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Gladstone Rural Living Strategy

EDGE LAND PLANNING

Gladstone Regional Council

August 2012

Gladstone Region Council

Gladstone Rural Living Strategy

Prepared for Gladstone Regional Council
by

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Chapter 1: Introduction

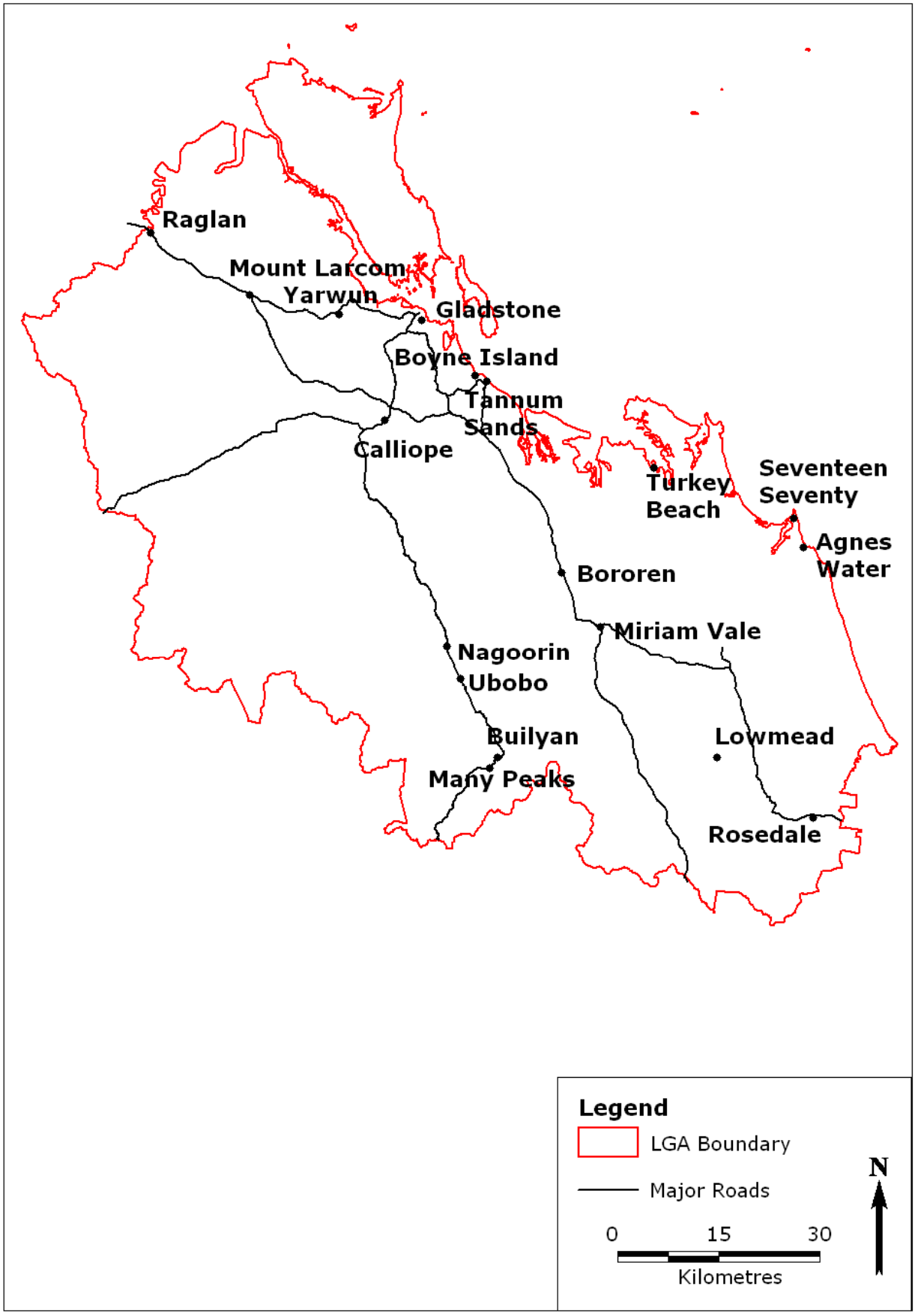
1.1 Introduction

Gladstone Local Government Area (LGA) is located in the mid north coast of Queensland. It has a mixture of coastal and inland areas. The LGA is predominantly rural, with expanding urban areas and some industrial and commercial land uses. The main industries are manufacturing and processing, tourism, fishing. Settlement is based in the city of Gladstone, the towns of Calliope and Miriam Vale and a number of villages and rural localities.

1.2 Location and Study Area

The Gladstone Regional Council is located on the north coast of Queensland. To the north is Rockhampton, west is Banana and to the south is Bundaberg Regional Councils.

The study are for this Strategy is the whole LGA in general and specifically the existing rural residential areas.



Map 1.1: Gladstone LGA

1.3 Methodology

The study has been prepared by the consultant based on discussions held with Council Officers, Government Departments and the Community.

Data was gathered based on secondary information except for a detailed landuse survey and lot and holding size analysis, which was carried out by the consultant. The land use survey entailed utilising aerial photography to gain an appreciation of the landuse, which was then field checked by a survey of all roads and properties in the LGA. This information was then coded and entered into Councils property database, which enabled it to be mapped using a Geographical Information System (GIS). The holding sizes within the LGA were categorised and mapped. A detailed description of the methodology for the landuse survey is contained in Appendix 1.

A detailed literature review has been carried out of studies and issues relevant to local and regional planning. Discussions were held with various Council officers covering the areas of planning, environmental science, engineering and social services.

Australian Bureau of Statistics census information was used to provide a population and demographic profile of the LGA.

Input has been given by the State Government Departments through formal and informal discussions.

Chapter 2: Rural Residential Development

2.1 Introduction

The term rural residential development has a number of different meanings. It generally refers to estate type of living on lots between 0.4 and 2 ha where services are provided. This is the case with Gladstone Region and the 3 former planning schemes. The term 'rural residential' is not specifically defined within the current planning Schemes definition sections, although the Miriam Vale Planning Scheme refers to it in the specific provisions for Miriam Vale as being " …development for a single Dwelling House on land having a lot size between 4000m^2 and 2 hectares." However, this does not take into consideration the people who live on larger lots that are scattered throughout the rural area but who don't practice farming. These are generally referred to as hobby farms but there are a significant number of them scattered around the Region who do not do agriculture at all but which should be considered in the future planning scheme.

A definition has been devised which covers both documents in a chapter from a recent planning text and is as follows:

> *"The residential use of rural land is called rural residential development; that is, people live on rural lots, but use the land primarily for residential rather than agricultural purposes. Although some engage in 'hobby farming', most derive their income from pursuits not carried out on the land. The main distinction between urban housing and rural residential housing is bigger lot size and larger distances between dwellings. This creates a sense of openness and of living in the landscape rather than in an urban area.*
>
> *Rural residential development can be divided into two main categories: rural fringe and rural living. Rural fringe development is characterised by single detached houses and dual occupancies on lot sizes of approximately 4000 square metres to 1 hectare laid out in an estate. This estate usually joins or is in close proximity to an urban area. Rural living, on the other hand, features single detached houses and dual occupancies on lot sizes between 1 hectare and 40 to 100 hectares and can adjoin farmland or vegetated areas. People living on these lots use the land primarily for residential purposes, although they may graze some cattle or have horses. This requires lot sizes of more than 2 hectares if land degradation is to be avoided. The lots do not adjoin townships or villages and are scattered throughout the rural landscape."* (Sinclair and Bunker, 2007 p)

Rural fringe and rural living rural residential development are both found in the Gladstone Region. They will be discussed in detail below.

2.2 Rural Land Use and Fragmentation

There are a variety of land uses within the LGA. They include urban, agricultural, native vegetation, rural residential, extractive industries, commercial and light industrial uses. They all have an impact on each other as well as the environment.

Finding the balance between these often competing desires is the key to planning for rural land uses.

A detailed land use survey has been carried out of the rural lands to identify the spatial location of the rural living and rural fringe types of rural residential land use as well as other rural land uses. Its purpose is to give an understanding of the landuse pattern within the rural areas so that appropriate decisions can be made having regard to the mixture of landuses throughout the area. The survey counted the number of lots that were used and these were then grouped by ownership to provide the details below. This survey was carried out in February and March 2010. A detailed description of the methodology used for the landuse survey is contained in Appendix 1. The landuses were categorised into the following landuse types which also have been defined in Appendix 1:

- Rural Residential
- Irrigated Plants
- Intensive Animals
- Extensive Agriculture
- Vacant Zoned
- Native Vegetation
- Extractive Industries
- Public Use

Within each of these categories there are a number of sub categories relating to the specific use of the land. These are also outlined in Appendix 2. It should be pointed out that the landuse survey categorised the primary use of the property and where a property had a number of uses, the dominant use was chosen.

There are a total of 7,083 rural uses within the LGA that were counted in the landuse survey. The overall landuse for the LGA is shown in Table 2.1 and Figure 2.1 and Map 2.1 shows the land use in broad terms. It can be seen that there is a significant amount of rural residential use in the LGA and that this uses nearly half of the private land.

The landuse survey has revealed the variety of uses in the rural area. They can be categorised in to agricultural uses, non-agricultural uses and rural residential uses. Cattle grazing is the most dominant form of agriculture with some small pockets of mango orchards. The non-agricultural uses include truck depots, service stations and extractive industries.

Table 2.1 lists the total number of uses and the percentages and figure 2.1 shows them in graphical form.

It can be seen that rural residential is the highest use with 69.2% of the uses followed by Extensive Agriculture at 16.4% and Vacant Rural Residential Zoned with 10.6. It can also be seen that rural residential use takes up a significant amount of the rural land. It should be noted that there is a large amount of land that is covered with native vegetation, much of which cannot be accessed or built on and as such this has not been included in the count of land use.

Table 2.1: Number of Primary Land Uses in the LGA

Land Use	Number of Holdings	% of Total
Commercial	38	0.7%
Extensive Agriculture	924	16.4 %
Extractive Industry	35	0.6%
Intensive Animals	5	0.1%
Irrigated Plants	50	0.9%
Public Uses	89	1.6%
Rural Residential	3,906	69.2%
Vacant (Zoned Rural Residential)	599	10.6%
Total	**5,646**	**100.0%**

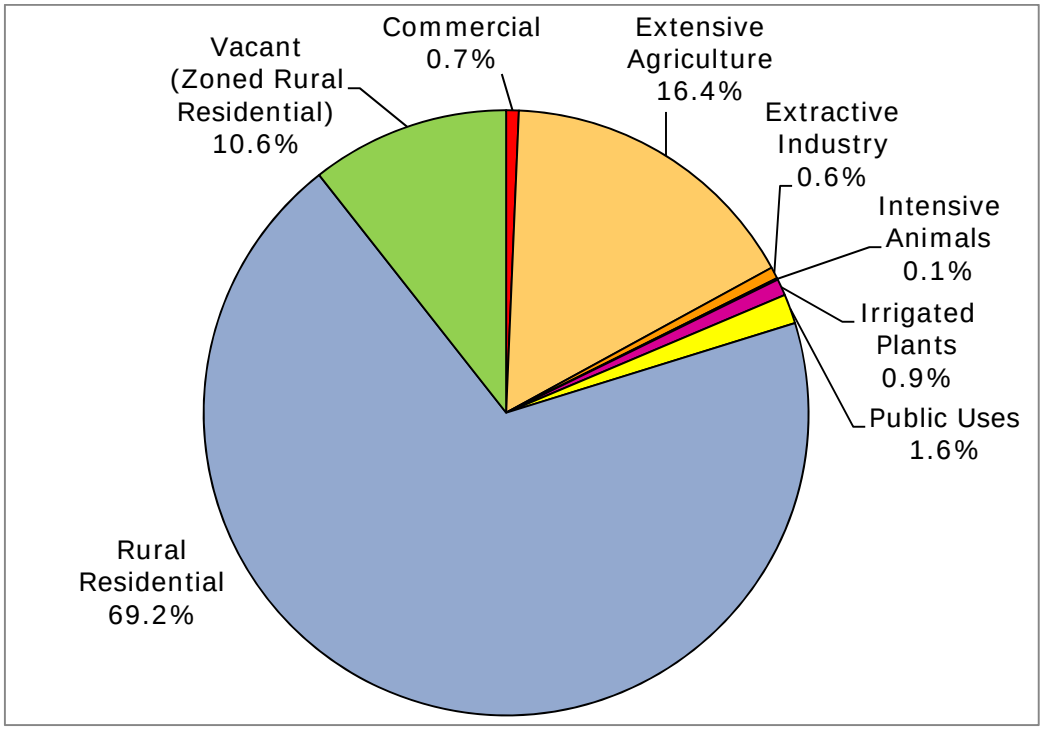
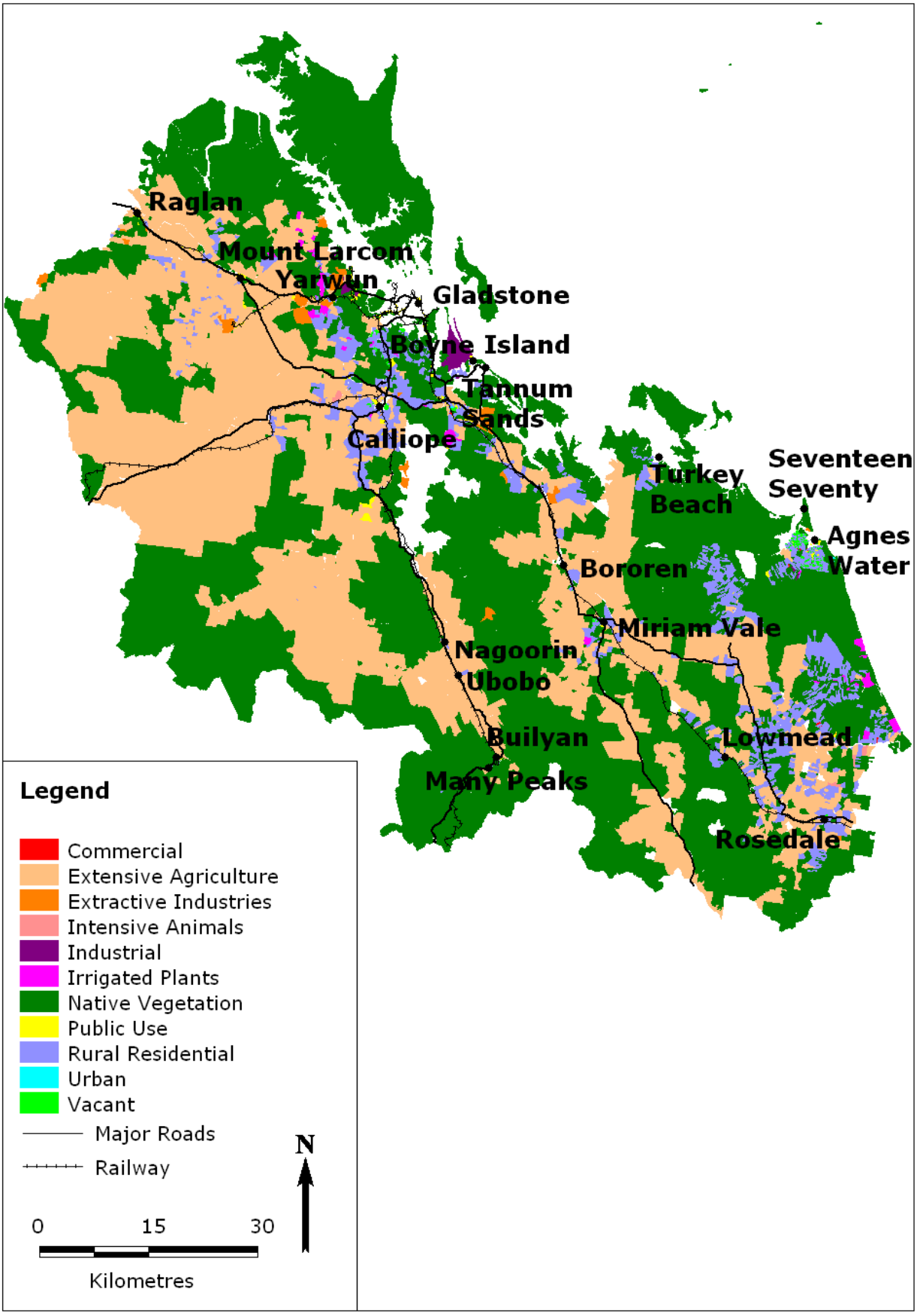


Figure 2.1: Rural Land Use
Source: Gladstone Region Land Use Survey

The map shows the areas of concentration of rural residential development being in the following areas:

- Gladstone, Calliope, Benaraby Tannum Sands
- Agnes Water
- Lowmead, Baffle Creek, Rules Beach and Rosedale.

There is a scattering of them also in the area south and north of Mount Larcom and around Miriam Vale. It is noted that a lot of these are not within the current rural residential zones and which are mostly larger lot sizes. This is discussed later in this chapter.



Map 2.1: Rural Land Use

The size of rural holdings in an area is a reflection on the degree of fragmentation and is also an indicator of potential rural land use conflicts. One matter to be considered is the difference between holdings and individual lots. In an area such as Gladstone Region, there are a number of large holdings that are made up of a number of smaller lots. These are mainly agricultural uses and not the rural residential uses which are nearly all in single ownership.

A detailed holding size analysis has been carried out as part of the land use survey and has shown that the area is quite fragmented. Figure 2.2 shows the holding sizes graphically and map 2.2 shows them spatially.

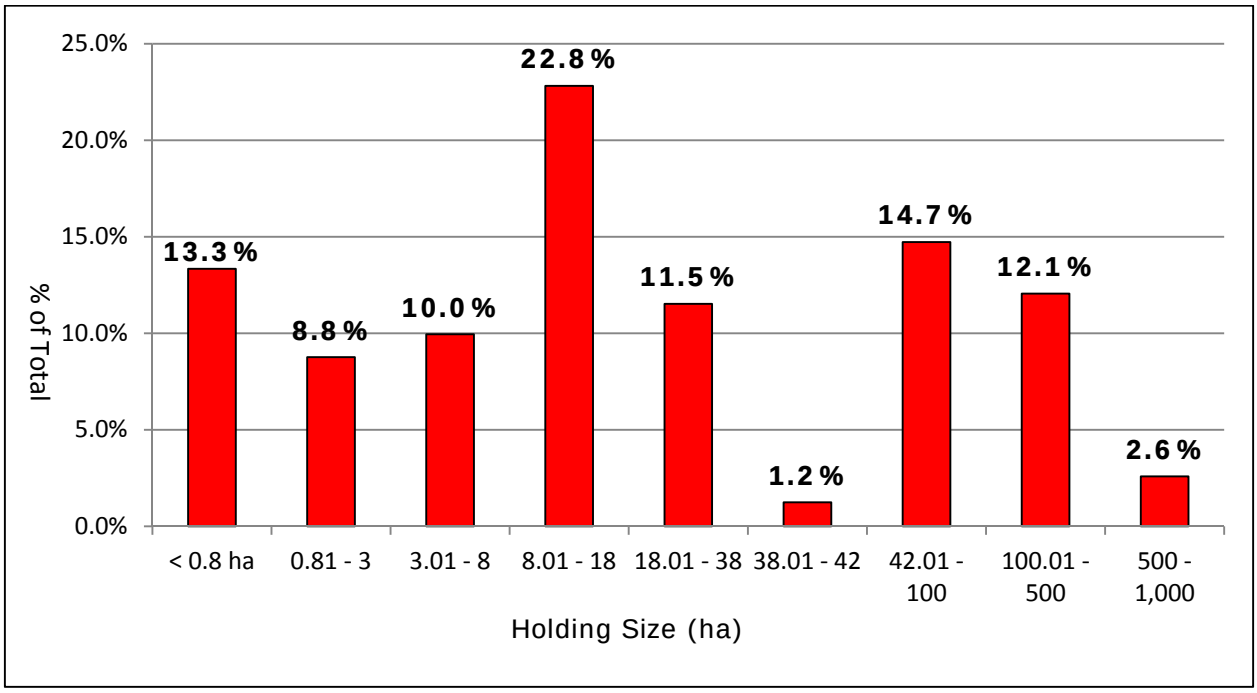
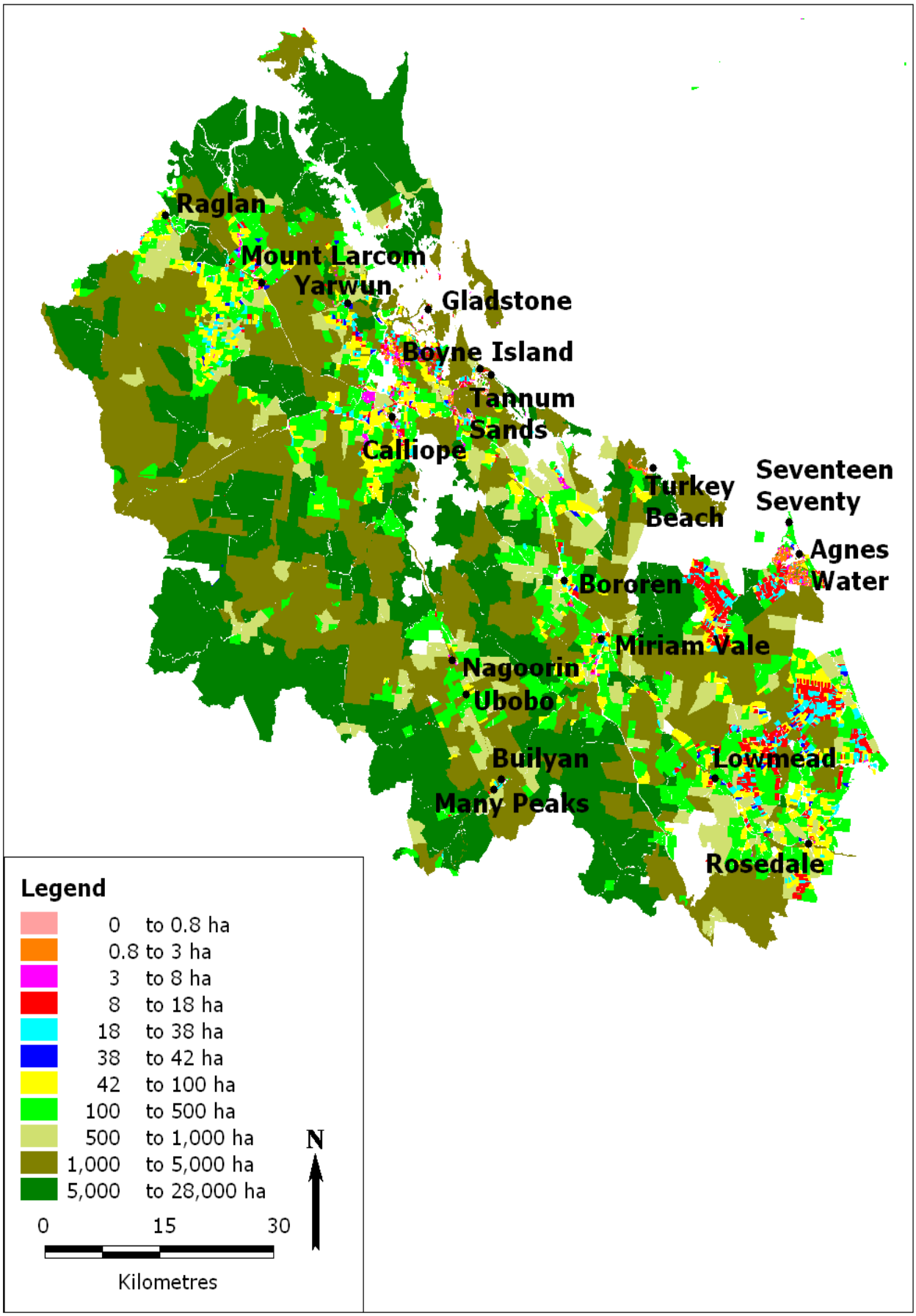


Figure 2.2: Holding Size Analysis
Source: Council GIS and Property System

It can be seen from figure 2.2 that there is a high proportion of the holdings in the 8 – 18 ha range the 42 – 100 ha range followed by the < 0.8 ha range. In fact there are 67.7% of all holdings less than 42 ha and 54.9% less than 18 ha, which signifies a heavily fragmented rural area. However, as can be seen from map 2.2, the highly fragmented land is in the following areas:

- Mount Larcom
- Gladstone, Calliope, Benaraby, Tannum Sands
- Agnes Water
- Lowmead, Baffle Creek, Rules Beach and Rosedale



Map 2.2: Rural Land Fragmentation

A holding size analysis has been carried out for the rural residential land use category and this is presented as figure 2.3. It should be noted that rural residential uses are mostly on single lots and for that reason; they are referred to as lots and not holdings although they represent the same principle as the holding, i.e. one ownership. It can be seen that the highest range is 0.8 – 3 ha range with 33.5% and then 8 – 18 ha range comes in second with 18.4% followed by the less than 0.8 ha and 3 – 8 ha. This high proportion of 8 – 18 ha lots indicates the abundance of this form of rural residential development in the Region. Map 2.2 indicates that these are most prevalent in the area to the west of Agnes Water to Captain Creek and the Lowmead to Deepwater area.

