerage infrastructure, will limit their growth potential. Barrington is likely to be an exception, given that the necessary infrastructure can be provided within a reasonable time. Other village populations are expected to remain static. The Local Strategy Statement nominated optimum village populations of:

Barrington	2,000
Stratford	200
Craven	100
Bundook	100

Gloucester Local Environmental Plan 2000 (LEP) requires a minimum lot size of 2,000 m² in the village zones (currently only Barrington and Stratford). This provision is qualified by a requirement to satisfy Council of the proposed lot's capability to provide on-site sewage effluent.

During the period September 2000 to February 2005, Council approved only three additional residential lots within Village Zones.

6.6.6 Potential Rural Residential Land

A significant proportion of land within Zone No. 1(c) – the Rural Small Holdings Zone has already been developed for that purpose. The selection of this land was made during preparation of the LEP having regard to *The Land Use Strategy Plan 1994*, prepared by Council and to projected lot requirements at the time. The process did not anticipate the unprecedented demand that has occurred in the past 2 to 3 years.

As discussed in Section 6.6.1, there are an estimated potential 120 lots remaining within the current 1(c) Zone.

6.6.7 Hobby Farm (Concessional) Lots

Clause 28(1) of the LEP sets out subdivision exceptions enabling the creation of lots of less than 100 hectares in area, within Zones No. 1(a) and 7(d), in circumstances where the lot is to be created for:

> (a) agriculture, intensive agriculture or an intensive livestock keeping establishment and is of a size that is adequate for full-time subsistence, or
> (b) a permissible purpose, other than agriculture, intensive agriculture, an intensive livestock keeping establishment or forestry, and is of sufficient size for that purpose, or
> (c) rural residential occupation.

In respect to item (c) rural residential (hobby farm) occupation, an application cannot be approved unless Council is satisfied that the proposal complies with the matters listed in clause 28(2) of the LEP. These matters relate to preservation of prime crop and pasture land, agricultural production and watercourses, site capability, access and minimization of land use conflict. Each parcel of land, as it was at 6 February 1976, is limited in the number of hobby farm lots that can be created.

Provisions in LEPs, allowing the creation of hobby farm lots, have been traditionally opposed by State Government Agencies. A proliferation of such lots is considered to adversely affect rural production potential by introducing incompatible land uses, fragmenting agricultural holdings, unreasonably inflating agricultural land values and creating a demand for the uneconomic provision of services. Provisions enabling the creation of hobby farm lots have been removed form most rural planning instruments.

Hobby farm lots are popular with persons seeking lifestyle retreats, isolation, views, etc. Some property owners also regard the entitlement to create hobby farm lots as an investment in their future needs, as a retirement option for their own use, a lot for a family member or as a means of recouping a financial return from their land.

The LEP provisions relating to hobby farm lots were considerably strengthened from those existing under previous planning instruments. There is only limited potential for further lots to be created under these provisions.

Nevertheless it is desirable to remove hobby farm lot provisions from future planning instruments. It is recognized that this may be of concern to some landowners who have retained their entitlements rather than capitalize on current hobby farm values.

6.6.8 Agribusiness Lots

Clause 28(1)(a) of the LEP enables Council to consent to the subdivision of land within Zones 1(a) and 7(d), to create a lot of less than 100 hectares for "agriculture, intensive agriculture or an intensive livestock keeping establishment and is of a size that is adequate for full-time subsistence,.." This existing provision could be used for the purpose of creating lots for special or boutique agricultural enterprises that can be operated efficiently on relatively small areas. Examples of typical enterprises in this category are discussed in Section 6.2 and include aquaculture, olive and grape production, small animals rearing, herb growing, etc.

There have been very few examples of development applications made and approved under this provision. The number of applications has probably been restricted by a further provision of the LEP (clause 29(1)(c)), which prevents approval to the erection of a dwelling on such lots until "the purpose for which the lot was created has been established to the satisfaction of Council". Intending agricultural producers in the boutique categories are more likely to purchase lots of 100 hectares or more in area, enabling them to build a home and live on the lot while developing their enterprises. This is considered to be an inefficient utilization of agricultural land, particularly as most boutique enterprises seek to establish on prime crop and pasture land.

A key issue for the further development of Gloucester, which was identified in the Local Strategy Statement, is the "encouragement of agricultural areas to allow the development of new industries including the production of olives, grapes, herbs, flowers and vegetables." To encourage intending producers, Council will need to identify suitable locations, based on land characteristics, access to markets and other facilities, as well as make provisions that allow the erection of a dwelling on approved lots prior to establishment of the enterprise.