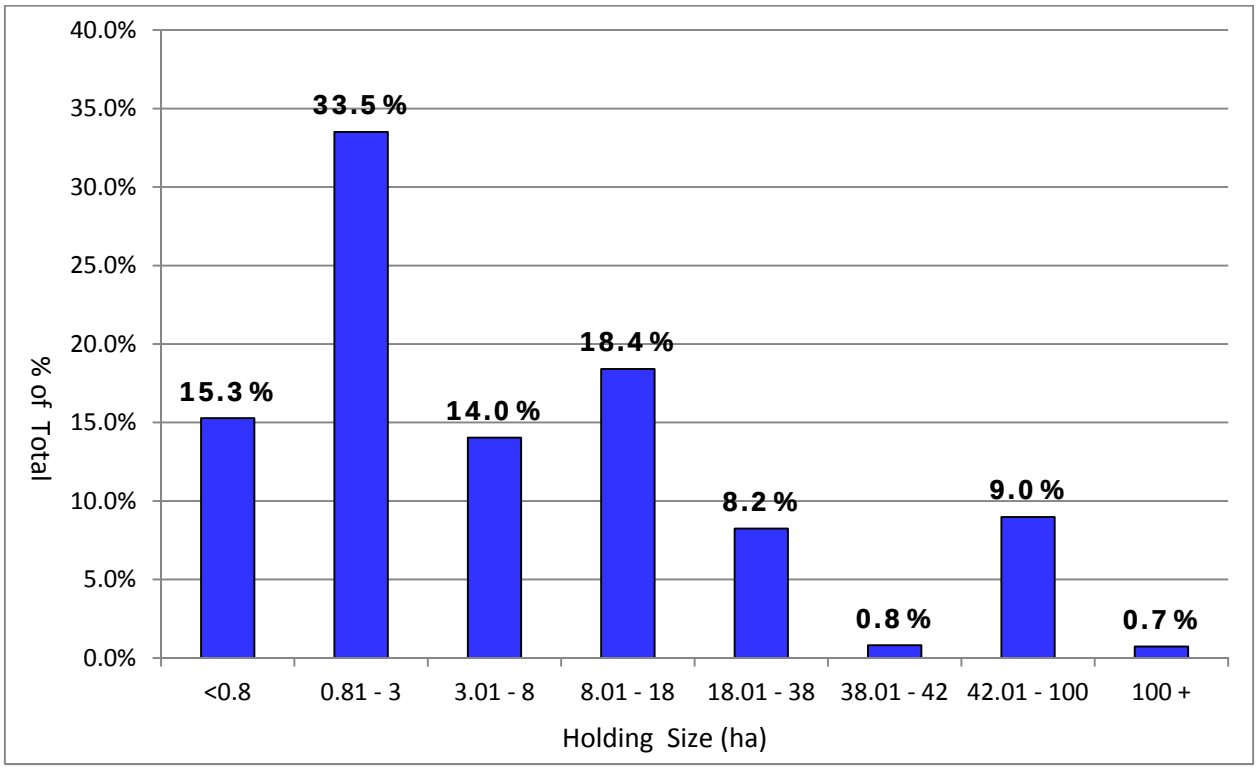


Figure 2.3: Rural Residential Holding Size Analysis
Source: Council GIS and Property System

2.3 Rural Fringe

Rural fringe development in Gladstone Region is that land that is zoned to allow subdivision to lots of 1 ha and are the current rural residential zones (although they have different zone names reflecting the 3 existing planning schemes). The zones are located in the following areas:

- New Auckland and Kin Kora –Park Residential
- Beecher – Burua – Calliope. Rural Residential Zone
- Benaraby. Rural Residential Zone.
- Wurdong Heights. Rural Residential Zone
- Boyne Island. Rural Residential Zone.
- Tannum Sands. Rural Residential Zone
- Miriam Vale. Rural Character Zone
- Agnes Waters. Rural Character Zone

The location of them is shown on map 2.3. It can be seen that the development is clustered around Gladstone, Agnes Water and Miriam Vale. Photo 2.1 shows the rural fringe development at Beecher.

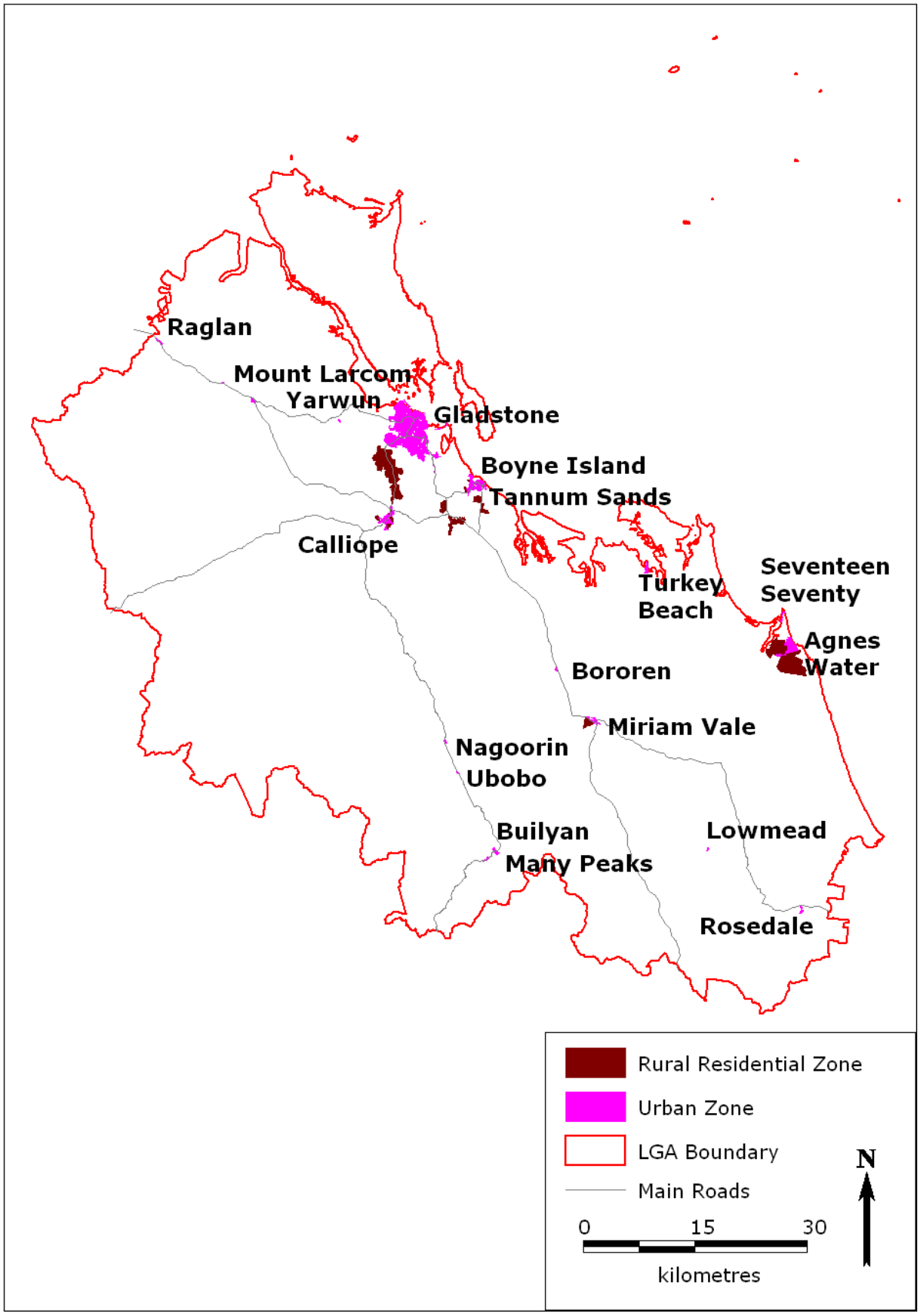
Photo 2.1: Rural Fringe Rural Residential at Beecher
Date of Photo: March 2010

A detailed land use survey has been conducted which shows the land use in these areas. The majority of the land is used for dwellings and there are some vacant lots. Table 2.1 shows the number of dwellings and vacant lots in each of the rural fringe zones along with the average lot size.

Table 2.2: Rural Fringe Zones Land Use

Zone Name	Dwellings	Vacant	Average Size
Agnes Water North	159	150	2.00
Agnes Water South	459	157	1.97
Beecher Burua	412	52	2.95
Benaraby	216	40	0.91
Calliope East	14	3	0.43
Calliope South	12	2	1.80
Calliope West	40	9	0.54
Kin Kora	4	0	0.31
Miriam Vale	54	22	2.00
New Auckland	4	0	0.67
Tannum Sands North	180	0	0.77
Tannum Sands South	88	10	1.20
Wurdong Heights	117	3	1.35
Total	**1,759**	**448**	**1.30**

It can be seen that apart from Agnes Water, there are not many vacant lots for futher rural fringe development. This is discussed in more detail in chapter 5.



Map 2.3: Rural Residential Zones

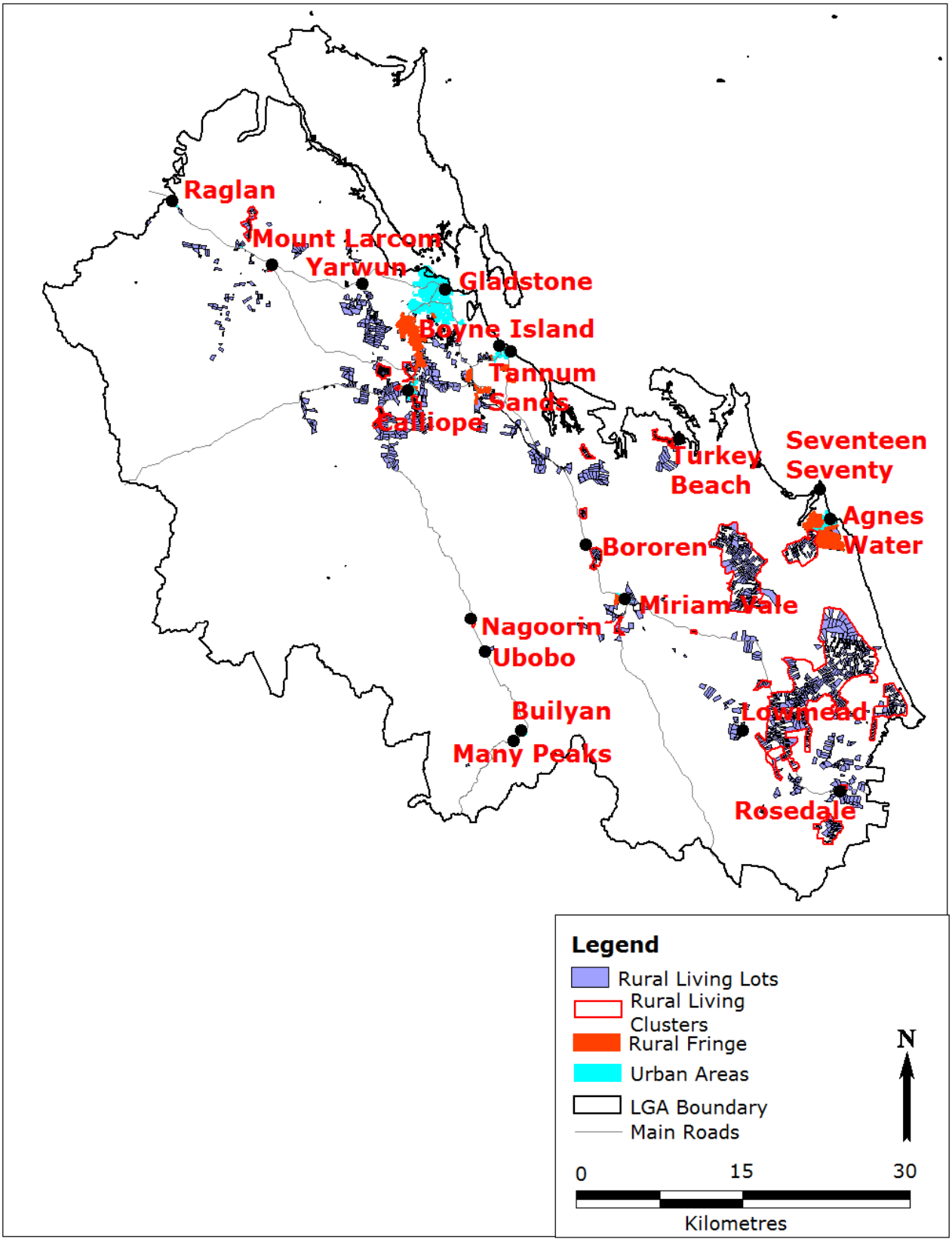
2.4 Rural Living

Rural Living lots are those that are scattered throughout the rural areas and are zoned as rural under the provisions of the 3 planning schemes and are not therefore zoned as rural residential, however their size is not sufficient to enable them to make a full time living from agriculture and are therefore classed as rural residential land use by the land use survey. Their location is shown on map 2.4 and it can be seen that they are clustered in the following areas:

- Mount Larcom
- Yarwun
- Calliope
- Agnes Water
- Captain Creek
- Mount Maria - Deepwater
- Rosedale

There are 2 distinctly different landscape types of rural living. The first one is a small lot in the middle of land that has been cleared for grazing. This is mostly in the Boyne Valley and areas to the north and north west of Calliope and is either in an 'estate' pattern or scattered throughout the rural landscape. Photo 2.2 which shows land in the Bracewell area which has scattered dwellings and photo 2.3 shows Darts Creek which is in an estate.

Photo 2.2: Rural Living at Bracewell
Date of Photo: March 2010



Map 2.4: Rural Living Lots

Photo 2.3: Rural Living at Darts Creek
Date of Photo: March 2010

The other type is on land that is heavily vegetated and this is mainly in the south from Agnes Water / Captain Creek to Deepwater / Lowmead / Baffle Creek / Rules Beach areas. Photo 2.4 shows the rural residential development in the Baffle Creek area

Photo 2.4: Rural Living at Baffle Creek
Date of Photo: March 2010

Table 2.3 lists the rural living lots by their locality as well as the number of lots in each locality and the average size of the lots. It can be seen that there are a total of 2,147 rural living uses and they range in size from single lots at Ubobo and Mt Alma to over 200 lots at Captain Creek and Calliope. The average size of the lots in each locality range from 0.07 at Bangalee to 88.67 ha for a single lot at Ubobo.

Table 2.3: Rural Living Lots

Locality	Dwelling	Average Size
Agnes Water	3	41.75
Ambrose	34	10.67
Baffle Creek	72	21.70
Bangalee	18	0.07
Beecher	5	38.52
Benaraby	43	25.50
Berajondo	32	25.70
Bororen	51	10.43
Boyne Valley	4	1.66
Boynedale	2	44.74
Bracewell	23	22.77
Burua	23	22.98
Calliope	271	24.11
Captain Creek	204	25.10
Colosseum	38	31.74
Darts Creek	43	11.85
Deepwater	143	32.83
Diglum	2	5.63
East End	6	19.17
Euleilah	89	21.51
Foreshores	54	26.00
Glen Eden	4	3.79
Inveragh	31	44.78
Kirkwood	25	7.39
Lowmead	18	37.62
Machine Creek	14	14.84
Many Peaks	5	5.16
Miriam Vale	24	27.86
Mount Alma	1	8.44
Mount Larcom	24	21.32
Mount Maria	100	29.46
Mount Tom	17	37.36
Nagoorin	12	2.55
O'Connell	51	7.91
Oyster Creek	21	19.15
Raglan	14	23.87
River Ranch	103	4.98
Rodds Bay	114	7.73
Rosedale	125	28.50
Round Hill	52	16.29
Rules Beach	44	13.09
Taragoola	4	51.85
Targinie	7	3.76
Taunton	25	35.29
Turkey Beach	2	32.31
Ubobo	1	88.67
West Stowe	87	33.27
Wooderson	25	26.70
Wurdong Heights	23	18.58
Yarwun	14	23.11
Total	**2,147**	**22.80**

Further analysis of the rural living lots has been carried out in relation to the clustering of them as mentioned above. These have been mapped and are shown on Map 2.3 and the analysis of them is shown in Table 2.4, which shows the name of the cluster, whether it has a dwelling, is vacant / has an extensive agricultural use or is covered in native vegetation as well as the average size of the lots in the cluster. Each of the vacant / extensive agriculture use lots as well as the native vegetation lots has a dwelling entitlement (as in fact does every lot not built upon) and it could be expected that a dwelling would be built on them because of their proximity to roads, electricity and telecommunication services.

Table 2.4: Rural Living Lot Clusters

Name	Dwelling	Vacant / Ext. Ag.	Native Veg	Average Size
Bororen North	9			18.37
Bororen South	42		7	8.83
Bottle Creek Rd	13		3	16.10
Boyne Valley	9	14		2.52
Calliope Nandoo Drive	13	39		0.58
Calliope North	26	4		11.33
Calliope South	27	0		7.70
Calliope Southwest	36	0		8.19
Captain Creek	203	2	117	23.20
Colosseum	6		1	3.24
Colosseum Miriam Vale	18		2	9.36
Darts Creek	43		2	11.78
Foreshores	35		7	5.27
Lowmead - Deepwater	414	41	255	26.21
Mount Larcom	11			3.94
Mount Tom	8			6.02
River Ranch	91		1	4.22
Rodds Bay	105	11	46	1.76
Rosedale North	19	7		2.44
Rosedale South	31	1	20	27.03
Round Hill	53		57	17.03
Rules Beach	52		33	19.80
Taunton	11			20.70
Total	**1,275**	**119**	**551**	**11.11**

2.5 Rural Residential Demography

The demographic analysis presents data and discussion on the population and housing characteristics of the LGA.

The Census of population and housing provides details of the population and housing characteristics. The 2011 data has recently been partially released. This includes the basic population and housing data and some demographic statistics. It does not include data on labour force, industry of employment and qualifications as well as where people lived 1 year ago and 5 years ago. The Collector District data has also not been released.

This analysis has included the collector district level of data for the 2006 Census being aggregated to identify the separate urban areas from the surrounding rural areas as well as allowing comparison between the rural, rural residential and urban parts of the LGA.

The population of the LGA is estimated by the ABS to be 60,317 at 30 June 2011. This represents an annual growth rate of 3.1% since 2006.This is higher than the State growth rate which was 1.8%. The population increase was 1,615 people each year. There were a total of 22,022 occupied private dwellings which is an increase of 3,006 dwellings from 2011. The occupancy rate (number of people per household) for the LGA was 2.7. This has decreased over the past 15 years in line with the region and State trends. This can be seen from figure 2.4. This falling occupancy rate means that there will be less people in each household which means that for the same number of households, there will be less people in the LGA and there will be more houses needed.

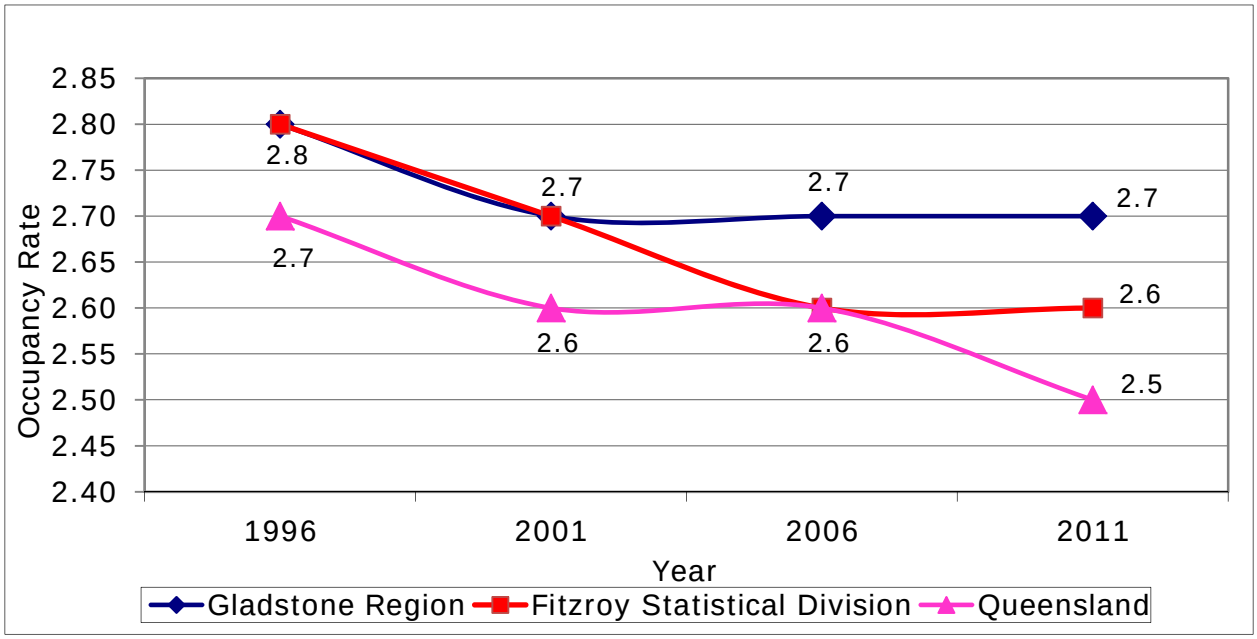


Figure 2.4: Changing Occupancy Rate 1991 - 2011
Source: ABS 2001 Census Basics and 2006 and 2011 Census Data

The population growth over the previous 25 years is shown in figure 2.5. It is significant to note that the growth of the LGA has been cyclical reaching a high of 6,545 during 1991 – 96 and a low of 2,101 during 1996 – 2001. It is currently at the highest rate with 8,077 people since 2006 and there was 5,400 from 2001 – 2006. This is shown in figure 2.6

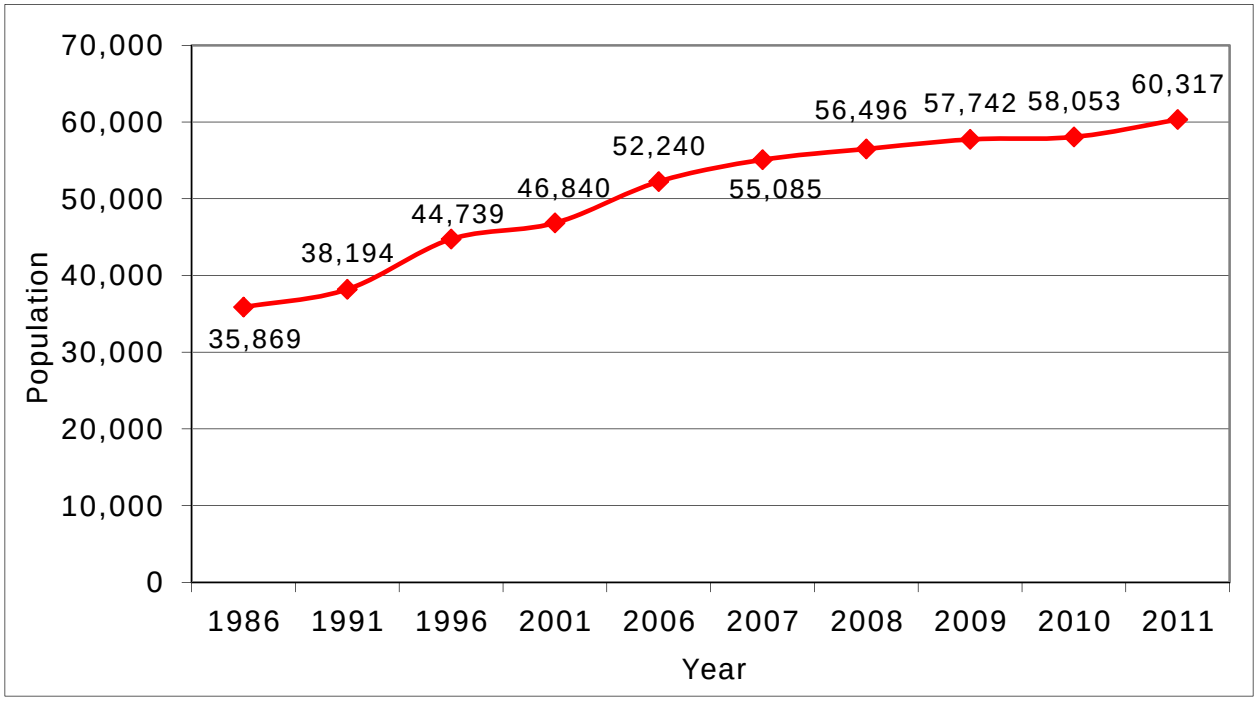


Figure 2.5: Population Change 1986 - 2011
Source: ABS Census of Population and Housing

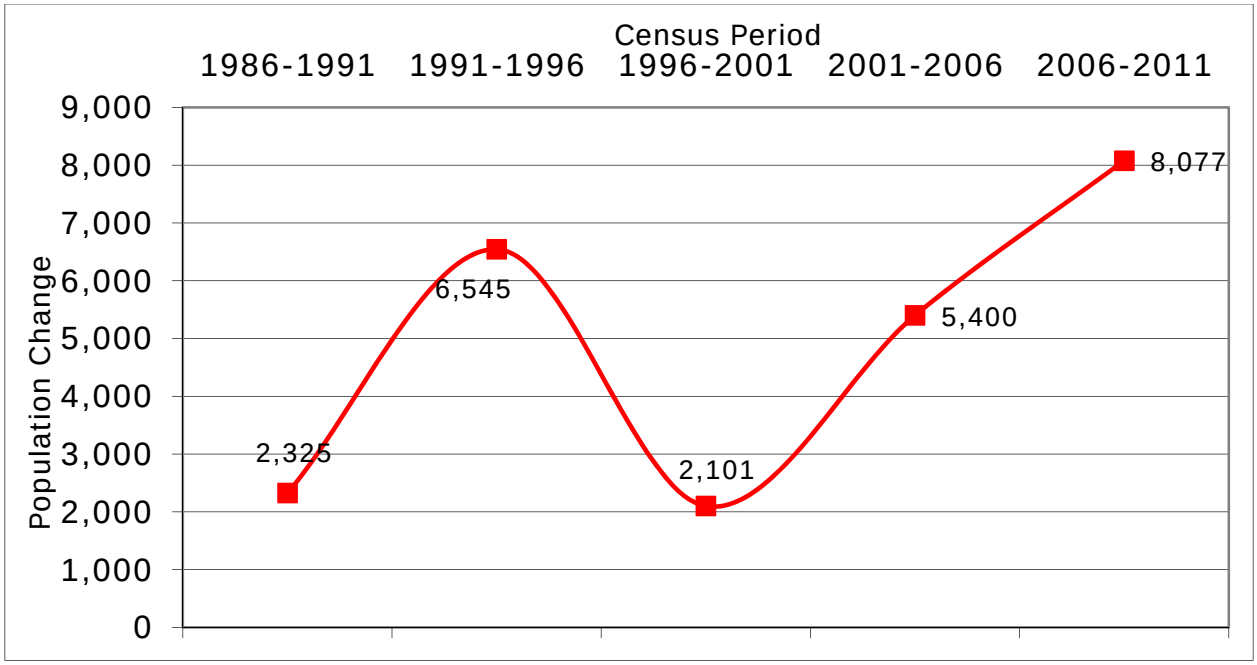


Figure 2.6: Growth 1986 – 20011 per annum
Source: ABS Census of Population and Housing

Dwelling house growth is shown in figure 2.7. This shows that there is a high proportion of dwellings being constructed in the urban areas but also that the level of housing construction in the rural residential area is also significant.

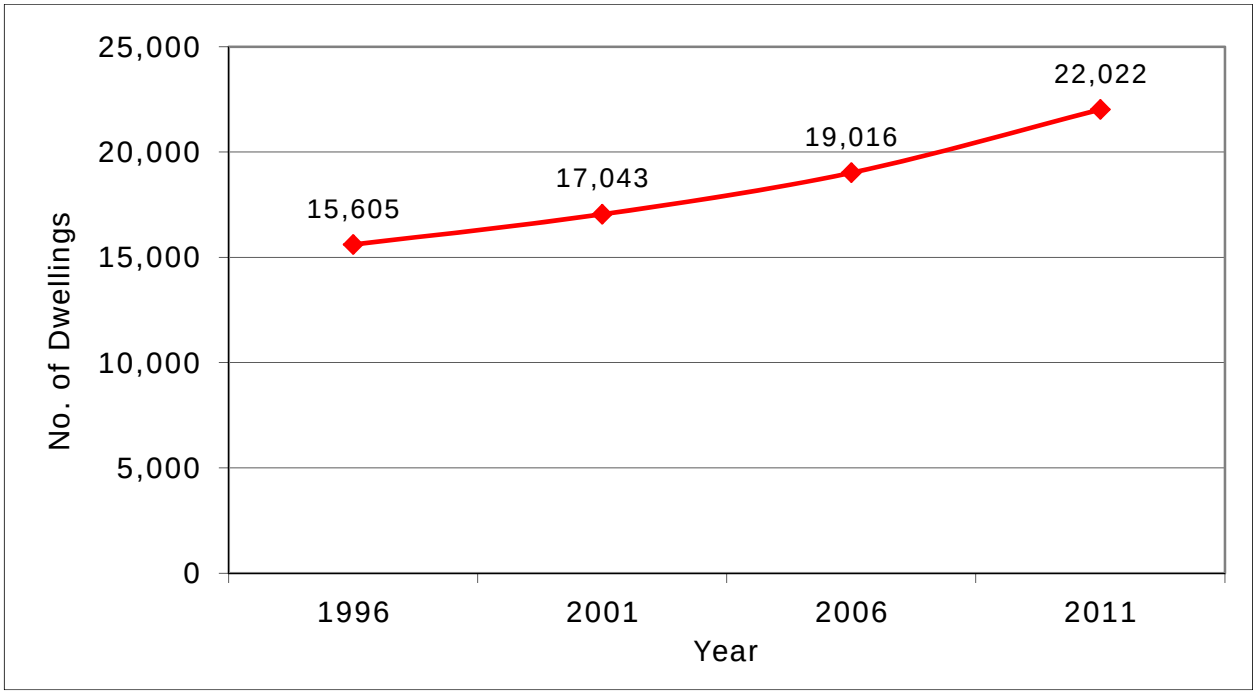


Figure 2.7: Dwelling House Construction 1996 - 2011
Source: ABS Census of Population and Housing

The statistics above are for the entire LGA and signify that the area is growing at a high rate of growth. This is evident in the urban areas as well as the rural residential areas.

A detailed analysis has been carried out of the ABS Population and Housing Census for 2001 and 2006 which has aggregated the urban, rural residential and rural collector districts (CDs)to provide a picture of the demography of each area. The urban CDs were those that are covered by urban zones. The rural residential CDs were identified by having reference to the land use survey and those CDs which covered a large proportion of rural residential use were categories as rural residential. The rural DCs were the ones which had a majority of rural or native vegetation uses. The following areas were those categorised as rural residential:

- Agnes Water
- Beecher Burua
- Benaraby
- Tannum Sands
- Wurdong Heights
- Baffle Creek Rules Beach
- Captain Hill Round Hill
- Deepwater Mt Maria Euleilah
- River Ranch Calliope
- West Stowe East End Ambrose

The age cohorts show that all areas have similar proportionality within each of the age cohorts. This can be seen from figure 2.8.

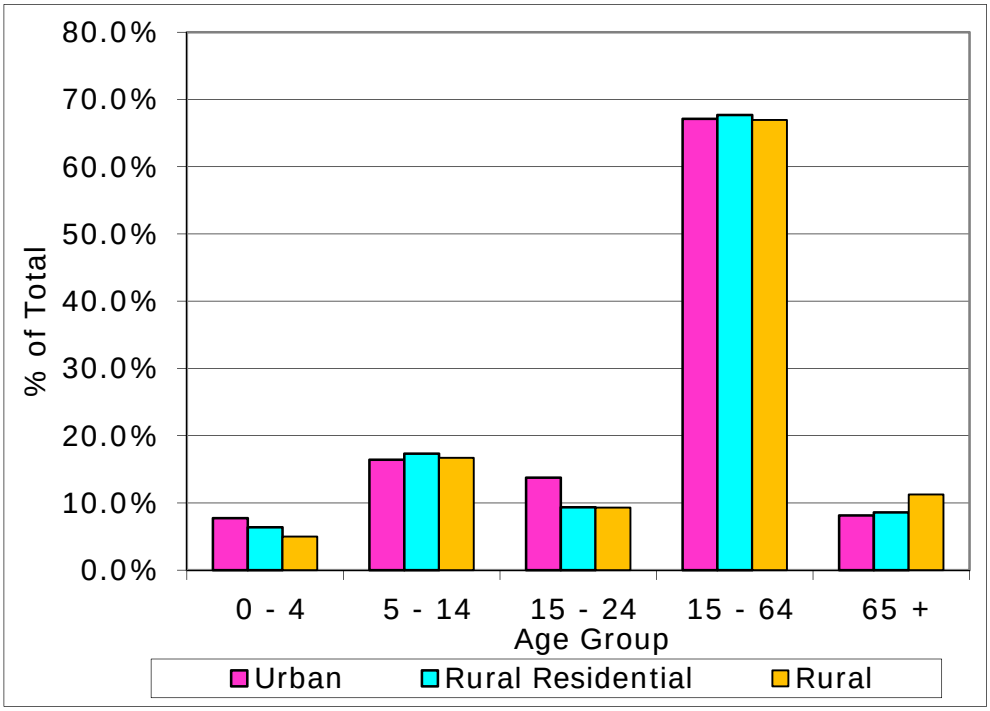


Figure 2.8: Age Cohort Comparison
Source: ABS Census of Population and Housing

The proportion of males and females is similar between the 3 categories with more males than females in all categories as can be seen from figure 2.9.

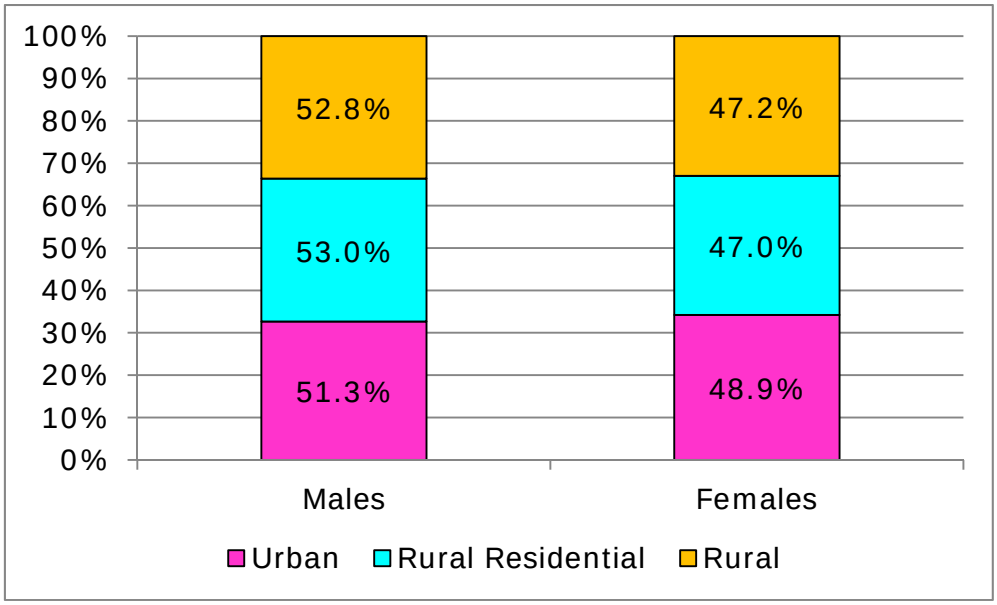


Figure 2.9: Males and Females
Source: ABS Census of Population and Housing

The proportion of urban people has stayed the same whilst the number of people who live in rural residential areas has increased with a corresponding decrease in the rural areas. This backs up the dwelling house data that shows that the number of rural residential dwellers is increasing. This is a trend that is evident in rural Australia as

people move away from the rural areas to urban areas as well as rural residential lots near these urban areas.

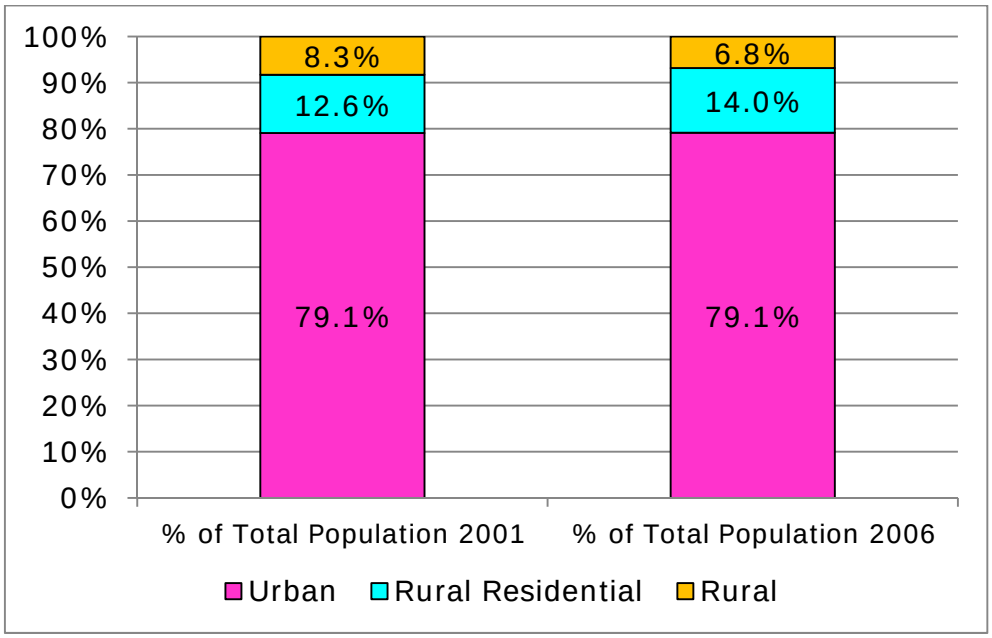


Figure 2.10: Proportion of Population change
Source: ABS Census of Population and Housing

The median age is increasing and similar as can be seen from figure 2.11.

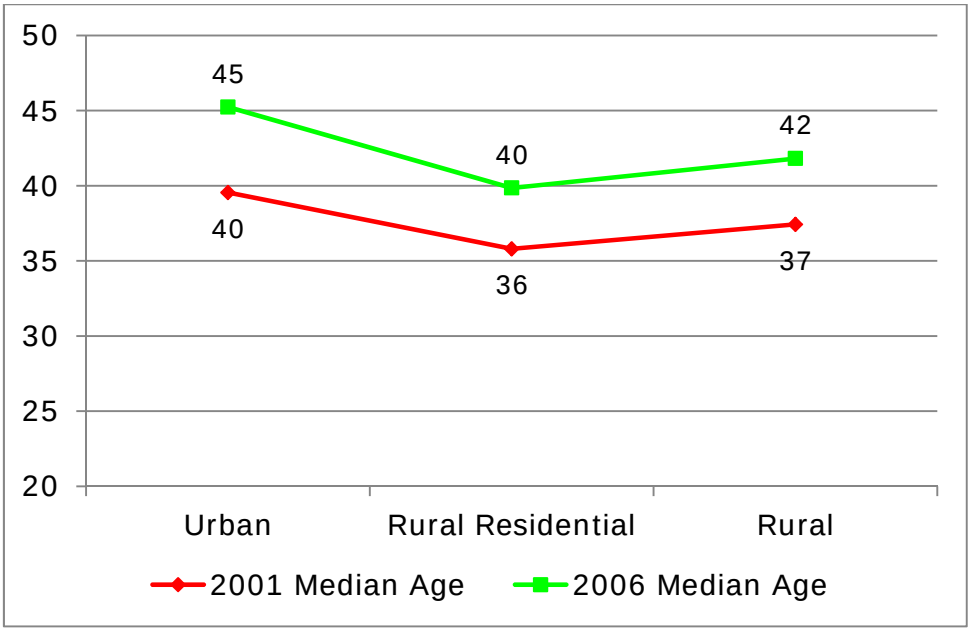


Figure 2.11: Median Age Change
Source: ABS Census of Population and Housing

Internet connection data is shown on figure 2.12. It can be seen that the proportion of internet usage is highest in the urban areas, followed by the rural residential and then the rural.

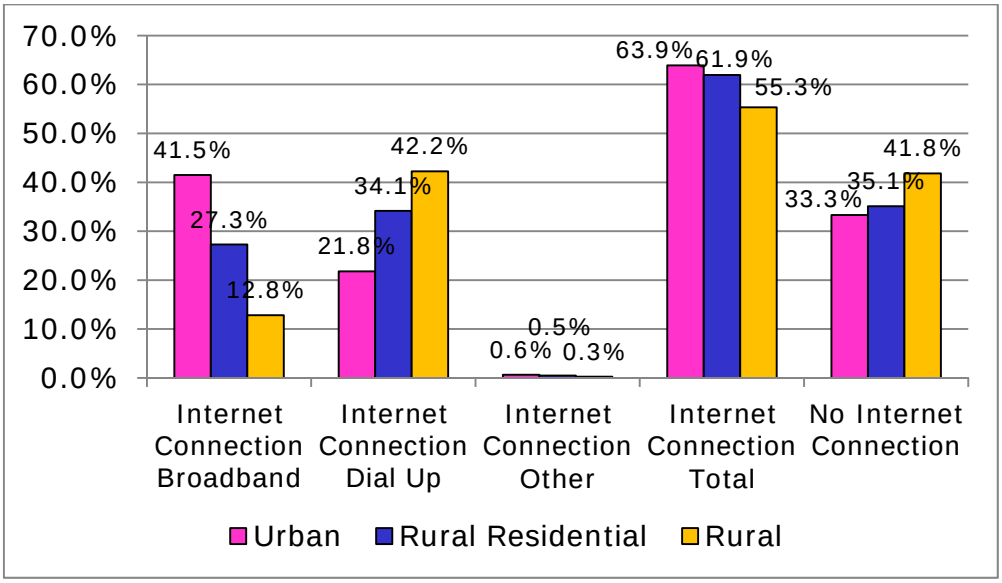


Figure 2.12: Internet Connection
Source: ABS Census of Population and Housing

The industry sector of the workforce is shown in table 2.5 for the urban, rural residential and rural areas as well as the whole LGA plus the Fitzroy Statistical Division and State and table 2.6 shows the top 5 industry sectors for each of the areas. It can be seen that the rural residential and rural areas are very similar to the urban and total LGA with the exception of the rural area. However, this is not a very high proportion of the population who are employed in agriculture – in the high agricultural producing LGAs this is 40 – 60%.

As can be seen, the residential function of the rural residential area is very similar to the residential function of the urban area. However, as Figure 2.11 exemplifies, infrastructure and services available to people living in the rural residential area are often at a reduced level to their urban counterparts. The consequences (particularly for the various levels of government and other service providers) may be less significant, where a person is afforded a range of residential options and through personal preference settles in a rural residential area. However, where a person is driven to settle in a rural residential area by virtue of economic and social conditions, they may be unaccepting of or further affected by the reduced level of infrastructure and services. This can translate to increased demand on resource of governments and service providers.

Table 2.5: Industry Sector of the Workforce

Industry Sector	Rural	Rural Residential	Urban	Gladstone LGA	Fitzroy SD	Queensland
Agriculture, forestry & fishing	16.8%	2.7%	0.5%	2.3%	5.4%	3.4%
Mining	1.5%	1.7%	1.6%	1.6%	6.8%	1.7%
Manufacturing	13.0%	19.6%	20.7%	19.8%	10.8%	9.9%
Electricity, gas, water & waste services	1.1%	2.4%	2.5%	2.4%	2.4%	1.0%
Construction	12.3%	12.8%	12.2%	12.6%	9.3%	9.0%
Wholesale trade	1.9%	2.4%	2.4%	2.4%	3.0%	3.9%
Retail trade	7.0%	10.0%	10.6%	10.1%	10.6%	11.6%
Accommodation & food services	9.2%	6.6%	6.7%	6.7%	6.7%	7.0%
Transport, postal & warehousing	8.1%	7.1%	7.1%	7.1%	5.8%	5.1%
Information media & telecommunications	0.2%	0.5%	0.7%	0.6%	0.8%	1.4%
Financial & insurance services	0.7%	1.3%	1.4%	1.3%	1.7%	2.9%
Rental, hiring & real estate services	3.3%	2.0%	2.0%	2.1%	1.6%	2.1%
Professional, scientific & technical services	3.0%	4.7%	5.2%	4.9%	3.6%	5.6%
Administrative & support services	1.0%	2.6%	2.6%	2.6%	2.4%	3.1%
Public administration & safety	5.6%	4.1%	4.2%	4.2%	5.5%	6.7%
Education & training	5.1%	6.9%	7.1%	6.9%	8.4%	7.6%
Health care & social assistance	3.8%	6.3%	6.3%	6.2%	8.6%	10.2%
Arts & recreation services	1.1%	0.6%	0.5%	0.6%	0.6%	1.3%
Other services	2.8%	3.0%	3.1%	3.1%	3.7%	3.7%
Inadequately described/Not stated	2.5%	2.7%	2.6%	2.7%	2.4%	2.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: ABS Census of Population and Housing

Table 2.6: Top 5 Industry Sectors

Rural	Rural Residential	Urban	Gladstone LGA	Fitzroy SD	Queensland
Agriculture 16.8%	Manufacturing 19.6%	Manufacturing 20.7%	Manufacturing 19.8%	Manufacturing 10.8%	Retail Trade 11.6%
Manufacturing 13.0%	Construction 12.8%	Construction 12.2%	Construction 12.6%	Retail Trade 10.6%	Health care & social assistance 10.2%
Construction 12.3%	Retail Trade 10.0%	Retail Trade 10.6%	Retail Trade 10.1%	Construction 9.3%	Manufacturing 9.9%
Accommodation & food services 9.2%	Transport & Warehousing 7.1%	Transport & Warehousing 7.1%	Transport & Warehousing 7.1%	Health care & social assistance 8.6%	Construction 9.0%
Transport & Warehousing 8.1%	Education & Training 6.9%	Education & Training 7.1%	Education & Training 6.9%	Education & Training 8.4%	Education & Training 7.6%

Source: ABS Census of Population and Housing

Chapter 3: Policy Context

3.1. Introduction

The management and control of land uses within the Gladstone Region are guided by a number of policy and legal processes. These are Acts of Parliament and Regulations as well as Plans and Policies prepared under the provisions of those Acts and Regulations.

The State Government has overall authority for the statutory processes applicable to the management of land within the Region. The Council has the day to day decision making powers which are carried out under the auspices of various acts of Parliament. The Federal Government plays a role in the conservation of biodiversity under the auspices of the Environmental Protection and Biodiversity Conservation Act 1999.

3.2. State Planning Policies

The Department of Infrastructure and Planning has prepared a number of State Planning Policies in consultation with relevant government departments. The main ones relating to rural residential development are as follows:

- State Planning Policy 1/92 – Development and the Conservation of Agricultural Land
- State Planning Policy 1/03 – Mitigating the Adverse impacts of Flood, Bushfire and Landslide
- State Planning Policy 2/07 – Protection of Extractive Resources
- State Planning Policy 1/12 Protection of Queensland's Strategic Cropping Land

Below is a summary of each of the policies and highlighting how they impact on the future of rural residential development in the LGA.

3.2.1. Development and the Conservation of Agricultural Land

This policy has as its premise that good quality agricultural land is a finite national and state resource that needs to be conserved and managed for the longer term.

It has a set of policy principles which are as follows:

1. Good quality agricultural land has a special importance and should not be built on unless there is an overriding need for the development in terms of public benefit and no other site is suitable for the particular purpose.
2. The alienation of some productive agricultural land will inevitably occur as a consequence of development, but the Government will not support such alienation when equally viable alternatives exist, particularly where developments that do not have very specific locational requirements (for example, 'rural residential') are involved.
3. When preparing, reviewing or amending planning schemes, local authorities will be expected to include provisions for the conservation of good quality agricultural land, regardless of the effect of market fluctuations on its viability.
4. The preparation of strategic plans should include an evaluation of alternative forms of development, and significant weight should be given to those strategies which minimise the impacts on good quality agricultural land.

5. Due consideration should be given to the protection of good quality agricultural land when applications for rezonings, consent, or subdivision are being determined
6. Where a planning scheme does not contain adequate agricultural land conservation provisions, the Government will be guided by the principles set out in this Policy when considering applications for the approval of planning schemes, rezoning and other scheme amendments.
7. The fact that existing farm units and smallholdings are not agriculturally viable does not in itself justify their further subdivision or rezoning for non-agricultural purposes. Subdivision provisions and policies should be devised in a way that encourages amalgamation of titles where this would enhance farm viability.
8. Local Authority planning provisions should aim to minimise instances of incompatible uses locating adjacent to agricultural operations in a manner that inhibits normal farming practice. Where such instances do arise, measures to ameliorate potential conflicts should be devised wherever possible.