The NSW Department of Primary Industries, in its "*Policy for Protection of Agricultural Land, 2004*" recognizes the difficulty in determining an appropriate minimum size of holdings necessary for a dwelling entitlement. It is necessary to reduce the potential for land use conflict and minimize residential uses that are not directly associated with commercial farms. The Department advises that minimum areas should be set to suit local needs and conditions. Large minimum areas are seen as a disincentive to lifestyle purchasers, but also discourage young farmers and more intensive forms of agriculture. In setting minimum area requirements, it is recommended that the following criteria be considered:

- "the agricultural productivity and suitability of the land in question:
- the nature and requirements of agricultural industries in the area being considered;
- the risk of creating land use conflict;
- the current distribution of property sizes; and
- cumulative impacts."

Gloucester can provide intending producers in boutique agriculture with land that offers all of the attributes needed for a successful enterprise. High quality agricultural land is available in close proximity to Gloucester and to main transport routes. Much of this land was formerly incorporated in dairies and is now principally used for grazing purposes. Remaining dairy enterprises and other existing forms of intensive agriculture can be identified and protected from potential conflict.

6.6.9 Rural Lots

Clause 27(2)(a) of Gloucester LEP 2000 requires that the minimum area of lots created by subdivision in the 1(a) Rural and 7(d) Environmental Protection (Scenic) zones is 100 hectares. Lots approved under this provision automatically attract a dwelling entitlement, pursuant to clause 29. These development standards were carried through from the previous planning instrument, Gloucester LEP No. 4. The basis for 100 hectares as the subdivision standard is unclear; however, it is likely that this area was considered sufficient to discourage the subdivision of land for purposes other than agriculture.

The protection and preservation of agricultural land in Gloucester is a principal planning objective for rural land, as is the encouragement of continuing and viable agriculture. In most cases, allowing lots of 100 hectares does not support these objectives and, if maintained, will

result in further subdivision of viable rural holdings, eroding the agricultural production potential of the local government area. A number of subdivisions of productive holdings have already occurred, encouraged by the premium prices being paid for 100-hectare lots as "hobby" farms. In the period September 2000 to February 2005, Council issued consent to subdivisions in Zones No. 1(a) and 7(d), creating a total of 105 lots. This represented 24% of all lots created in the period.

Statistics provided by the Department of Primary Industries (*24 November 2004*) indicate that, in 2001, the average rural holding in Gloucester (counting holdings that produced over $5,000 in agricultural output) was 556 hectares in area and generated a gross return of $79,800. This statistic strongly supports the view that, to maintain Gloucester's agricultural base, there should be greater control over the fragmentation of rural holdings.

Gloucester Shire Council has however, resolved to vary all rural zones to allow 40ha lots.

6.6.10 Industrial Lots

Gloucester Shire Council has traditionally been the principal developer of land for industrial purposes through its Gloucester Industrial Estate. Forty-four industrial lots have been approved under Gloucester LEP 2000 since September 2000. There are approximately 10 potential lots remaining in the Estate. There is a limited alternative supply of land within the 4(a) Industrial zone,: in total, there are estimated to be 40 potential industrial lots remaining. In addition, the current zone comprises of land in close proximity to the residential areas of Gloucester. Apart from Council's undeveloped industrial land, the former Boral Timber Mill site on Jacks Road is the only remaining large, serviced industrial lot. Most lots that have been created are also relatively small in area, ranging from approximately 1,000 m² to 5,000 m². This is suited to light industrial development, bulky stores, storage units, warehouses, etc., however does not provide opportunities for larger-scale manufacturing, processing and assembly industries or other categories that require additional area or separation from sensitive receptors.

Suitable land for light industrial purposes, similar to the current 4(a) zone could be provided within the area to the south of Cemetery Road, extending from Bucketts Way to the Gloucester Cemetery. This area was reserved in past planning instruments as a "land bank" and is currently zoned 7(d) Environment Protection (Scenic).

Heavy industry would ideally be located remote from residential areas. In this regard, land in the vicinity of the Stratford Coal Mine might be suited to future industrial uses. Coal mining operations on the site are predicted to end in about 2009, with continued operation of the processing plant beyond that date. The mine site will be rehabilitated and the owners will be seeking alternative land uses. Many of the existing facilities, including the rail loop, access road and water storage voids may be adapted to other forms of industrial use.