Good Quality Agricultural Land is divided into 4 classes which are outlined in the document titled *Planning Guidelines: The Identification of Good Quality Agricultural Land* and are as follows:

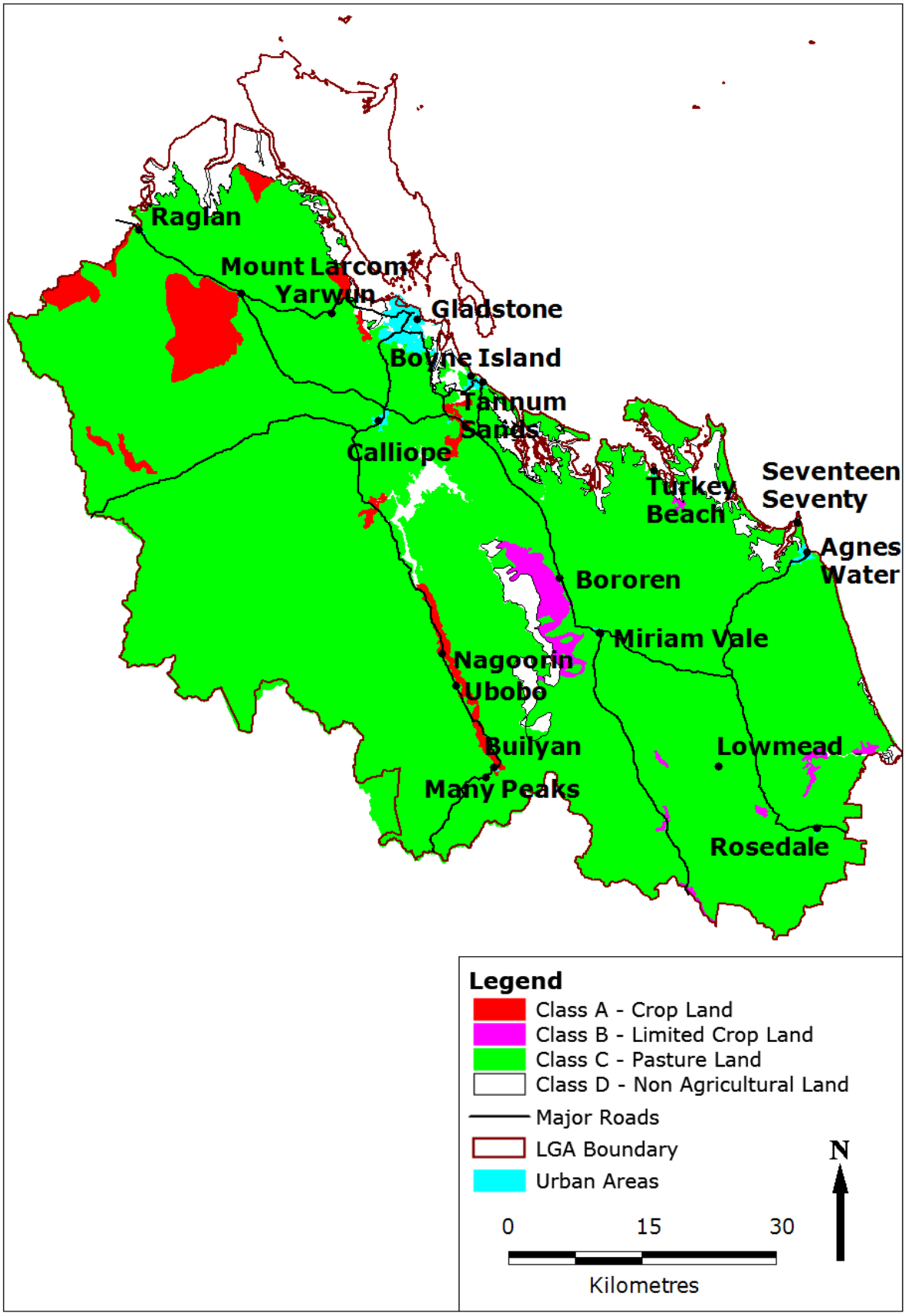
- **Class A - Crop land.** Land that is suitable for current and potential crops with limitations to production which range from none to moderate levels.
- **Class B - Limited crop land**. Land that is marginal for current and potential crops due to severe limitations; and suitable for pastures. Engineering and / or agronomic improvements may be required before the land is considered suitable for cropping.
- **Class C - Pasture land.** Land that is suitable only for improved or native pastures due to limitations which preclude continuous cultivation for crop production; but some areas may tolerate a short period of ground disturbance for pasture establishment.
- **Class D Non-agricultural land.** Land not suitable for agricultural uses due to extreme limitations. This may be undisturbed land with significant habitat, conservation and / or catchment values or land that may be unsuitable because of very steep slopes, shallow soils, rock outcrop or poor drainage.

Map 3.1 shows the amount of Good Quality Agricultural Land. It can be seen that the majority of land is class C. Analysis of the area of each classification is presented in Table 3.1, which also shows that 90.5% of the land is class C. It can be seen that the majority of the land in the Region is suited to pasture only and not much land is suited to cropping. It should be noted that the land that is class A land is fragmented and has some rural residential uses which would limit its use for cropping. In addition, the Gladstone Region is not a high value cropping area.

Table 3.1: Agricultural Land Classification

Class	Area (ha)	% of Total
A – Crop Land	30,409.78	3.1%
B – Limited Crop Land	11,147.85	1.1%
C – Pasture Land	881,658.88	90.5%
D – Non-agricultural Land	51,169.88	5.3%
Total	**974,386.39**	**100.0%**

Source: Good Quality Agricultural Land Map – Calliope and Miriam Vale LGAs



Map 3.1: Agricultural Land Classification

3.2.2. Mitigating the Adverse impacts of Flood, Bushfire and Landslide

The Government considers that development should minimise the potential adverse impacts of flood, bushfire and landslide on people, property, economic activity and the environment.

The policy lists 5 outcomes to deal with the impacts of development on flooding, bushfire and landslide. They are as follows:

- *Outcome 1*: Within natural hazard management areas, development to which this SPP applies is compatible with the nature of the natural hazard, except where:
  - ⇨ the development proposal is a development commitment; or
  - ⇨ there is an overriding need for the development in the public interest and no other site is suitable and reasonably available for the proposal
- *Outcome 2*: Development that is not compatible with the nature of the natural hazard but is otherwise consistent with Outcome 1:
  - ⇨ minimises as far as practicable the adverse impacts from natural hazards; and
  - ⇨ does not result in an unacceptable risk to people or property
- *Outcome 3*: Wherever practicable, community infrastructure to which this SPP applies is located and designed to function effectively during and immediately after natural hazard events commensurate with a specified level of risk.
- *Outcome 4*: Natural hazard management areas are identified in the planning scheme.
- *Outcome 5*: The planning scheme contains planning strategies that aim to:
  - ⇨ ensure that development in natural hazard management areas is compatible with the nature of the natural hazard;
  - ⇨ minimise the impacts from natural hazards on existing developed areas; and
  - ⇨ prevent development from materially increasing the extent or the severity of natural hazards

There are parts of the LGA which are flood prone, bushfire prone and susceptible to landslip and therefore should be avoided.

3.2.3. Protection of Extractive Resources

This policy aims to identify the extractive resources which are of State of regional significance and to protect them from developments that might constrain current or future extraction.

Within the Gladstone LGA there are 2 areas identified as follows:

- Taragoola Key Resource Area on the Boyne River
- Yarwun Key Resource Area

There is a need to ensure that any development keeps clear of these areas.

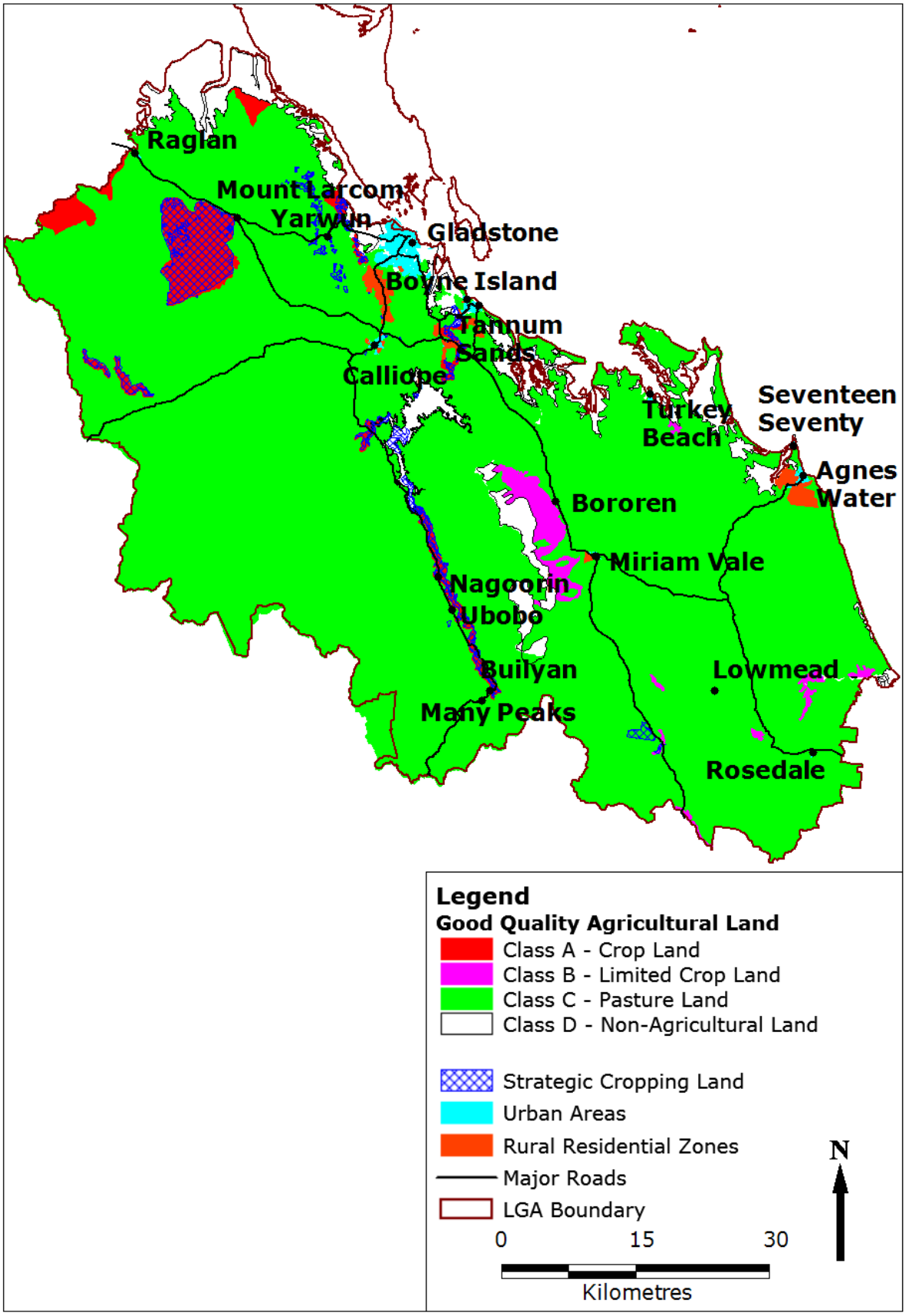
3.2.4. Protection of Queensland's Strategic Cropping Land

This Policy recognises that soil is a finite resource and that good quality soils must be conserved and managed for the future. It notes that Queensland had some very good quality soils which are considered to be of State and National importance. It outlines a framework for protecting Strategic Cropping Land (SCL). Its general aim is to use planning approval powers to protect SCL from those developments which would lead to permanent impacts or diminished productivity.

It has four outcomes which are as follows:

1. development impacts on SCL or potential SCL are managed to preserve the productive capacity of the land for future generations
2. development impacts on SCL or potential SCL are managed through assessment under this SPP and through imposing conditions on the development
3. to the extent that SCL or potential SCL in a protection area will be permanently impacted upon by a development with a footprint greater than 3000 m², the development must not proceed except in exceptional circumstances, and where the development is an exceptional circumstance, mitigation is provided for the permanently impacted land
4. to the extent that SCL or potential SCL in the management area will be permanently impacted upon by a development with a footprint greater than 3000 m², mitigation is provided for the impacted land.

The policy uses a trigger map to identify land that will be subject to specific planning and approval process. The map is based primarily on soil quality and therefore has a relationship to the Good Quality Agricultural Land Map. The trigger map for Gladstone Region is shown as map 3.2. It can be seen that there is not much SCL in the Gladstone Region which is commensurate with its status as not being a significant cropping area. With the exception of some areas in the West Stowe, Yarwun, Targinie and Mount Larcom localities, it follows the class A Good Quality Agricultural Land classification. It is further noted that the land in Yarwun, Targinie and Mount Larcom are within the State Development Area which is exempt from the Policy as well as land in Beecher – Burua and Benaraby – Wurdong Heights which are zoned Rural Residential and are also exempt from the policy.



Map 3.2: Strategic Cropping Land and Agricultural Land Classification

Chapter 4: Development and Planning Issues

4.1. Introduction

The issues, which have to be considered when we discuss the future of Gladstone rural lands, can be grouped into two broad headings of:

- Environmental Opportunities and Constraints
- Social and Economic Factors

There are a number of uses and issues which influence the settlement pattern of Gladstone LGA. The resources necessary to use the land are finite and need to be conserved. There are a number of constraints to the use of the land and the resource.

Underlying all of the issues are the philosophies of Sustainable Development and Catchment Management. It is shown graphically in figure 3.1. The figure illustrates the interconnectedness of the issues and the fact they all must be considered in relation to each other and cannot be considered in isolation.

Sustainable Development embodies the three concepts of:

- Environmental conservation
- Social equity
- Economic prosperity

All three are interrelated and have to be considered as such. The environment in which we live has to be treated carefully so we can ensure it is left in a good state for the future generations. However, for there to be future generations, we must have settlements in which to live – be they urban areas or rural residential use or in houses scattered throughout the countryside. If we are going to live in an area, there also must be a market economy. There is a need to find the balance between these three so we can have a sustainable future and can leave an intact environment to the future generations.

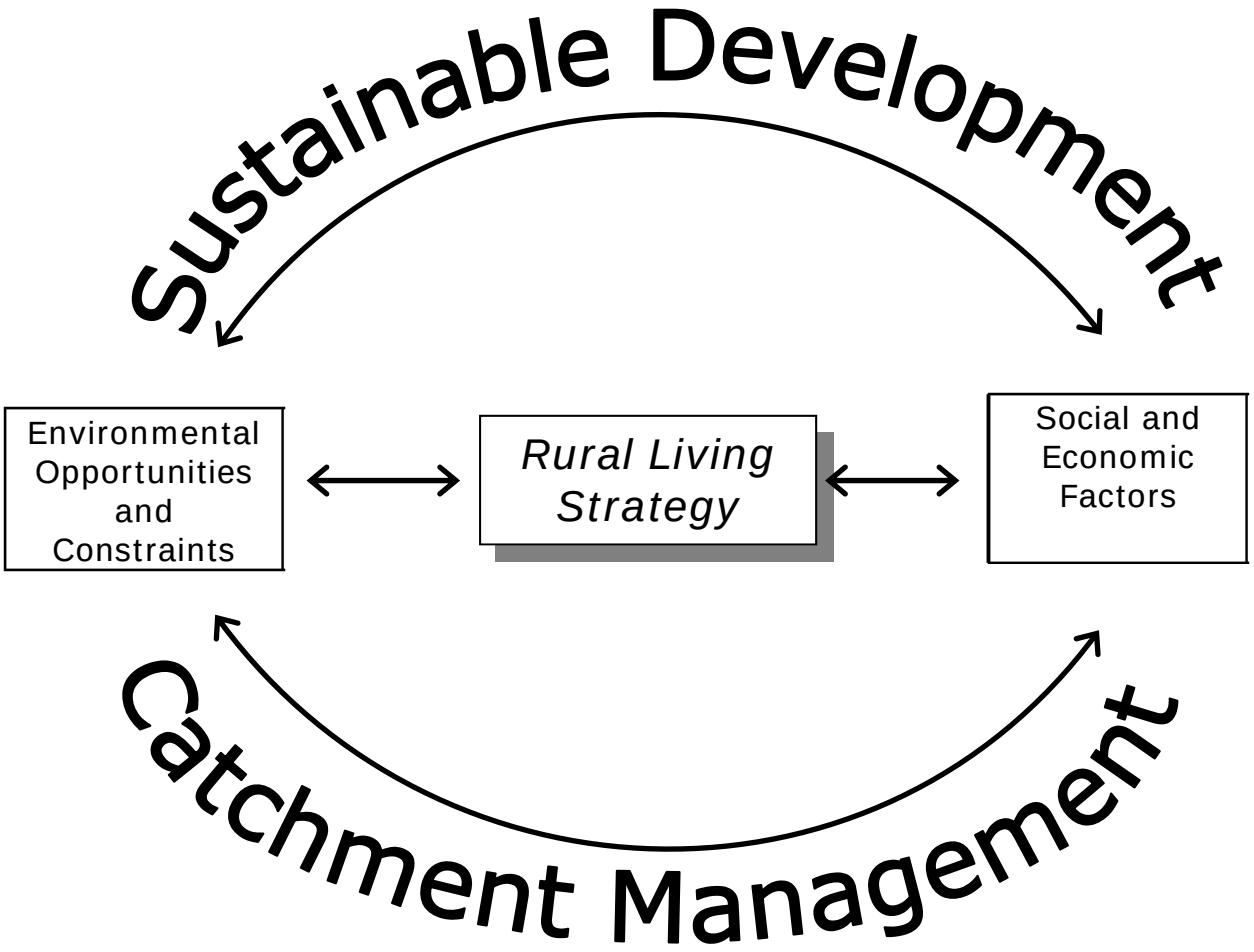


Figure 3.1: Issues and Themes for the Rural Residential Development
Source: Sinclair 2002d

3.3. Environmental Opportunities and Constraints

The resources to enable the land to be used have to be conserved so that future generations can also enjoy and use the area. The principles of ESD and TCM are implicit to this section.

All land is within the various water catchments. Therefore, all development will have an impact on these catchments. Some uses have the potential to cause harm whilst others do not. Potentially harmful uses can be designed to minimise the impact of the use on the catchment.

The philosophy of Catchment Management is one that should underlie all planning for rural land and settlements. As such, it is an issue which is very important to the Gladstone Rural Living Strategy.

3.3.1. Climate Change

The climate of an area is very important and has a direct impact on the economic, social and environmental aspects of the local area. “The landscape, and the plants and animals in it, are all determined to a large extend by climate acting over long intervals of time” (Pittock, 2009 p 1)

> "*While many factors continue to influence climate, scientists have determined that human activities have become a dominant force and are responsible for most of the warming observed over the past 50 years. Human-caused climate change has resulted primarily from changes in the amounts of greenhouse gases in the atmosphere but also from changes in small particles (aerosols), as well as from changes in land use for example. As climate changes, the probabilities of certain types of weather events are affected. For example, as Earth's average temperature has increased, some weather phenomena have become more frequent and intense (e.g. heatwaves and heavy downpours) while others have become less frequent and intense" (*IPCC 2007 p105*)*

The Intergovernmental Panel on Climate Change have produced the 4th report on the assessment of the causes, impacts and possible response strategies to climate change worldwide. This report has found that "… human activities, primarily the burning of fossil fuel and clearing of forests, have greatly intensified the natural greenhouse effect, causing global warming." (IPCC 2007 p115)

> *"An overwhelming body of scientific evidence now clearly indicates that climate change is a serious and urgent issue. The Earth's climate is rapidly changing, mainly as a result of increases in greenhouse gases caused by human activities"* (Stern, 2007 p3)

The recently published document titled *The Economics of Climate Change – the Stern Review* provides a good overview of the climate change issue, particularly how it may have an impact on the sustainability of the LGA. The document notes the following points:

- Climate models show that the Earth's temperature is likely to rise by 2 - 5^{o} Celsius in global mean temperatures between 2030 and 2060;
- Warming of the Earth is very likely to intensify the water cycle, which will have the impact of more droughts and floods;
- Rainfall is likely to increase in high latitudes whilst regions with Mediterranean climates (like South eastern Australia) will have significant reductions in rainfall;

> *"As the world warms, the risk of abrupt and large scale changes in the climate system will rise"* (Stern, 2007 p3)

The CSIRO have recently released a report dealing with the impacts of climate change on the Australian continent. The key findings of the document, titled *State of the Climate 2012* are as follows:

- Each decade has been warmer than the previous decade since 1950.
- Australian annual-average daily mean temperatures have increased by 0.9 °C since 1910, with significant regional variations.
- Australian annual-average daily maximum temperatures have increased by 0.75 °C since 1910, with most of the warming trend occurring since 1970. There has been an increase in the frequency of warm weather and decrease in the frequency of cold weather.
- The frequency of extreme (record) hot days has been more than double the frequency of extreme cold days during the past ten years.

- There has been a trend over recent decades towards increased spring and summer monsoonal rainfall across Australia's north; higher than normal rainfall across the centre, and decreased late autumn and winter rainfall across the south.
- The east coast, Victoria and south west Australia have all experienced substantial declines in rainfall since 1950.
- Global-average mean sea level for 2011 was 210 mm above the level in 1880.
- Global-average mean sea level rose faster between 1993 and 2011 than during the 20th century as a whole.
- Since 1993, the rates of sea level rise to the north and northwest of Australia have been 7 to 11 mm per year, two to three times the global average, and rates of sea-level rise on the central east and southern coasts of the continent are mostly similar to the global average.
- The heat content of the world's oceans has increased during recent decades, increasing the volume of ocean waters and contributing to sea-level rise.
- Substantial warming has occurred in the 3 oceans around Australia. Sea-surface temperatures around Australia have increased faster than the global average. Sea-surface temperatures in the Australian region in 2010 were the highest on record.
- Sea-surface temperatures have increased by about 0.8 °C since 1910.
- Fossil-fuel CO_2 emissions increased by more than three per cent per year from 2000 to 2010.
- The concentration of CO_2 in the atmosphere in 2011 was 390 parts per million – higher than at any time for the past 800,000 years.
- The main cause of the observed increase in CO_2 concentration in the atmosphere is the combustion of fossil fuels since the industrial revolution.
- Australian average temperatures are projected to rise by 1.0 to 5.0 °C by 2070 when compared with the climate of recent decades.
- An increase in the number of droughts is expected in southern Australia but it also is likely that there will be an increase in intense rainfall events in many areas.

3.3.2. Water Catchments

There are 2 major Rivers flowing through the LGA – the Boyne and Calliope Rivers. There are also a number of smaller creeks that traverse the LGA.

The provision and conservation of water is a major issue for the future of the LGA. There is a need to ensure that the integrity of the waterways are protected from inappropriate landuses.

There are many things that can cause the waterways to become stressed. Some are as follows:

- Nutrient from rural residential, waste disposal and intensive agriculture;
- Dams and water diversions;
- Extraction from rivers and streams – both licensed and unlicensed;
- Turbidity caused by soil erosion;
- Filling of land;
- Inappropriate development controls on existing uses.
- Loss of indigenous riparian vegetation.

The issue of preserving the natural flows of rivers is one that is impacted upon by a number of issues, including the number of rural dams which have the effect of holding back and trapping a large amount of water, especially during and after a long period of dry weather.

The protection and preservation of riparian land and its management is a major issue that has to be considered. Riparian vegetation is an important part of the catchment as it provides a filter for the waterway by trapping sediments and nutrients that may have otherwise entered the water system. It also provides for bank stability as well as a habitat for wildlife.

The groundwater resources of the area are an issue that needs to be considered in a regional context, but one that the use of land in the LGA can have an impact on. Groundwater is also part of the wider ecosystem and any changes to it will impact upon other aspects of the environment.

The catchments have varying degrees of settlement which includes towns and villages as well as rural subdivision. This is an indicator of the amount of stress that the catchment is being placed under.

3.3.3. Native Vegetation and Biodiversity

Native vegetation is an important component of the LGA. It provides habitat for native flora and fauna as well as being a landscape and visual feature.

Major pressures on native vegetation arise from clearing the land for a dwelling site, agriculture and service infrastructure. Secondary impacts of human activities such as the spread of garden weeds, domestic pet and livestock damage and pollution from on-site sewage systems all need to be considered in a strategic approach to the planning of LGA.

In the context of Gladstone LGA rural lands, it is important to recognise that all landuse decisions will have an impact on the biodiversity of the area. It is important therefore to take into consideration the impact on biodiversity when thinking about changing the use of the land. There is also a need to monitor the impact of development.