7.0 INFRASTRUCTURE

7.1 Roads

Gloucester is situated on The Bucketts Way (Regional Road 90), which joins the Pacific Highway, approximately 20km north of Raymond Terrace and feeds north to the Pacific Highway, south of Taree.

The Bucketts Way (South), which is currently being upgraded under a $20m Federal Program, forms a main link for Gloucester to the South and the major centre of Newcastle. It has a recorded approximate daily traffic volume of 2,600, (recorded at the Golf Course, Gloucester).

The Bucketts Way east, which links Gloucester to the Pacific Highway south of Taree, has a traffic volume of 1,600 recorded at Avon Flats. This section of the Bucketts Way is also being upgraded under the same $20m Federal Program. It traverses through some winding and steep country. The scenic value of this road is high and it represents a pleasant tourist drive.

Thunderbolts Way (Regional Road 7719) links Gloucester to the north, to Walcha, via Nowendoc. This road also services in part, the village of Barrington. It has a traffic count of 2,700 recorded at Showground Road, which comprises of a significant proportion of local traffic. The Thunderbolts Way to the north rises through steep mountainous country with high scenic quality. The traffic volume on this road drops to 850 at Rookhurst and 600 at the mountain boundary.

Scone Road is currently classified as a local road. It is the only practical connection between the Scone Region and the Gloucester Region and hence to Forster and the Lakes. The road is 137km with 38km in Gloucester Shire Council, 67km in Upper Hunter Council & 32km in State Forest and National Parks. Approximately 67 km is rough gravel road through windy and hilly terrain. Funding the upgrade and maintenance of the road is a significant burden on the 4 caretaker organisations, with a current application for the road to be reclassified as a regional road. Thus would provide same state funding if successful.
The World Heritage listed Barrington Tops is accessed by Scone Road and large numbers of tourist traffic visit the area, especially during snowfall events. Traffic counts range from 400 AADT with peaks of up to 1100 vehicles per day during snowfall events, long weekends etc.

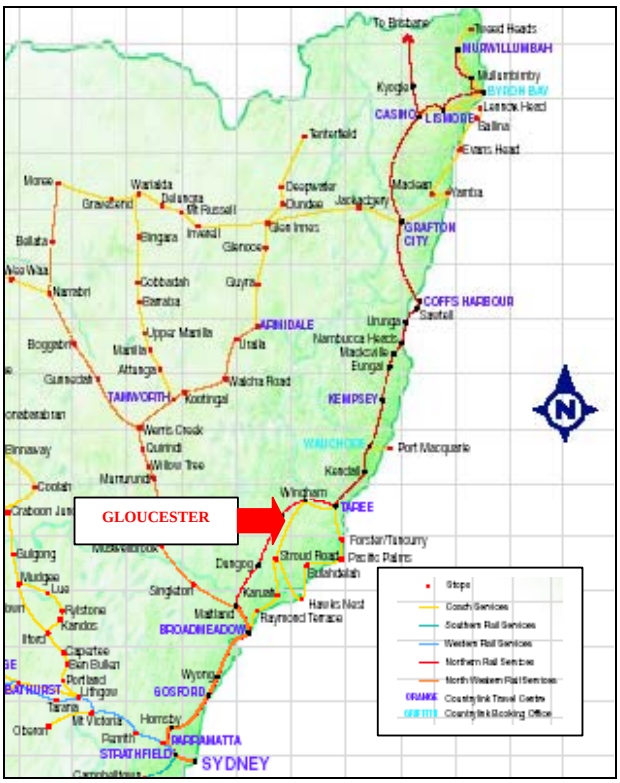
In addition Gloucester Shire maintains 469km of unsealed roads and 270km of sealed roads within the Shire boundary.

Council has a bitumen seal extension program, which has added 70km of bitumen over the last 10 years. There are 148 bridges in the shire. Council has a refurbishment and upgrade program, replacing or upgrading the 87 predominantly timber complement of its bridge stock. Over half of these have now been upgraded. There are 99 causeway crossings.

Generally the road system is adequate to cater for current traffic volumes.

7.2 Rail and Bus Services

Gloucester is located on the Main North Coast Railway line and is serviced by CountryLink, with and both rail and coach services. (See map below)



Extract from CountryLink Rail and Coach Network Map

The current CountryLink Service Timetable, as at 30 March 2005,is shown below:

SERVICE	DAYS	NORTHBOUND	SOUTHBOUND
Casino XPT	Daily	11:35	02.43 *
Grafton XPT	Daily	15:58	12:24
Brisbane XPT	Daily	**	17:40
Coach	Mon - Fri	20:35	07:25

* Stops to pick up/set down only as required

** Does not stop

Local company, Newcombe Coach Lines operates school bus services in the area and has coaches available for hire. A taxi service (Gloucester Cabs) operates on a 24-hour basis.