The biodiversity of Gladstone rural lands needs to be protected when carrying out any planning exercise. This means that any decisions to reduce the subdivision minimum have to consider the impact on the biodiversity of the area. This also holds true for clearing of land for extractive industries, agricultural uses as well as other rural uses. There are also implications for the conservation and expansion of existing wildlife corridors or linkages. There is significant vegetation and biodiversity habitat in road reserves and travelling stock routes which should be conserved as they can form wildlife linkages. Large areas of bushland remain on private land.

3.3.4. Topography

The topography of the LGA varies from steep land in the west and north to flat lowland to the south and east.

The topography of an area is important because land with a slope can become unstable and when the soil is disturbed, can lead to erosion. A lot of sloping land is also heavily vegetated and so this has to be considered.

Effluent disposal on sloping land can cause it to become damp which can lead to erosion and slippage.

The variety of landforms within an area can contribute to the rural landscape character and provide a setting for the settlement areas.

In an area like Gladstone, which is relatively flat in the east, the topography can have an impact on drainage, especially near the Hunter River where there has been drainage of wetlands in the past.

3.3.5. Soils

The maintenance of soil is a major consideration and there is a need to consider the impacts of land degradation, especially soil erosion and salinity. It is both a management issue as well as being associated with the future development of the land.

Soil erosion and sedimentation is an issue which becomes worse, as the uses become more intensive and where inappropriate land management occurs. It is also an issue for the more steeply sloping land and the construction of dwellings, particularly rural residential uses which tend to be on smaller lot sizes.

Soil erosion becomes more of a problem in areas where the soil is of a poor quality and any disturbance of them often leads to more rapid land degradation.

Land capability is an important aspect of development and its impact on soils. Development should only be done on land that is capable of supporting it. For this reason, land that is steep or prone to erosion should be avoided. In addition, land on the banks of rivers and creeks should only be developed if there has been adequate ameliorative measures put in place to ensure that it does not have any impact on the quality of the water in the waterways. Farming will be the use that has the most impact on land capability. For this reason, it is important to encourage the use of best practice in farming, such as using minimum or no tillage when planting crops. This will ensure that the health of the soils is improved.

This is an issue for the environmental as well as the human impact of development.

3.3.6. Landscape Character

The predominant rural character of Gladstone LGA is created by the numerous rural activities, range of holding sizes, vegetation and expansive views. The landscape changes with the varying topography – it is open and flat in the south and in the north has some hills which create different landscapes.

The unique landscape character of the LGA is a visual resource as it generates tourism, development and environmental management. The visual resource also plays an important role in promoting environmental awareness and well being for residents

and visitors. This varies from the steep vegetated areas to the simplicity of grazing lands and formal patterns of agricultural crops.

The retention of roadside vegetation is an issue which may require future negotiations with service providers.

Controls which may be considered for retaining the rural character include:

- Planting controls for screening undesirable elements and incorporating buffers to significant environmental communities,
- Building controls for siting and advertising,
- Planning controls for lot sizes, the design and siting of residential dwellings and ancillary buildings, in relation to the visual amenity of road corridors.

It is important to recognise the visual amenity of open paddocks, post and rail fencing, distant views, heritage items and rural activities.

It can be seen therefore that the preservation of the landscape character is of importance.

3.3.7. Bushfire Hazard

The protection of the identified community assets is a key issue as is the preservation of biodiversity when considering the issue of bushfires.

Managing the bushfire risk is noted as the key factor in dealing with the bushfire hazard. One of the management options is risk avoidance and therefore, land that is prone to bushfires should not be rezoned and subdivided where an adequate fire protection zone cannot be established.

Bushfire Risk Management includes the identification of the level of risk posed by bushfires to the assets and establishing strategies to protect those assets from the adverse effects of the fires. The purpose of bushfire risk management is to protect the community and its values from the adverse effects of wildfire. One key element of bushfire management is to achieve better integration of community preparedness and prevention strategies.

3.3.8. Flood Prone Land

Flooding is a considerable issue across the whole LGA. It is of particular importance along the Calliope and Boyne Rivers.

Flooding has an impact on low lying land and can cause roads to be cut as well as inundation of some houses.

It is Government Policy to not allow houses to be build on flood prone land.

3.3.9. Weeds

Weeds are one of the most serious threats to Australia's natural environment and primary production. They can destroy the native species, contribute significantly to land degradation and reduce farm and forest productivity. The National Weeds

Strategy has identified the problem and states that the cost of weeds to Australia is approximately $3.3 billion per annum.

There is a need therefore to consider the preparation of Weed Management Plans for developments that have the potential to cause the spread of weeds by clearing large tracts of land or that generate effluent in sufficient quantities that may kill native vegetation which then allows for the weeds to invade the bushland.

There are a number of weeds within the LGA that are a problem.

3.4. Social and Economic Factors

The interaction of humans with the environment is an important component of any strategy dealing with the future of the LGA.

4.3.1. Land Use

There are a variety of land uses in the LGA. The main one is agriculture which is made up of grazing (sheep and cattle) as well as some orchards as well as some aquaculture. Other uses include rural based tourism. There are also urban (residential, commercial and industrial) uses and many rural residential uses scattered throughout the rural areas.

All of these uses have an impact on each other and the environment. This is an important issue and the resultant rural land use conflict from some of them is perhaps one of the most important issues to be addressed by this Strategy. Finding the balance between these often competing desires for rural land is the key to planning for rural areas.

4.3.2. Rural Land Use Conflicts

The presence of agriculture and non-rural land use in the one location can often generate conflict due to their potential incompatibility. This is particularly evident with intensive agriculture such as poultry, dairies and irrigated farming. Agriculture can affect adjoining non-rural uses, such as rural residential uses. Similarly, the presence of rural residential uses creates an adverse influence on the continued operation of the agricultural enterprise. The issue of land use conflict can arise when there is no separation between incompatible uses, let alone the misunderstanding, which may exist about the purpose and character of a district. Land use conflicts may arise in such situations through noise, odour, farm chemicals, access, land degradation due to mining and extractive industries, light, visual amenity, dogs, and stock damage and weed infestation, to name just a few.

Land use conflict can occur between forms of rural land use.

One issue that has to be addressed is the basic planning principle of the new use blending in with the current one. This has not happened in the past with dwelling houses being permitted to locate next to boundaries with no consideration of the impact it may have on the agricultural use on the next door property. This leads to rural land use conflict and experience in other areas has led to the agricultural use having to move or mining use cease.

4.3.3. Settlements

WHAT IS THE ADOPTED SETTLEMENT HIERACRCHY?IS THE SECTION STILL NEEDED?

There are a number of settlements in the LGA which have been outlined in Chapter 1.

There are also a number of areas that have a community hall or bushfire shed which have a vital role as a focal point for the community which lives in the surrounding area.

In order to understand the relationship between the settlements and to provide a strategic context for them, it is appropriate to adopt a hierarchy of settlements. This should be based on the facilities provided in the settlement and the role that it plays, rather than purely population. The shopping facilities that are available are a good starting point. There are three basic shopping trips:

- *Convenience shopping* relates to the daily shopping needs of bread and milk as well as newspapers and emergency purchases not done at other times.
- *Weekly shopping* is for the basic food and household shopping needs and is usually done in a chain supermarket.
- *Comparison shopping* is the shopping trips done for larger items of household and personal items such as whitegoods, furniture and clothing.

A hierarchy of settlements can be based on this as well as other factors and for an area like Gladstone Region should take the following form. The names used are generic and apply to all centres however, it is noted that the Queensland Planning Provisions (QPP) make reference to specific names for centres and these can be accommodated within this hierarchy. The QPP terminology is also noted.

- *Regional Centre* This provides a wide range of employment, entertainment and recreational opportunities, a full range of local services and higher order services such as Major Hospital, TAFE College as well as a high school and major indoor recreation facility and often has a University campus. It also has regional offices of State Government Departments. It has a large mixed commercial area providing service, retail and office uses with a large chain supermarket and a discount department store. It caters for convenience, weekly and comparison shopping. It is the principal settlement for the Region. It would be called a Principal Centre under the QPP.
- *District Centre.* This provides a range of employment, entertainment and recreational opportunities, a full range of local services and some higher order services such as high school and health care as well as a major indoor recreation facility. It has a large mixed commercial area providing service, retail and office uses with a large chain supermarket. It would cater for convenience, weekly and limited comparison shopping. It would be called a Major Centre under the QPP.
- *Town.* This provides a range of local services and variety of employment opportunities in tourism and retail but relies on the District Centre for other opportunities. It has shopping for weekly and convenience shopping. It would be called a District Centre under the QPP.
- *Village*. This provides only for convenience needs and typically has only a general store / post office. It would be called a Local Centre under the QPP.
- *Rural Centre*. This is a focal point for the surrounding community and usually has a community hall or bushfire shed. There are generally no shopping facilities or

other services in this area. It would be called a Neighbourhood Centre under the QPP.

The establishment of a hierarchy will enable the protection of the town centre of Gladstone.

4.3.4. Economic Development

The economic base of areas like Gladstone is a very important component of its future viability and sustainability.

Economic development is an important component of any strategy for the future. There is a need for the area to have a vibrant and diverse economy for it to survive. The Gladstone economy is not heavily based on agriculture. There is a need to protect the existing businesses as well as attracting new ones.

4.3.5. Domestic Effluent Management

This is perhaps the most important impact of human settlement on the water quality of the surrounding streams and the general environment. Most of the rural residential areas are not served by reticulated sewerage. On larger holdings, the effluent is managed by on-site disposal.

This will be an important issue to be looked at when considering urban and rural residential development.

4.3.6. Infrastructure

Infrastructure such as roads, water, electricity, telephone is necessary for the provision of human settlement areas. The LGA is well served by electricity and telephone.

Chapter 5: Strategic Environmental Analysis

5.1. Introduction

The rural lands of Gladstone LGA provide an important resource for the entire LGA as well as the wider region. This consists of a number of components:

- Rural Landscapes
- Productive Agricultural Lands
- Native Vegetation
- Habitat linkages
- Living Areas – towns, villages, rural residential and farm housing.
- Rivers and creeks as well as other water bodies

Each of these is important in its own right but it is the sum of them that provides the resource for the future.

This chapter presents a strategic environmental assessment of the issues identified in Chapter 3 and discusses options that can be pursued for future rural residential development in the LGA.

A strategic environmental assessment is an assessment of a set of strategic options. It can be defined as the formalised, systematic and comprehensive process of evaluating the environmental impacts of an action and its alternatives. (Therivel et al)

> *"Strategic environmental assessment is the term used to describe the application of environmental assessment to various stages in the planning process that occur prior to the consideration of specific projects. It may be given another name, depending on the nature of the planning stage involved.*
>
> *Regardless of the terminology used, strategic assessment primarily differs from project-specific assessment in terms of scale and timing. In regard to scale, strategic assessment:*
>
> > *i) incorporates a number of potential developments as opposed to a single project;*
> > *ii) considers a broader range of alternatives;*
> > *iii) involves a wider geographic area; and,*
> > *iv) addresses environmental impacts at a more aggregated level.*
>
> *In terms of timing, the period between the conduct of a strategic assessment and the resulting environmental impacts will be longer than is the case with project-specific assessments."* (OECD, 1999 p5)

In a recent book published by the United Nations Development Program (UNDP) and the Organisation for Economic Cooperation and Development (OECD) titled *Sustainable Development Strategies – A Resource Book*, sustainability is described as being all about achieving "... positive economic and social development, without excess environmental degradation, in a way that protects the rights and opportunities

of coming generations and contributes to compatible approaches elsewhere." (Dalal-Clayton and Bass, p5). There is a need to take a strategic approach in order to achieve a sustainable outcome. This also needs to be " ... both long-term in its perspective and integrated or joined up in linking various development processes so that they are as sophisticated as the challenges are complex." (Dalal-Clayton and Bass, p6).

> *"At the heart of the concept is the belief that social, economic and environmental objectives should be complementary and interdependent in the development process. Sustainable development requires policy changes in many sectors and coherence between them. It entails balancing the economic, social and environmental objectives of society- the three pillars of sustainable development - integrating them wherever possible, through mutually supportive policies and practices and making trade-offs where it is not."*(Dalal-Clayton and Bass, p12).

This is described in figure 5.1.

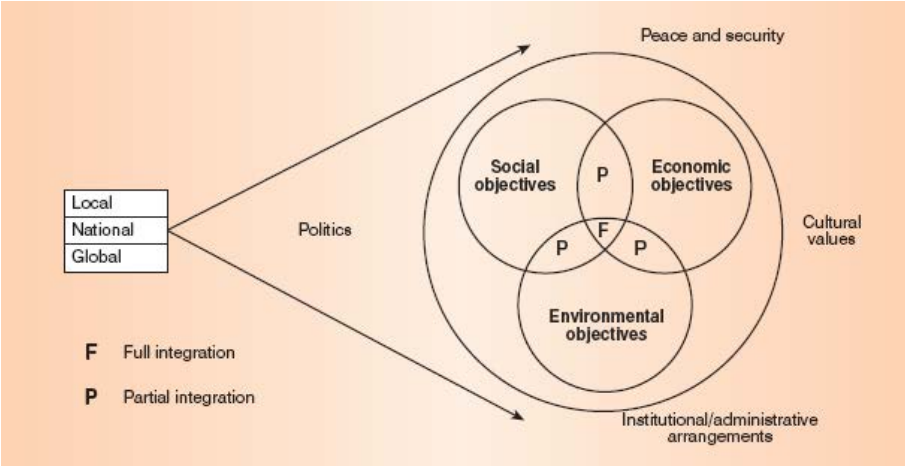


Figure 5.1: The System of Sustainable Development
Source: (Dalal-Clayton and Bass, p12).

Dalal-Clayton and Bass have described the practical outcomes of sustainable development processes in 2 categories:

1. *Institutions and mechanisms which produce decisions to balance social, economic and environmental objectives, and which ensure that they are implemented. For example: particular planning and policy processes and procedures such as environmental impact assessment and stakeholder participation.*
2. *Activities on the ground which add good environmental, social and / or economic practice to what might otherwise have been narrower goals. For example: new forms of natural resource management or integrated development projects.* (p12)

In achieving sustainability, there is a need to recognise the complementary complexity of the issues – are all linked to each other and the policy responses need to be holistic and multi faceted and not single issue focused.

5.2. Key Issues for the Future

The following is a brief discussion about the key issues for the future of the LGA. They will need to be addressed in order to achieve a sustainable future. However, it is the responsibility of all levels of Government as well as the community to work together, not just Gladstone Council.

- *Growth Pressure*. The pressure for growth in the LGA is perhaps the most important issue for the future. There is demand for both rural residential (rural fringe and rural living) and urban lots. This is expected to continue as the further port and LNG developments occur in Gladstone.
- *Constraints to Development*. There are a number of constraints to development of further rural fringe development. These take the form of potential future resources in the Boyne Valley which makes any development around the settlements of Ubobo, Nagoorin, Many Peaks and Builyan difficult because of the potential to sterilise this resource. In addition to this there are limited facilities and services in these settlements to allow for any further development. Other constraints are flooding which affects the Beecher – Burua and Benaraby areas. Biodiversity is also a significant constraint for further rural residential areas, especially around Agnes Water, Miriam Vale and Bororen.
- *Good Quality Agricultural Land*. Whilst it is acknowledged that there is not much high quality agricultural land in the Region, there is significant amount of land that is suitable for cattle grazing. This occurs on large properties but is also a significant use of rural fringe land of 10 ha and more, of which there is a significant amount in the LGA. Therefore this land should not be further fragmented.
- *Development on rural lots*. With the potential for a dwelling house to be erected on each rural lot within the region means that there is a significant amount of rural living opportunities which could present some issues in relation to services and traffic generation.
- *Supply of existing lots*. There is sufficient supply of lots in the Agnes Water which has 307 vacant lots that can be built on. In other areas, there is not much supply of land and there are opportunities for further rural fringe development areas.
- *State Development Area*. The State Development Area in the Targinie – Aldoga – Yarwun area abuts the settlement of Mount Larcom. The need to protect this area for heavy industry means that there is no potential to provide further rural fringe development around Mount Larcom. In addition, there are major constraints on the provision of further water for Mount Larcom.
- *Rural Residential Development*. There is potential for more rural fringe development in Calliope and Benaraby.

5.3. Growth Management

Growth Management is concerned with ensuring that the growth of an area occurs in such a manner that addresses the social, economic and environmental aspects – in other words, it is sustainable. It needs to be recognised, however, that managing growth does not mean that all parts or settlements of the LGA will grow. One aspect of sustainability is to ensure that adequate regard is taken of the constraints – social, economic and environmental. When the constraints are taken into consideration, it becomes evident that some areas will not have subdivision or growth because of physical limitations (productive agricultural land, flooding, slope, presence of native

vegetation, etc) or lack of provision of social services (health, education, community services, etc).

This section will deal with the settlement hierarchy, rural residential development and preserving rural land.

5.3.1. Settlement Hierarchy

WHAT IS THE ADOPTED SETTLEMENT HIERARCHY?

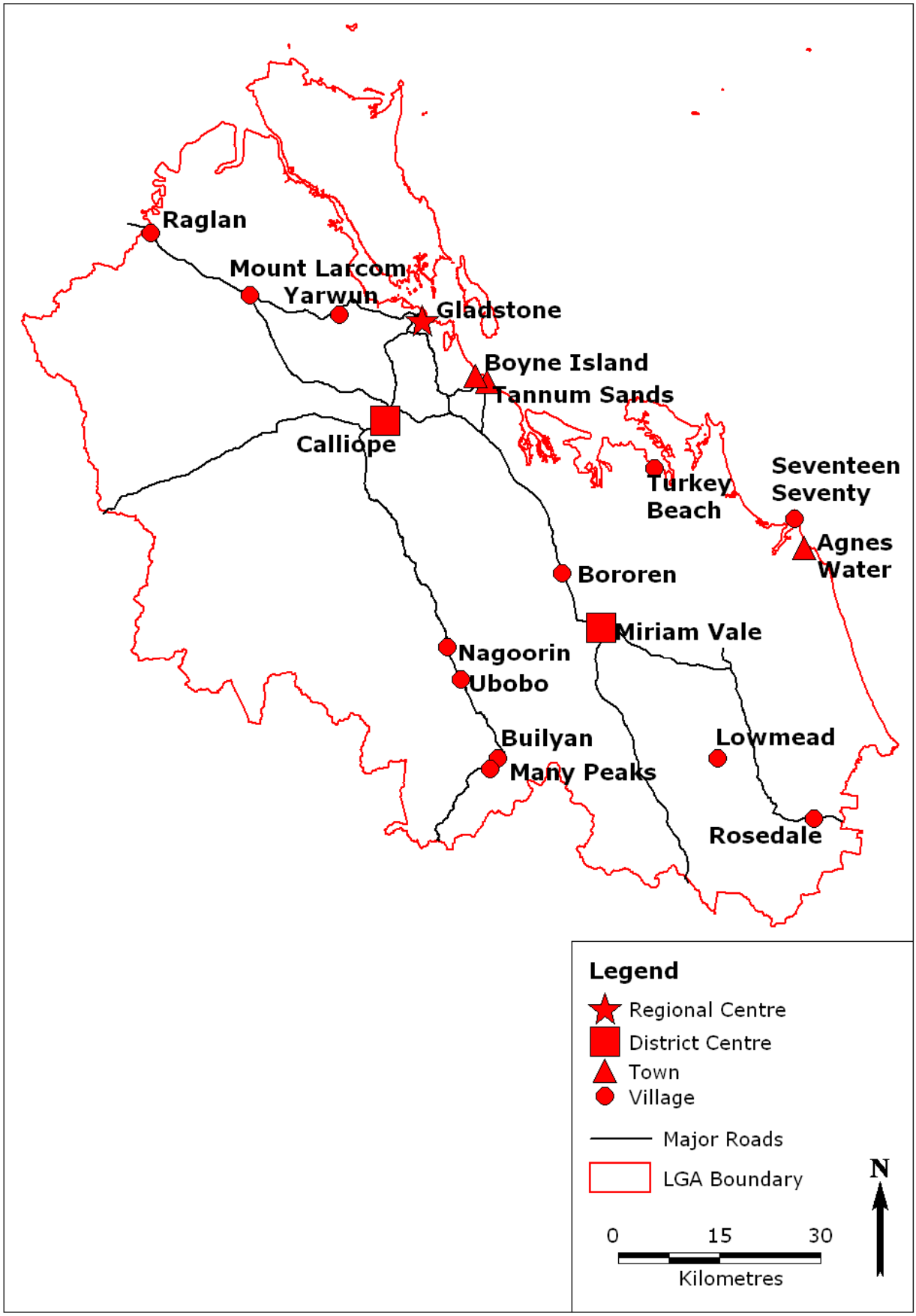
This has been discussed in chapter 4 in the section dealing with towns and villages.

A five-order hierarchy has been adopted for Gladstone LGA. It is based on the criteria listed in chapter 7 and is as follows with the QPP terminology in brackets:

Regional Centre (Principal Centre)	➡	Gladstone
District Centre (Major Centre)	➡	Calliope, Miriam Vale
Town. (District Centre)	➡	Agnes Water, Boyne Island, Tannum Sands
Village (Local Centre)	➡	Bororen, Builyan, Lowmead, Many Peaks, Mount Larcom, Nagoorin, Raglan, Rosedale, Seventeen Seventy, Turkey Beach, Ubobo, Yarwun
Rural Locality. (Neighbourhood Centre)	➡	Ambrose, Baffle Creek,

Map 5.1 shows the hierarchy and photos 5.1 to 5.5 show examples of each of the settlements in the hierarchy for the LGA

The purpose of the hierarchy is to put the settlements of the LGA into a context with the surrounding rural land. By doing this it provides certainty to the rural residents about the future of their land and whether it is needed for settlement expansion. It needs to be acknowledged that some settlements, because of their lack of services and facilities or physical constraints are not able to expand. For a settlement to be able to expand there is a need for basic services and facilities including weekly shopping and a school. The district centre and towns are usually able to grow with a mixture of rural residential and urban development subject to constraints and the villages and rural centres, because of the lack of services and facilities, don't have the potential to grow.



Map 5.1: Settlement Hierarchy

Photo 5.1: Gladstone– Regional Centre
Date of Photo: March 2010

Photo 5.2: Calliope – District Centre
Date of Photo: March 2010

Photo 5.3: Boyne Island and Tannum Sands - Towns
Date of Photo: March 2010

Photo 5.4: Ubobo – Village
Date of Photo: March 2010

Photo 5.5: Baffle Creek – rural locality
Date of Photo: March 2010

5.4. Rural Residential Development

Rural Residential Development has been discussed in chapter 2. Suffice to say that there is both rural fringe and rural living styles of rural residential development in the LGA. The rural fringe development is located within the current zones which are shown on map 5.2.

5.4.1. Rural Residential Development Criteria

In order to ensure that rural residential development is sustainable and does not create any adverse social, economic or environmental impacts a set of criteria can be developed to ensure that any future rural residential development is as sustainable as possible. These criteria apply to rural fringe and rural living development.

The criteria can be categorised into exclusionary and management criteria. Exclusionary criteria cover those issues considered to be of such magnitude that it should be used to exclude land from future rural residential development. Management criteria, however, covers issues that can be dealt with on a site by site basis.

Exclusionary criteria and the reasons for it being listed as such are as follows:

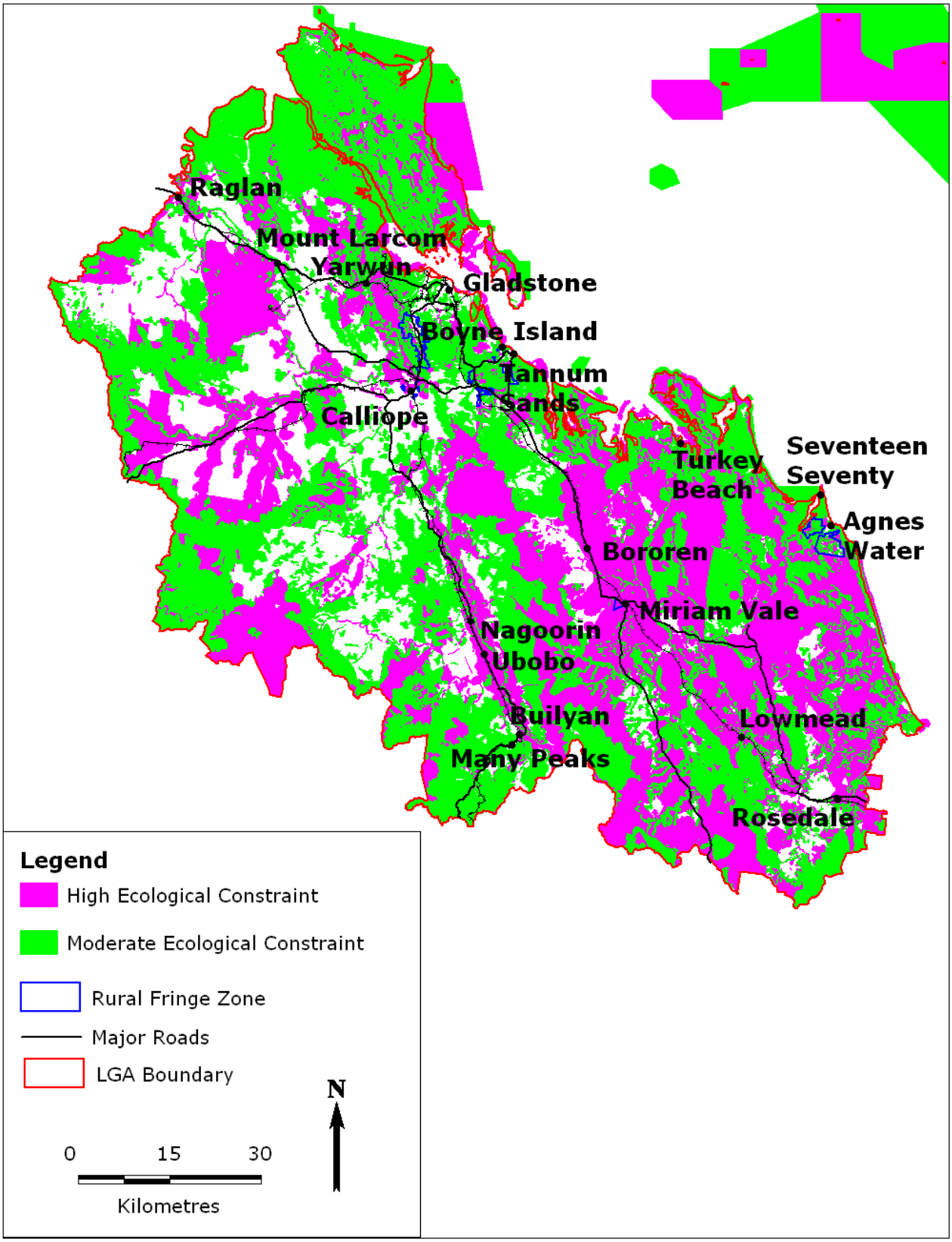
- *Slope of land – greater than 20%*. Land with steep slopes is not considered appropriate for rural residential development because of erosion potential and scenic impact on the landscape. This includes land that has to gain access over land with a 20 % slope or steeper.
- *Flooding and Drainage*. Land that is floodprone, poorly drained or close to drainage line or creek is not considered appropriate because of potential flooding. Land that has its access over floodprone land or a stream that is susceptible to flooding should also be excluded. The 1:100 ARI flood prone land has been identified and this land or land that has to gain access over it should be excluded.
- *Native Vegetation*. Native vegetation provides a biodiversity and habitat resource and areas that are heavily vegetated should not be developed because of the potential impact on the biodiversity and habitat from the clearing of that land. The high and moderately constrained land mapping prepared by Department of Environment and Resource Management is a good indicator of this.
- *Good Quality Agricultural Land*. Land that is classified as good quality agricultural land as well as existing agricultural uses, especially intensive agriculture should be protected and not have rural residential development located near to or adjacent to it.
- *Proximity to Extractive Industries / Mineral Resources*. It is important to ensure that rural residential development is not located in close proximity to existing extractive industries or mines or over potential mineral or extractive investigation areas.
- *State Development Area*. The Gladstone State Development Area covers a large area of 19,000 ha in the Yarwun, Targinie, Mount Larcom, Aldoga and West Stowe localities. This land has been purchased by the State Government for major industrial and economic development initiatives and consequently should not have any rural residential development in close proximity to it.

- *Proximity to towns*. The proximity to services is a key consideration for rural residential development. Land should be adjoining the urban area and have good road access to the town, particularly the commercial centre. Settlements identified as Town, District Centre and Regional centre are the appropriate settlements to have rural residential development in close proximity.
- *Utility servicing*. This includes water, sewer, electricity and telephone. Water and sewerage service is normally provided on site, however some rural fringe types of development have a reticulated water supply.
- *Road surface*. All roads to be accessed by rural fringe development should be sealed. This includes all roads between the subdivision and the urban areas.

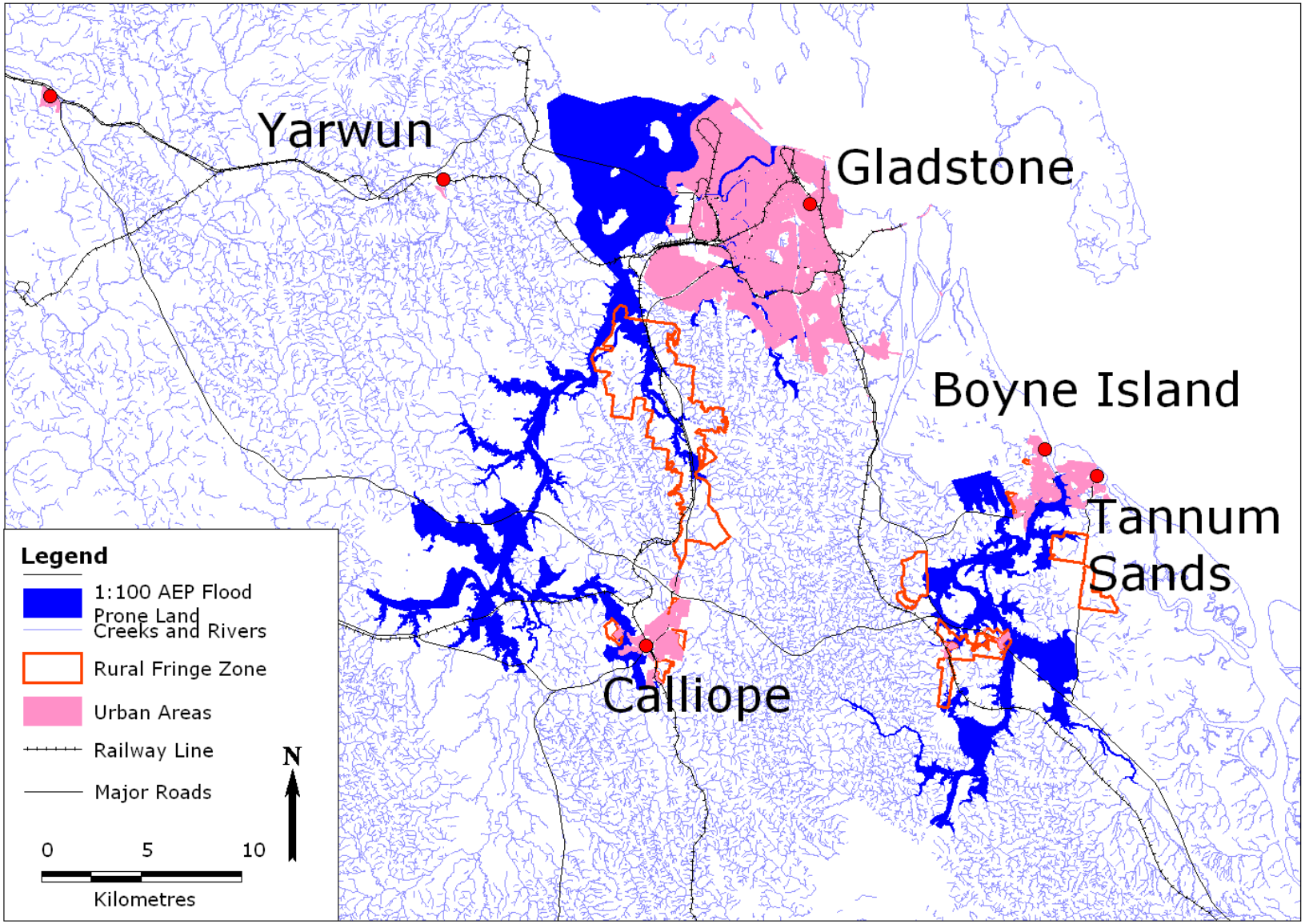
Management Criteria and the matters that have to be addressed are as follows:

- *Domestic Effluent Disposal*. The method of domestic effluent disposal has a major bearing on the size of the lot to be subdivided. A soil and water test will be necessary to ascertain the minimum area for effluent disposal which in turn will impact on the size of the lot. For lots less than 1 ha, reticulated sewerage will be required.
- *Road Alignment and access.* The road alignment and access should have adequate sight lines so that any potential impact with other vehicles travelling on the road are minimised.

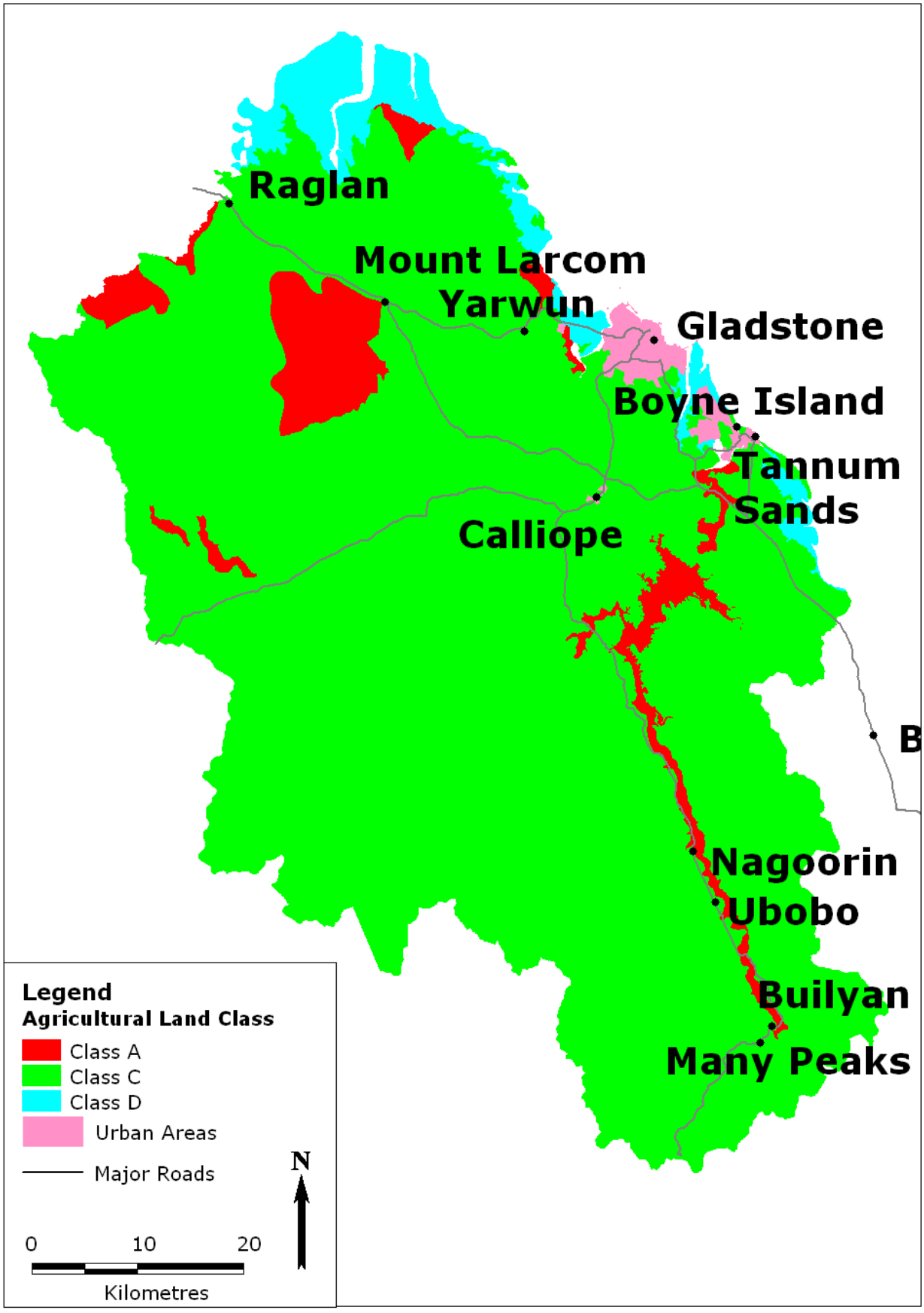
The vegetation, flooding and good quality agricultural land have all been mapped and these are presented as maps 5.2, 5.3 and 5.4 which can be regarded as major constraints to further rural residential development.



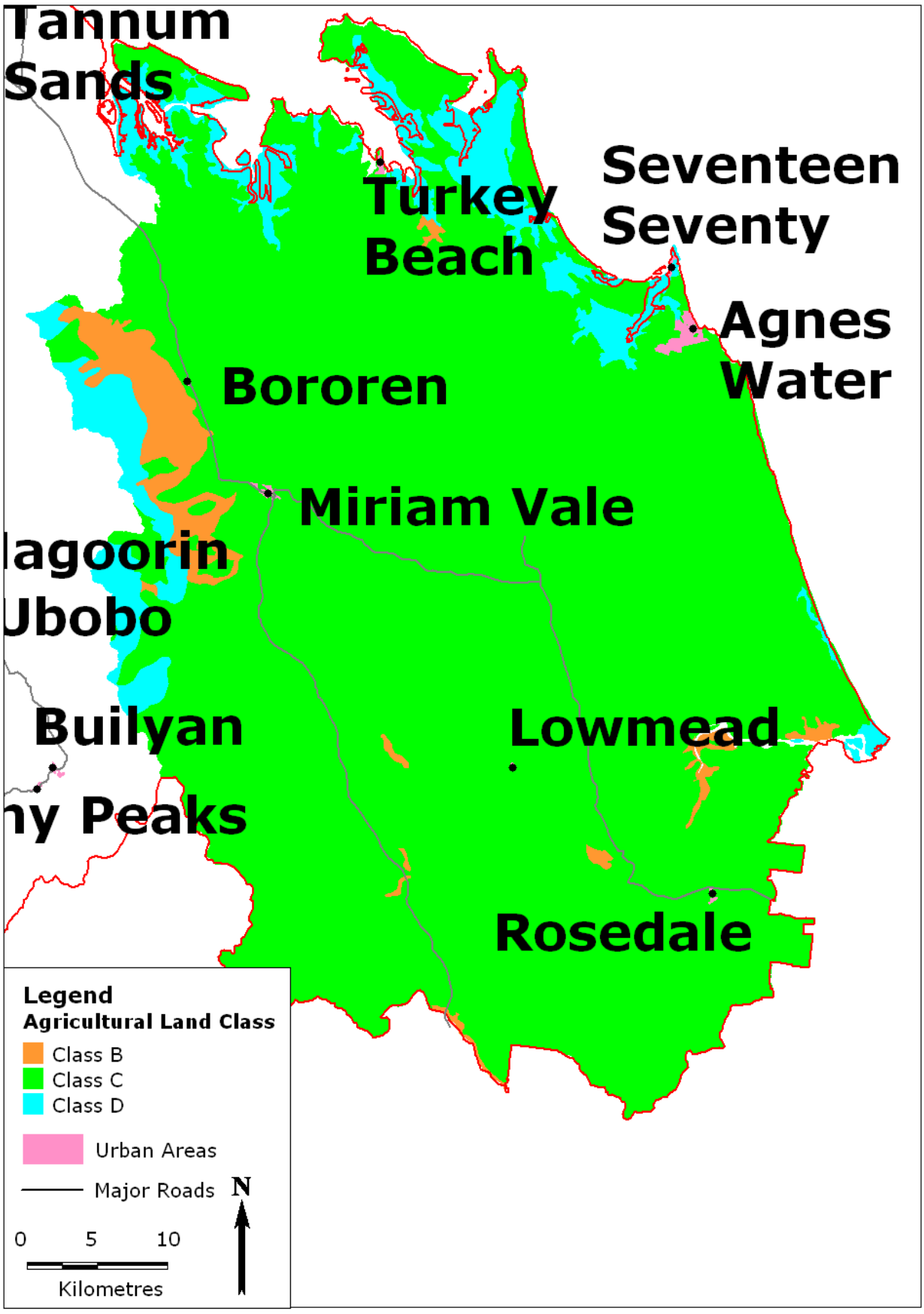
Map 5.2: Vegetation and Ecological Constraints
Source(Department of Environment and Resource Management)



Map 5.3: Flooding Constraints North



Map 5.4: Good Quality Agricultural Land North



Map 5.5: Good Quality Agricultural Land South

The preceding constraints maps have shown that there is a significant amount of the LGA that has either a high or moderate ecological constraint and there are some significant flooding issues around Gladstone, Calliope, Benaraby, Boyne Island and Tannum Sands. Most of the LGA is also class C agricultural land which is only capable for grazing. There are very little areas of land that would be suitable for intensive agriculture like horticulture or fruit trees.

Other constraints are the State Development Area and Extractive and Mineral resources – both existing and areas that have exploration licences / permits over them. The location of the State Development Area to the settlement of Mount Larcom means that there can not be any rural residential development around it. The Boyne Valley has been the subject of a Petroleum Lease Application for Petroleum and Oil Shale as well as coal seam gas. This application covers Nagoorin, Ubobo, Builyan and Manny Peaks which constrains the future growth of these settlements and any rural residential development surrounding them.

When applying the above criteria to identify further land for rural residential development, the first issue to consider is the settlement hierarchy. Settlements designated as town, district centre and regional centre should be the ones that have rural residential development located around them. The main reason for this is to proved the residents of the land with adequate and equitable access to services and facilities. When this is applied to the LGA, it is clear that the settlements to be targeted for future rural residential development are as follows:

- Gladstone
- Calliope
- Miriam Vale
- Agnes Water
- Boyne Island
- Tannum Sands

The supply and demand for each of these settlements as well as the future rural residential areas will be discussed in the following sections. Both Boyne Island and Tannum Sands have significant ecological, slope and flooding constraints for the land surrounding them so there is not any opportunity for additional rural residential development in these areas.

5.4.2. Demand and Supply

One indicator of the demand for rural residential development is the number of new dwellings. Data has been analysed for the past 8 years for the rural residential zone, rural zone and urban areas. This is shown in Table 5.1 and figure 5.2. The proportion of the dwellings from urban, rural residential and rural is shown in figure 5.3. It can be seen that the residential dwelling construction is increasing by a lot but that the rural residential and rural only slightly increasing. It can also be seen that the proportionality of the growth has been mostly in the urban areas and that the growth in the rural residential and rural are small. Over the total period the proportionality is 79.9% for urban, 14.5% for rural residential and 5.6% for rural dwelling construction.

Table 5.1: Dwelling House Construction 2004 - 2011

Year	Urban	% of Total	Rural Residential	% of Total	Rural	% of Total	Total	Total
2004	116	75.3%	28	18.2%	10	6.5%	154	100.0%
2005	254	78.4%	50	15.4%	20	6.2%	324	100.0%
2006	337	75.1%	101	22.5%	11	2.4%	449	100.0%
2007	449	79.0%	100	17.6%	19	3.3%	568	100.0%
2008	273	80.5%	40	11.8%	26	7.7%	339	100.0%
2009	151	69.3%	40	18.3%	27	12.4%	218	100.0%
2010	436	87.0%	37	7.4%	28	5.6%	501	100.0%
2011	335	86.1%	31	8.0%	23	5.9%	389	100.0%
Total Period	**2,351**	**79.9%**	**427**	**14.5%**	**164**	**5.6%**	**2,942**	100.0%
Average	**294**		**53**		**21**			

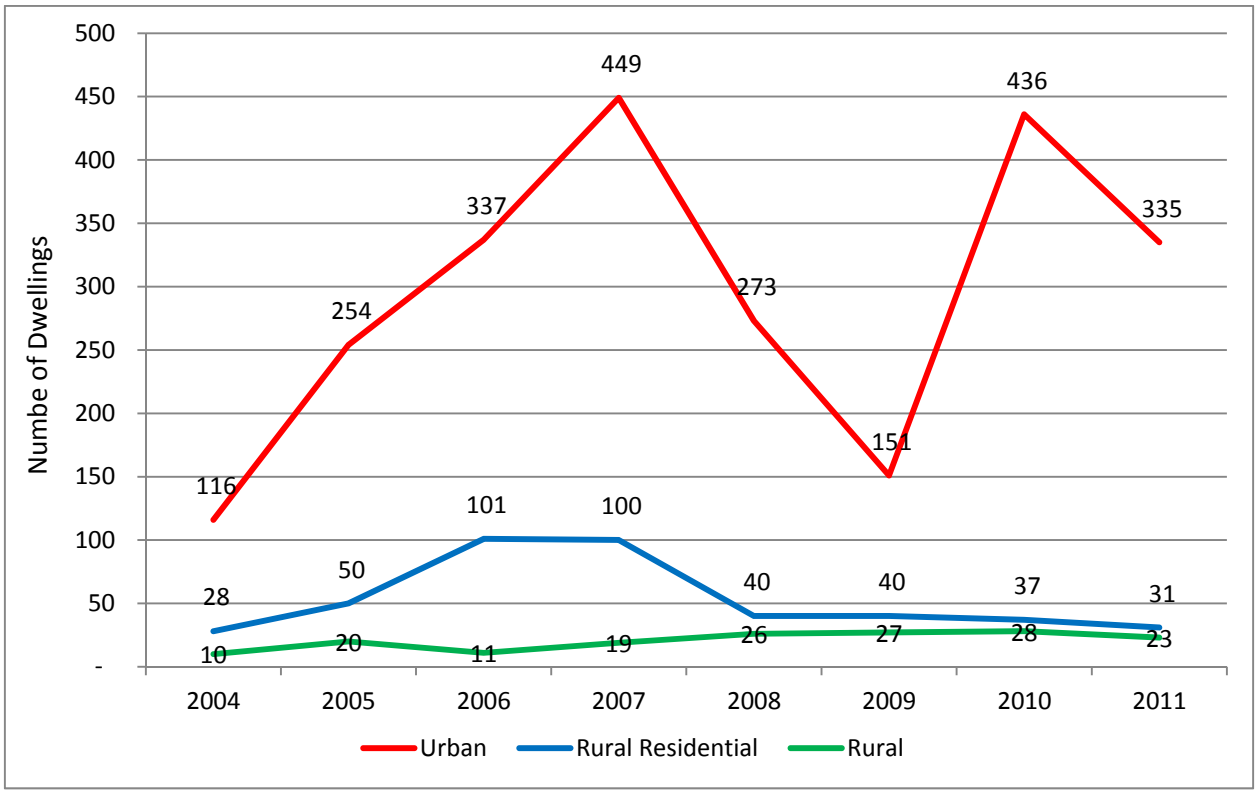


Figure 5.2: Dwelling House Construction 2004 - 2011
Source: Council Dwelling Construction Data