The Gloucester Community Plan 2003-2008 (*Gloucester Shire Council, June 2004*) identifies some gaps in community transport within the Gloucester district, including domestic emergency and disability transport facilities. The Community Plan proposes actions and priorities, including an interagency and stakeholder approach to improving the current situation.

7.3 Sewerage Reticulation

A sewerage reticulation system is provided in the township of Gloucester. The current plant, constructed in 1937 and augmented in 1984, was constructed to serve a projected population of 3000. The plant is a trickling filter type, with tertiary ponds and final polishing of the effluent, before disposal to the Barrington River.

Effluent discharged from the plant is relatively high in nutrients, due to the older technology used in the plant's construction. An artificial wetlands was constructed in 1996 to reduce nutrient loads prior to final discharge to the river system. The effect of the wetlands is currently being monitored to improve performance and assist in the establishment of a management plan.

There are a number of rising mains throughout the town serviced by 5 pumping stations, which return sewage to the central sewerage treatment works.

New subdivisions to the North and South of Gloucester (~220 lots) are to be serviced by low-pressure sewerage systems, these also return sewage to the central treatment works.

With a current population served of 2,650 and the lots in the new subdivisions (~220), the sewage treatment works will be operating close to its design capacity.

7.4 Water Reticulation

Gloucester Shire Council operates two water reticulation schemes. The Gloucester water supply is obtained from direct pumping from the Barrington River. The supply is fully treated, including filtration, pH correction, chlorination and fluoridation and pumped, approximately 1.5km to the town of Gloucester.

The system has a headworks capacity of 4.5megalitres/day and currently services 2650 persons. The plant itself was constructed in 1935 and was augmented in 1981 to meet increased demands. There are three reservoirs with a total storage of 4.35megalitres. Pressure is low in some high areas and booster stations have been constructed to meet localised requirements.

Generally the current demand represents 77% of the capacity of the pumping station and headworks and 78% of the reservoir capacity. Based on historical date, there is sufficient capacity in this system to provide for a further 300 equivalent tenements (lots).

A study is underway to examine the requirements and costs of an upgrade to the water treatment plant.

The Gloucester Water Supply system relies on the flows in the Barrington River and although this river has a sound water supply, alternatives are being investigated.

Council also operates a water scheme in the village of Barrington, which was constructed in 1969. This scheme is under extreme pressure and has headworks design capacity to service only 72 premises, (160 persons), with 90 premises currently connected.

The scheme obtains water directly from the Barrington River and chlorinates the supply only. There is no filtration or fluoridation. A 0.13megalitre reservoir is constructed within the town and the rising main to the reservoir is used as off-takes for reticulated supply, which has caused problems in regard to controlling the water quality and increased turbidity through reversed flows.

Council is presently examining opportunities for the upgrading of this supply, which include the extension of the Gloucester town supply to Barrington, a distance of 6km. If the Barrington area continues to develop, water augmentation will be critical. The options of extending water from Gloucester will enable other areas to be serviced, including potential rural residential areas.

8.0 LEGISLATIVE FRAMEWORK

The Shire of Gloucester is located in the northern part of the Hunter Valley. It is subject to the provisions of a number of planning instruments that provide the planning framework and guidance for development throughout the State and/or region. The following instruments relate to the Shire of Gloucester.

8.1 The Environmental Planning and Assessment Act 1979.

The Environmental Planning and Assessment Act, forms the framework for the planning system in New South Wales. This Act creates the mechanism to prepare State Environmental Planning Policies, Regional Environmental Plans, Local Environmental Plans, Development Control Plans, etc.

The objects of the Act are:

> *(a) to encourage:*
>
> > *(i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
> >
> > *(ii) the promotion and co-ordination of the orderly and economic use and development of land,*
> >
> > *(iii) the protection, provision and co-ordination of communication and utility services,*
> >
> > *(iv) the provision of land for public purposes,*
> >
> > *(v) the provision and co-ordination of community services and facilities, and*
> >
> > *(vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*

(vii) ecologically sustainable development, and

(viii) the provision and maintenance of affordable housing, and

(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and

(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.