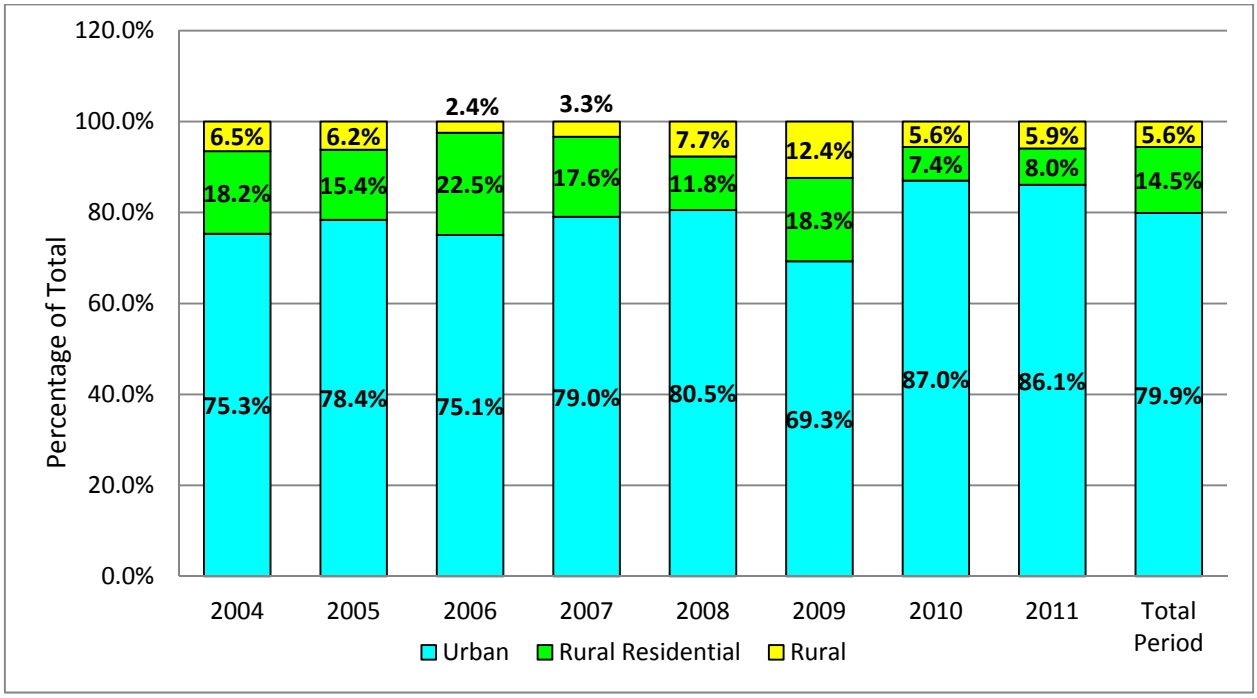
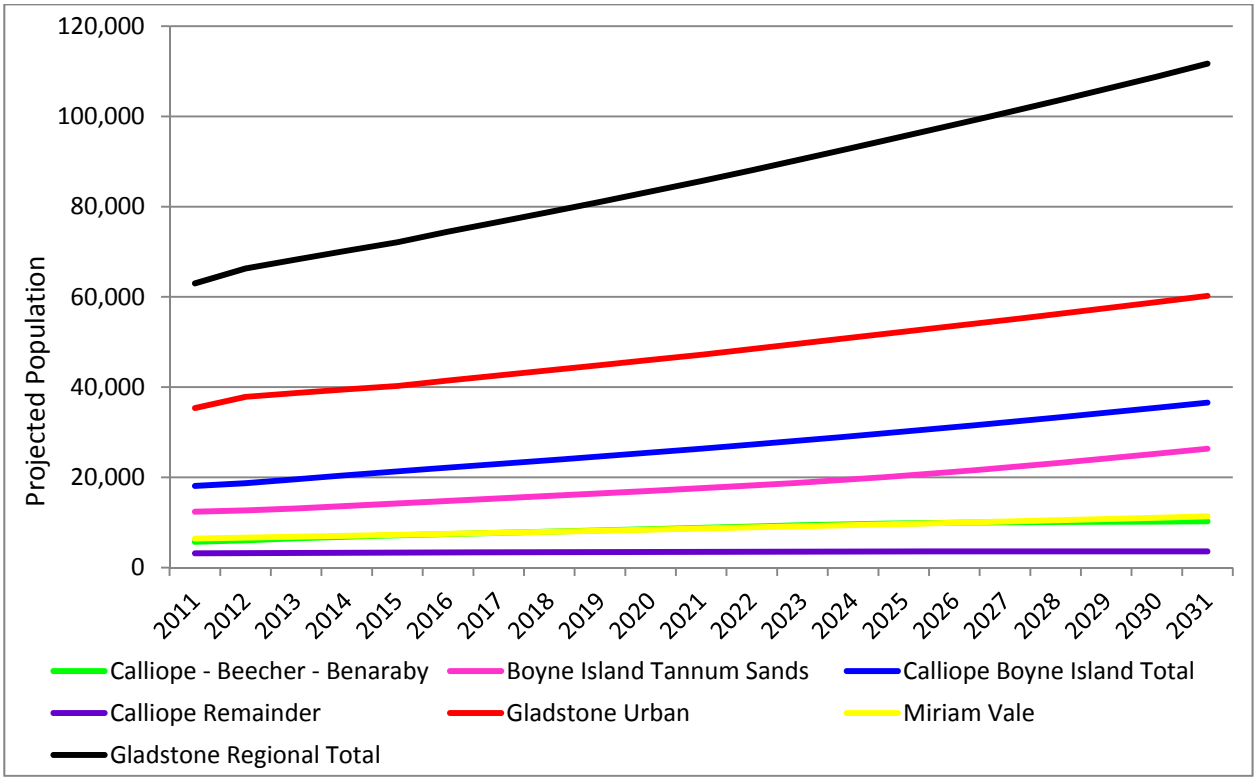


Figure 5.2: Dwelling House Construction 2004 - 2011
Source: Council Dwelling Construction Data

The Queensland Office of Economic and Statistical Research (OESR) have produced population projections from 2011 to 2031 and they are presented in figure 5.3 and Table 5.1 shows the population projections at 5 yearly intervals. It can be seen that the region as a total will have a population



Source: Queensland Office of Economic and Statistical Research

Table 5.2: Population Projections 2011 – 2031

	2011	2016	2021	2026	2031
Calliope Precinct	5,686	7,432	8,783	9,921	10,222
Boyne Island Precinct	12,383	14,775	17,577	21,198	26,336
Calliope Boyne Island Total	18,069	22,208	26,360	31,119	36,558
Calliope Remainder	3,136	3,328	3,480	3,549	3,582
Gladstone Urban	35,365	41,465	47,176	53,565	60,208
Miriam Vale	6,412	7,459	8,640	9,941	11,341
Gladstone Regional Total	**62,982**	**74,460**	**85,656**	**98,174**	**111,689**

Source: Queensland Office of Economic and Statistical Research

The OESR also produces dwelling projections for 5 yearly intervals for the Gladstone Region only. It does this by dividing the population by the occupancy rate. Using this method the dwelling projections can be calculated for each of the areas in table 5.2. This has a slight variation from the total projected population by OESR however, it is not considered to be sufficient to matter. The dwelling projections are presented as table 5.3.

Table 5.3: Dwelling Projections 2011 – 2031

	2011	2016	2021	2026	2031
Calliope Precinct	2,284	3,021	3,614	4,117	4,277
Boyne Island Precinct	4,973	6,006	7,233	8,796	11,019
Calliope Boyne Island Total	7,257	9,028	10,848	12,912	15,296
Calliope Remainder	1,259	1,353	1,432	1,473	1,499
Gladstone Urban	14,203	16,856	19,414	22,226	25,192
Miriam Vale	2,575	3,032	3,556	4,125	4,745
Gladstone Regional Total	**25,294**	**30,268**	**35,249**	**40,736**	**46,732**
OSER GRC Total	**25,273**	**30,265**	**35,177**	**40,671**	**46,655**

Using the proportionality of dwelling houses from table 5.1 the amount of dwellings projected to be needed for urban, rural residential and rural areas can be calculated.

Table 5.4: Rural Residential Dwelling Projections

	2011	2016	2021	2026	2031
Calliope – Beecher - Benaraby	331	438	524	597	620
Boyne Island - Tannum Sands	721	871	1,049	1,275	1,598
Calliope – Tannum Sands Total	1,052	1,309	1,573	1,872	2,218
Calliope Remainder	183	196	208	214	217
Miriam Vale – Agnes Water	373	440	516	598	688
Gladstone Regional Total	**3,668**	**4,389**	**5,111**	**5,907**	**6,776**

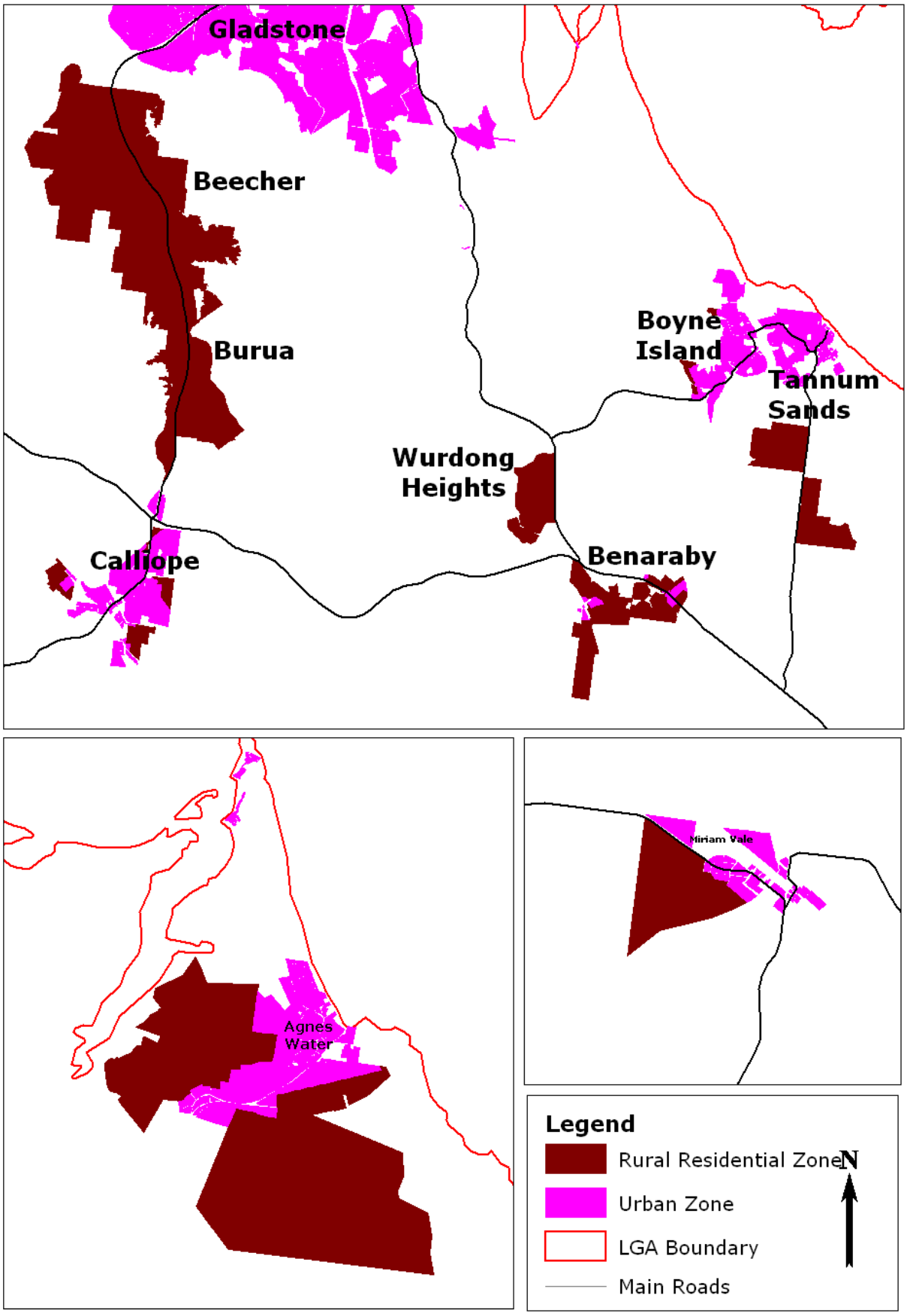
It can be seen therefore that there is demand for rural residential development as a proportion of the projected population of the region.

There is very little supply of rural residential development within the existing zones and when the constraints are added to this it does not leave much supply left. The supply of recommended rural residential development is discussed in the next section. The summary of the supply and demand is presented in table 5.5.

Table 5.5: Rural Residential Supply and Demand

Location	Supply	Demand
Beecher Burua	299	
Calliope	721	
Benaraby	163	
Beecher - Calliope - Benaraby Total	1,183	2,218
Calliope Rural		217
Agnes Water	218	
Miriam Vale	126	
Agnes Water Miriam Vale Total	344	688
Total Region	1,527	3,123

The demand for Beecher, Burua, Calliope and Benaraby is much more than the supply. This includes the demand for Tannum Sands and Boyne Island. It must be recognised that the average number of dwellings in rural residential zones has been 53 and if this is taken as the demand over the next 20 years it will yield 1,063 in total. It also should be noted that the supply numbers are the total subdivision potential and that it may not be achieved. Therefore that the supply and demand are considered to be adequate having regard to the implication of the rural residential criteria.



Map 5.6: Current Rural Fringe Zones

5.4.3. Future Rural Residential: Beecher – Burua

There is an existing rural residential zone covering the land in the Beecher – Burua localities which straddles the Dawson Highway from the edge of the Gladstone urban area in the north to the northern edge of the Calliope urban area in the south. This land has been subdivided and is nearly at the limits of its physical capabilities.

Map 5.4 shows the land use survey for the area and it can be seen that most of the land is used for rural residential use and that there is not much vacant land left. There are also some mango orchards in the north east however these are on small lots and their sustainability in the future is questionable due to potential land use conflict with the surrounding rural residential lots. The long narrow nature of a number of the larger lots makes it difficult to subdivide and also some of these have some slope constraints. The land use map also shows the areas that are covered in native vegetation and this land is also quite steep which makes it difficult to develop – from a slope as well as vegetation clearing issue.

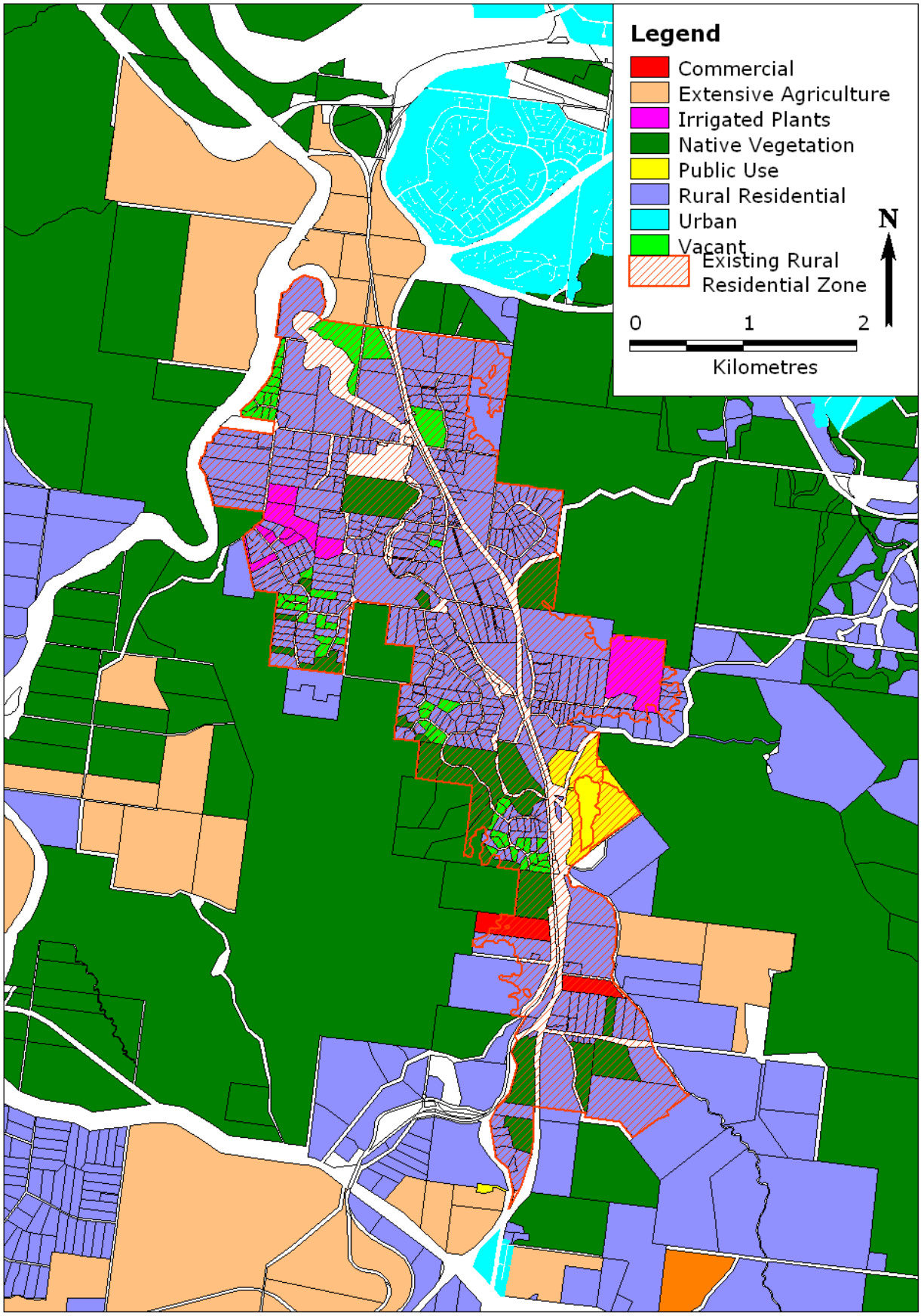
Map 5.8 shows the ecological constraints of the land and it can be seen that there are some significant ecological constraints on the land. The map also shows the contours which show that there is some land that is already zoned for rural residential development but which has slope constraints as well as being either moderate of high ecological significance. It is unlikely that this land will be developed in the future.

Map 5.9 shows the flooding constraints on the land. This shows that there is a floodway running through the zone which is a constraint to development – both for developing the land as well as for gaining access through it.

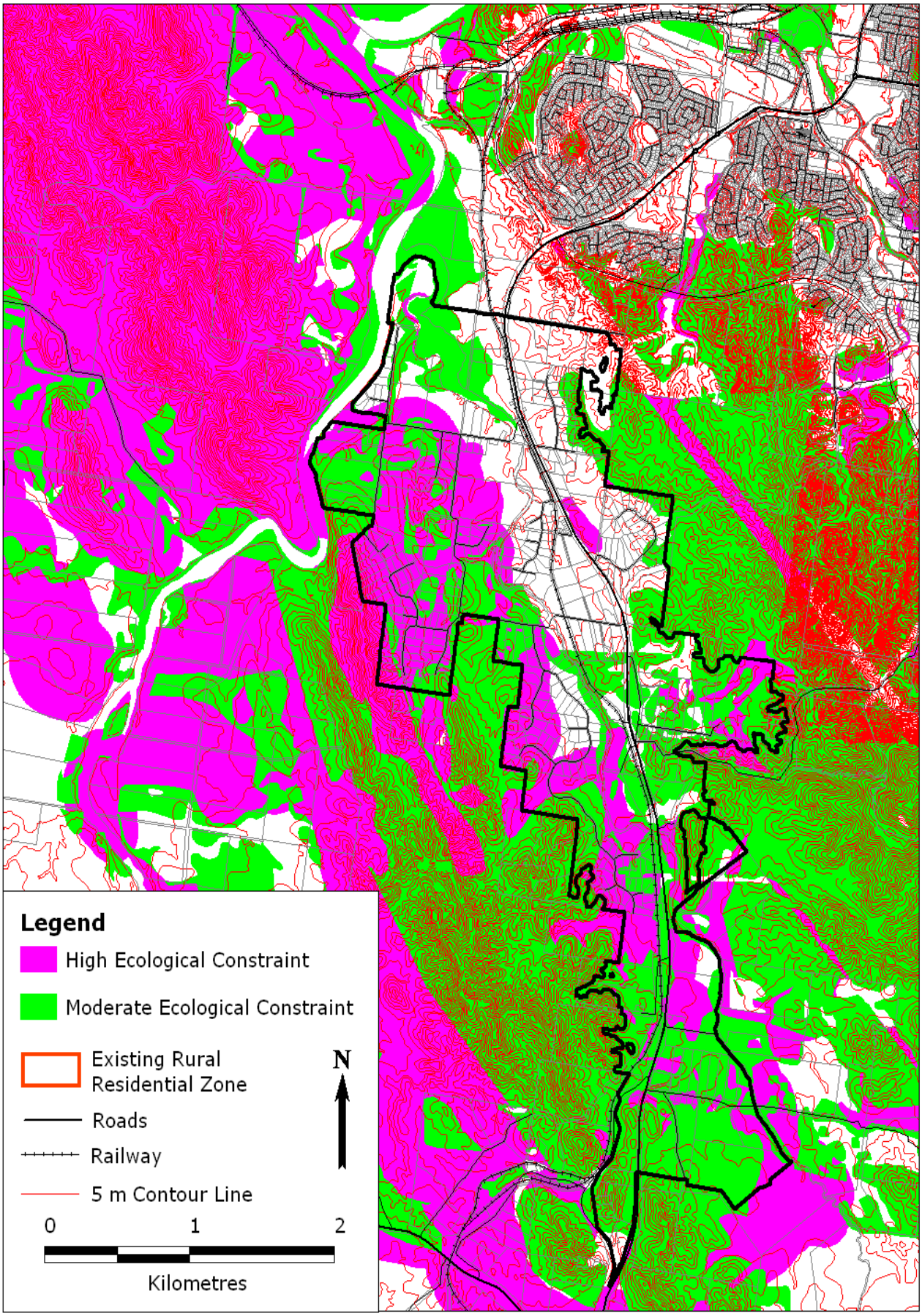
These constraints have shown that there is a need to reduce the amount of land for rural residential development in the Beecher – Burua area because of the steepness of some of the land as well as the presence of high value native vegetation and flood prone land. This leaves some land for potential development but not much.

The revised rural residential designation is shown on map 5.10.

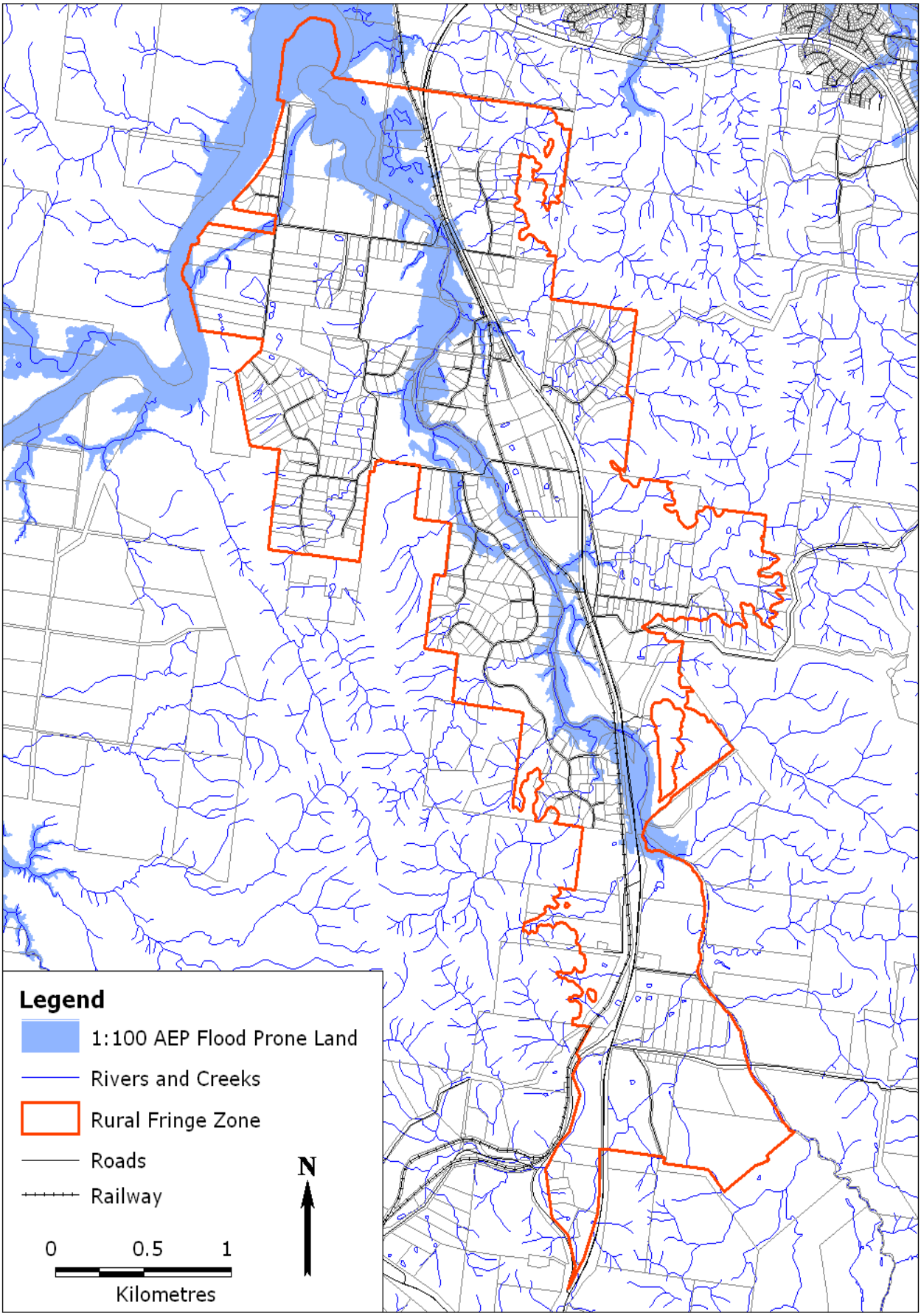
This will yield a total of 299, 1 ha lots.