8.2 Environmental Planning and Assessment Regulation 2000

The Environmental Planning and Assessment Regulation, 2000 sets out the procedural and administrative requirements for application of the Act.

8.3 State Environmental Planning Policies

The Environmental Planning and Assessment Act enables the Minister to make State Environmental Planning Polices (SEPPs), which are guidelines for specific issues of significance for the State. They include development standards and policies on various matters. Current SEPPs affecting Gloucester are:

- SEPP No 1 -- Development Standards
- SEPP No 4—Development Without Consent and Miscellaneous Exempt and Complying Development (Excluding clauses 6 – 10)
- SEPP No 6 -- Number of Storeys in a Building
- SEPP No 8 -- Surplus Public Land
- SEPP No 9—Group Homes
- SEPP No 11 -- Traffic Generating Developments
- SEPP No 15—Rural Landsharing Communities
- SEPP No 16 -- Tertiary Institutions
- SEPP No 21 -- Caravan Parks
- SEPP No 22 -- Shops and Commercial Premises
- SEPP No 27 -- Prison Sites
- SEPP No 30 -- Intensive Agriculture
- SEPP No 32 -- Urban Consolidation (Redevelopment of Urban Land)
- SEPP No 33 -- Hazardous and Offensive Development
- SEPP No 34 -- Major Employment-Generating Industrial Development
- SEPP No 36 -- Manufactured Home Estates
- SEPP No 37 -- Continued Mines and Extractive Industries
- SEPP No 44 -- Koala Habitat Protection
- SEPP No 45 -- Permissibility of Mining

- SEPP No 48 -- Major Putrescible Landfill Sites
- SEPP No 55 -- Remediation of Land
- SEPP No 64 -- Advertising and Signage
- SEPP No 65—Design Quality of Residential Flat Development

8.4 Regional Environmental Plans

The Environmental Planning and Assessment Act 1979, provides for the making of Regional Plans, which covers issues, such as urban growth, expansion or specific areas. The Shire of Gloucester is subject to The Hunter Regional Environmental Plan 1989 (Hunter REP).

The Hunter REP aims to promote a balanced development of this region, including the orderly economic development and optimum use of its lands and other resources, consistent with conservation of natural and man-made features. It also aims to co-ordinate activities relating to development in the region and to promote a regional planning process that serves as a framework for identifying priorities for further investigation. The Plan deals with:

- Part 1: Preliminary
- Part 2: Social Development, including housing, and health and education and community services.
- Part 2: Economic Development, including industrial development, commercial development and tourism.
- Part 4: Land Use and Settlement, dealing with rural land and urban land.
- Part 5: Transport, deals with road, railways and public transport, ports and airports.
- Part 6: Natural Resources, deals with mineral resources and extractive materials, soil, water and forest resources.
- Part 7: Environmental Protection, deals with pollution control,, waste disposal, environmental hazards, and tall buildings.
- Part 8: Conservation and Recreation, deals with natural areas, recreation; and
- Part 9: miscellaneous.

8.5 Gloucester Local Environmental Plan 2000

Gloucester Local Environmental Plan 2000 (LEP) was gazetted on the 8th September, 2000 in Government Gazette No. 117. The LEP has been amended three times, the latest amendment on 26 April 2002. The LEP is the instrument under which most day-to-day planning decisions are made in the Shire of Gloucester.

The LEP was prepared by Council following Gloucester Shire Council Local Environmental Study 1997. The process involved significant public consultation and was overseen by a LEP Steering Group consisting of Council and community representatives. The provisions in the LEP were based on community needs and projected development patterns at the time. As demonstrated in this Study, over the last few years Gloucester has experienced growth and development at a rate not foreseen in the LEP formulation period. As a consequence, and because of changes in community attitudes, State planning directions and legislative amendments, the LEP is in need of review. One of the principal objectives of this Study is to establish a basis for the LEP review.

8.6 Development Control Plans

In addition to the LEP, Gloucester Shire Council has adopted a number of Development Control Plans (DCPs) that add greater detail and guidance to Council's requirements in specific areas. These DCPs were prepared and adopted under the provisions of clause 72 of the Environmental Planning and Assessment Act, 1979.

Current DCPs in force relate to development for rural, rural residential, industrial and tourism purposes.

8.7 Additional Legislation

In addition to the provisions of the Environmental Planning and Assessment Act, 1979 and those plans and policies created under this Act, Council has requirements to consider the planning provisions of other Acts and legislation, such as:

- Threatened Species Conservation Act of 1995
- National Parks and Wildlife Act 1974
- Land Management Regulation 1995
- Heritage Act 1977
- Heritage Regulations 1993
- Noxious Weeds Act 1993
- Soil Conservation Act 1938
- Water Act 1912
- Rivers and Foreshores Improvement Act 1948
- Water Management Act 2000
- Rural Fires Act 1997
- Native Title Act 1993

9.0 CONCLUSIONS AND RECOMMENDATIONS

The Gloucester local government area is experiencing changes to its traditional economic and social structure. Whilst agriculture remains the principal support base, rationalisation of the dairy industry has resulted in a redistribution of labour to other agricultural pursuits. Beef cattle production provides over 50% of the total value of agricultural production in the area and emerging industries in this sector include fruit and lucerne. Significant potential exists in agribusiness pursuits, including small animal rearing, herb production, viticulture, and olive growing. Organic and hydroponic growing techniques, combined with Gloucester's pristine image, are likely to have marketing advantages.

Gloucester's location in respect to major population centres, its environment and its wealth of natural beauty will continue to attract visitors and investment in tourist pursuits.

Coal mining, as a major employer, is most likely to recede over the next 10 years and, although there is potential for utilisation of methane gas deposits, this is unlikely to be a significant source of employment.

Gloucester has an ageing population. It is currently recognised as the sixth oldest local government area in NSW and is expected to maintain that ranking. Projections made under the NSW Local Government Ageing Project (2004) indicate that Gloucester can expect a considerable increase in the number of residents over 50 years of age, with a corresponding loss of residents in younger groups. There will be particular needs that will accompany the ageing population in respect to care facilities, housing and transport.

In the last two to three years, land development for residential and rural residential occupation has been carried out at an unprecedented rate. Land values have risen dramatically and most of the suitable zoned land has now been developed. This "land boom" has largely been driven by buyers from the metropolitan areas of Sydney, Newcastle and the Central Coast. These buyers have been motivated by lifestyle considerations and/or investment opportunities.

Many lifestyle or investment blocks have been selected from areas of prime agricultural land. Council's current minimum area requirement of 100 hectares is no longer a disincentive to subdivision of rural land, with many buyers from the cities prepared to pay quite high prices for

100 hectares, to be used only for hobby farm purposes. Council has however, resolved to vary all rural zones to allow 40ha lots.

Planning for the changing character of Gloucester will require the review and appropriate amendment of Gloucester Local Environmental Plan 2000 and associated planning instruments. This Study has highlighted some of the deficiencies in current planning controls and it is recommended that the review of these controls include the following matters:

- The preparation of a Residential Strategy that identifies land that is capable of development for residential and rural residential purposes, having regard to the environmental, economic and social constraints of the land and the community. The strategy should set out criteria for release of land for development in a manner that ensures the best use of available infrastructure and other community assets. It is considered that all land in these categories should be provided with reticulated town water and sewerage facilities.

- The preparation of a Development Strategy for the Village of Barrington identifying land for that will be available future residential and other uses once reticulated town water and sewerage facilities are provided.

- The identification of land that is suitable for development for agribusiness purposes and the development of criteria and policies for subdivision and residential occupation of this land. It is considered that agribusiness lots might not be constrained by a minimum subdivision area requirement, rather, lot areas be assessed on their merits. By necessity, agribusiness lots will impact on prime agricultural land stocks and Council should ensure that the value of agricultural production is not reduced by the proposed use. It may be appropriate to create an additional Agriculture Zone in the LEP, centred on Gloucester, which will permit agribusiness to exploit the advantages of access, land suitability and services.

- The incorporation in the LEP of more stringent controls relating to the subdivision of general rural land. Council is however, of the opinion that all rural zones should be varied to allow 40ha lots and as such as resolved that this be reflected in this document.

- The incorporation of provisions enabling higher densities of residential development within the Town of Gloucester, particularly to facilitate dual occupancy development. This is

considered an important element of any planning review. With an ageing population, Gloucester will need to provide additional housing, at an affordable price, within close proximity to all services and utilising existing infrastructure. It is also recommended that, to accompany amended LEP provisions, Council prepare a development control plan that specifically addresses urban design requirements and energy efficient housing principles.

- Amendment of the LEP to incorporate Heritage Model Provisions prepared by the NSW Heritage Office.

- Redraft the LEP to comply with the *Standard provisions for local environmental plans in NSW* that are currently being prepared by the Department of Infrastructure, Planning and Natural Resources.

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