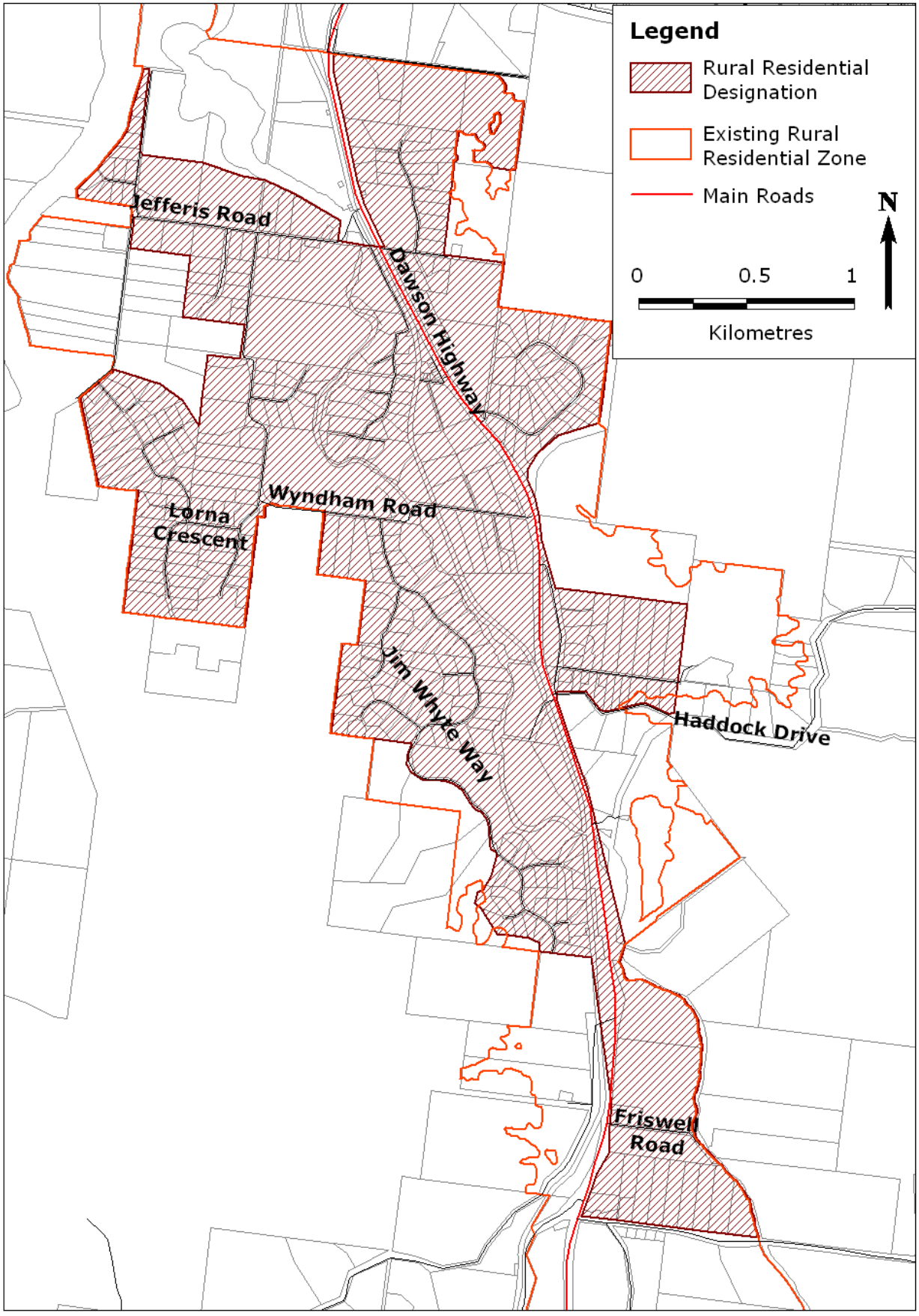
Map 5.7: Land Use Beecher – Burua



Map 5.8: Ecological Constraints Beecher – Burua



Map 5.9: Flooding Constraints Beecher – Burua



Map 5.10: Recommended Rural Residential Designation Beecher – Burua

5.4.4. Future Rural Residential: Benaraby and Wurdong Heights

There are rural residential zones at Benaraby and Wurdong Heights. There is also some small areas of residential zoning at Benaraby – one on Awoonga Dam Road near the railway line and the other on both sides of the Bruce Highway where the shops and service station and caravan parks are.

Map 5.11 shows the land use survey for the area and it can be seen that most of the land use used for rural residential use and there is not much vacant land left. The large vacant lot to the south of the Bruce Highway in Benaraby is currently being subdivided. Wurdong Heights is virtually full up with only 3 vacant lots which have slope constraints. There are some large lots currently used for rural residential use along Leferlink and Manning Roads to the south of the Bruce Highway.

Map 5.12 shows the ecological constraints. It can be seen that there are some significant ecological constraints, particularly along the Boyne River and the steeper land. This limits the expansion of Wurdong Heights to the north and west and Benaraby to the south west.

Map 5.13 shows the flooding constraints on the land. This shows that the Boyne River floods most of the land to the north and east of Benaraby and the east of Wurdong Heights which limits the expansion opportunities.

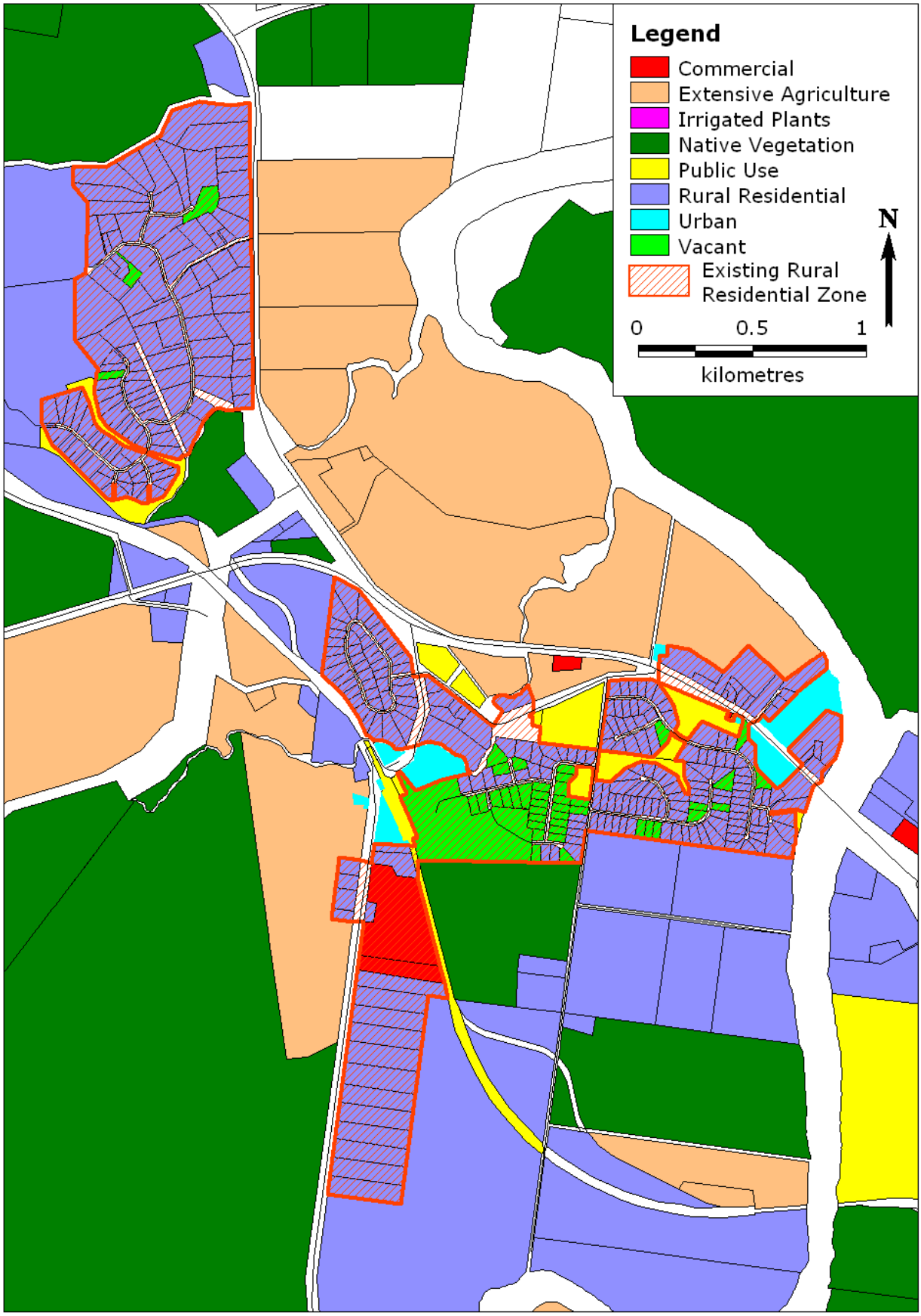
The railway line is a constraint to any development along Awoonga Dam Road because of the need to cross the railway line at the level crossing, which has some safety issues.

These constraints have shown that there is only land to the south of the existing rural residential zone along Leferlink and Manning Roads. The land that would be suitable is on both sides of Manning Road on the eastern side of Leferlink Road. Land on the western side of Leferlink Road would also be suitable except for the lots with slope and ecological constraints.

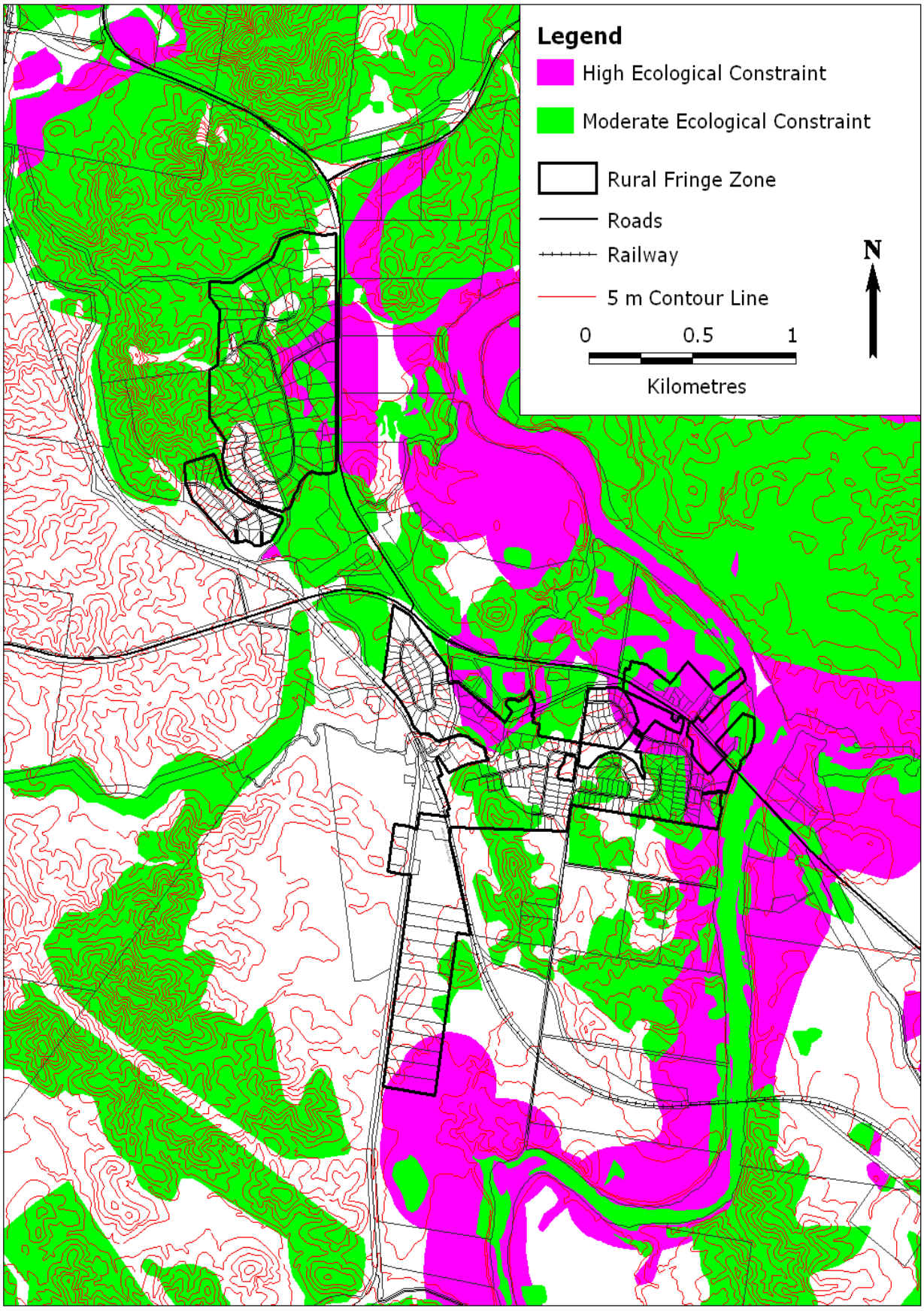
There is not any reason for keeping the residential zoning in the Benaraby area. The existing commercial uses can remain as they have existing use rights. It is recommended that the land be rezoned to rural residential.

The revised rural residential designation is shown on map 5.14

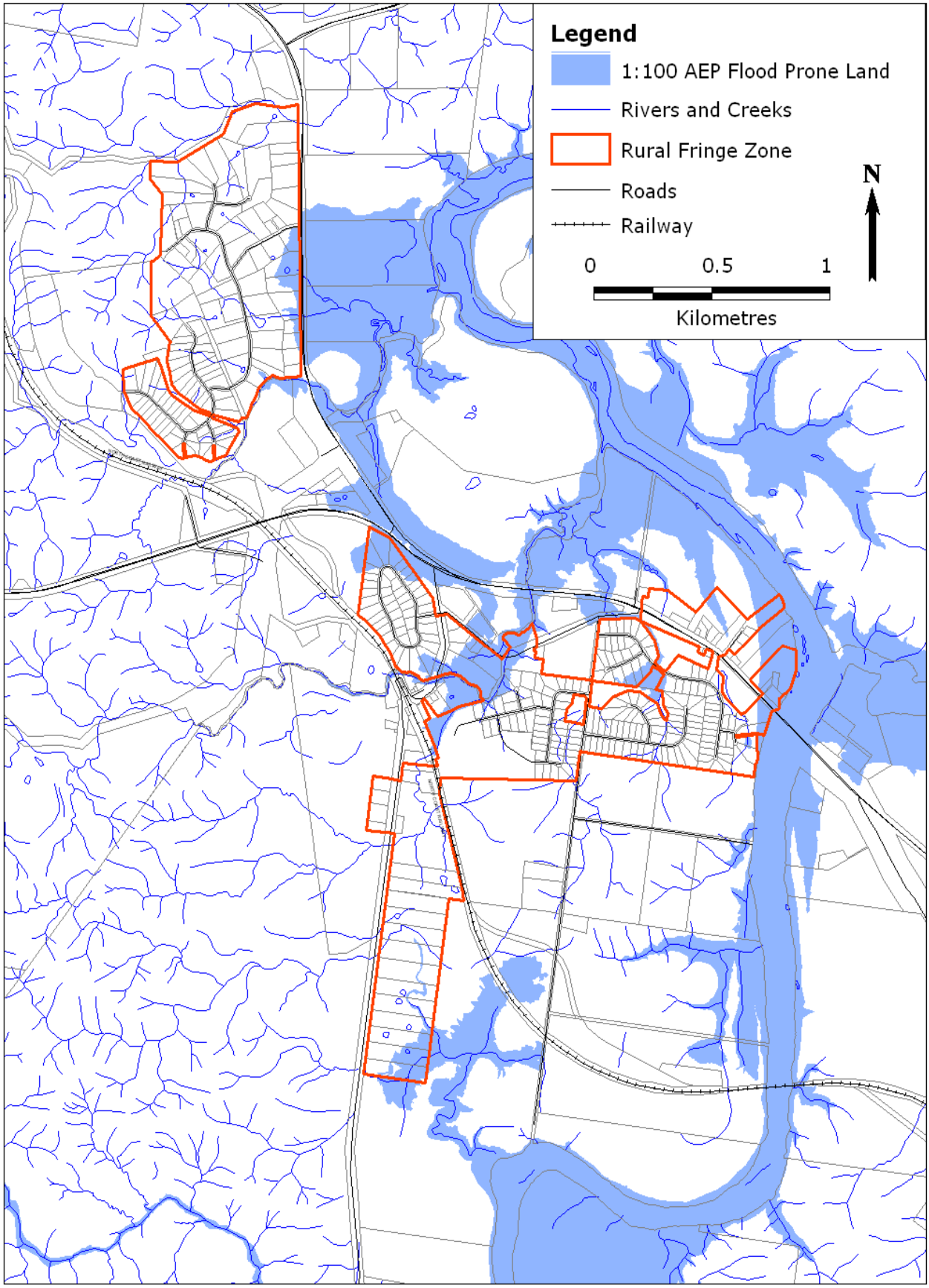
This will yield a total of 163, 1 ha lots.



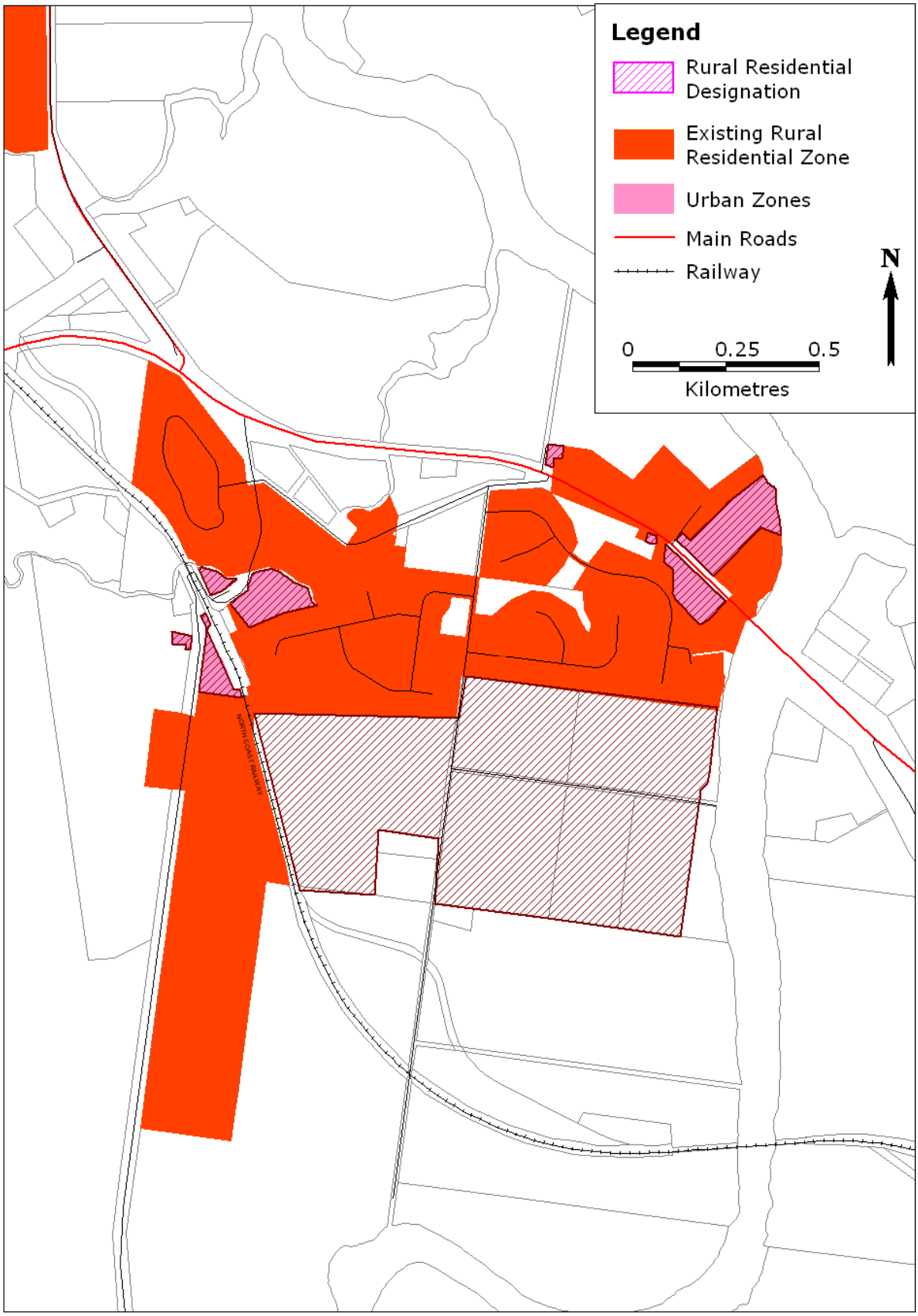
Map 5.11: Land Use: Benaraby and Wurdong Heights



Map 5.12: Ecological Constraints: Benaraby and Wurdong Heights



Map 5.13: Ecological Constraints: Benaraby and Wurdong Heights



Map 5.14: Recommended Designations: Benaraby and Wurdong Heights

5.4.5. Future Rural Residential: Miriam Vale

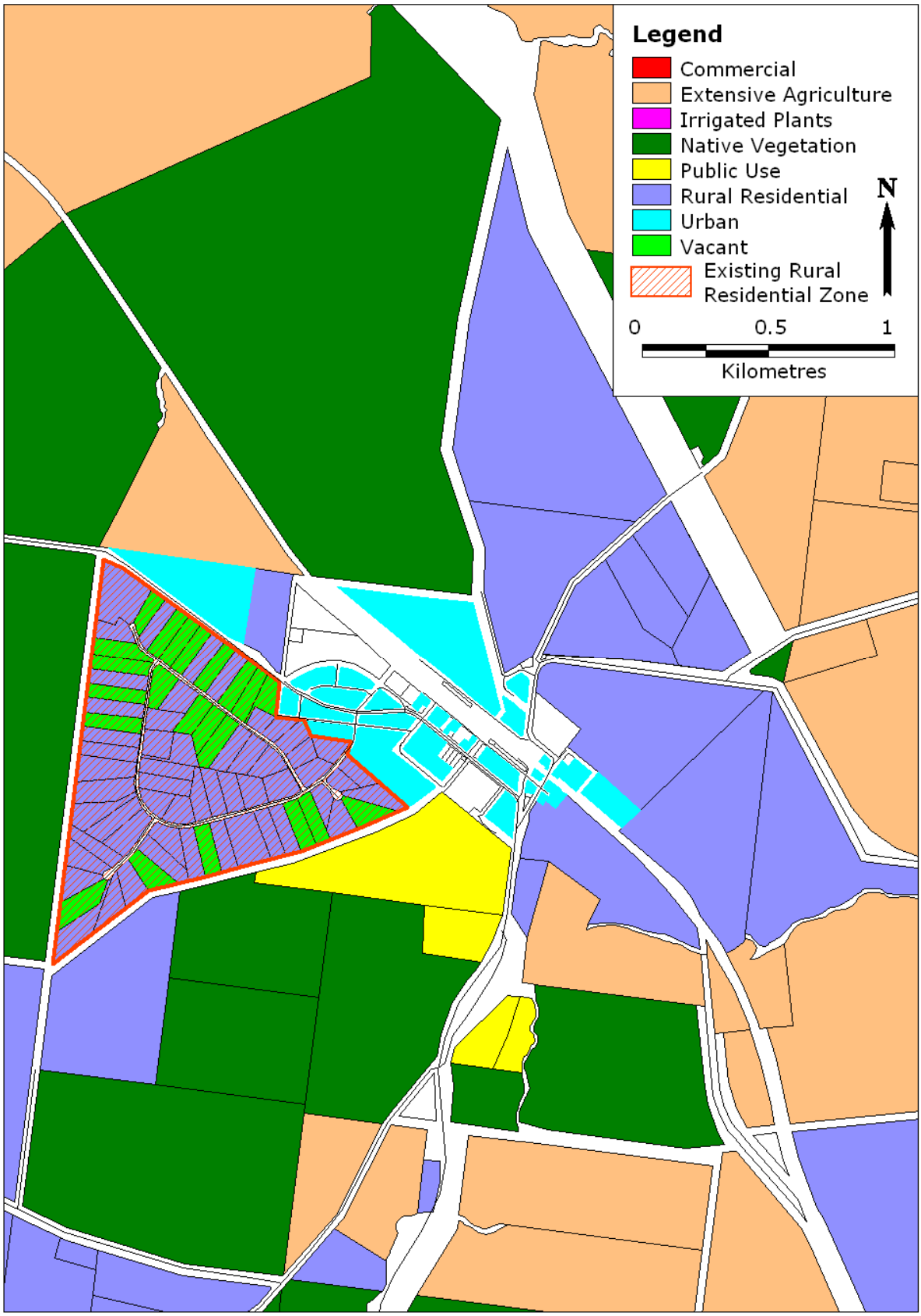
There is an existing rural residential zone to the south east of Miriam Vale which adjoins the urban area.

Map 5.13 shows the land use survey for the area and it can be seen that there are some vacant lots but that the area is nearly built out.

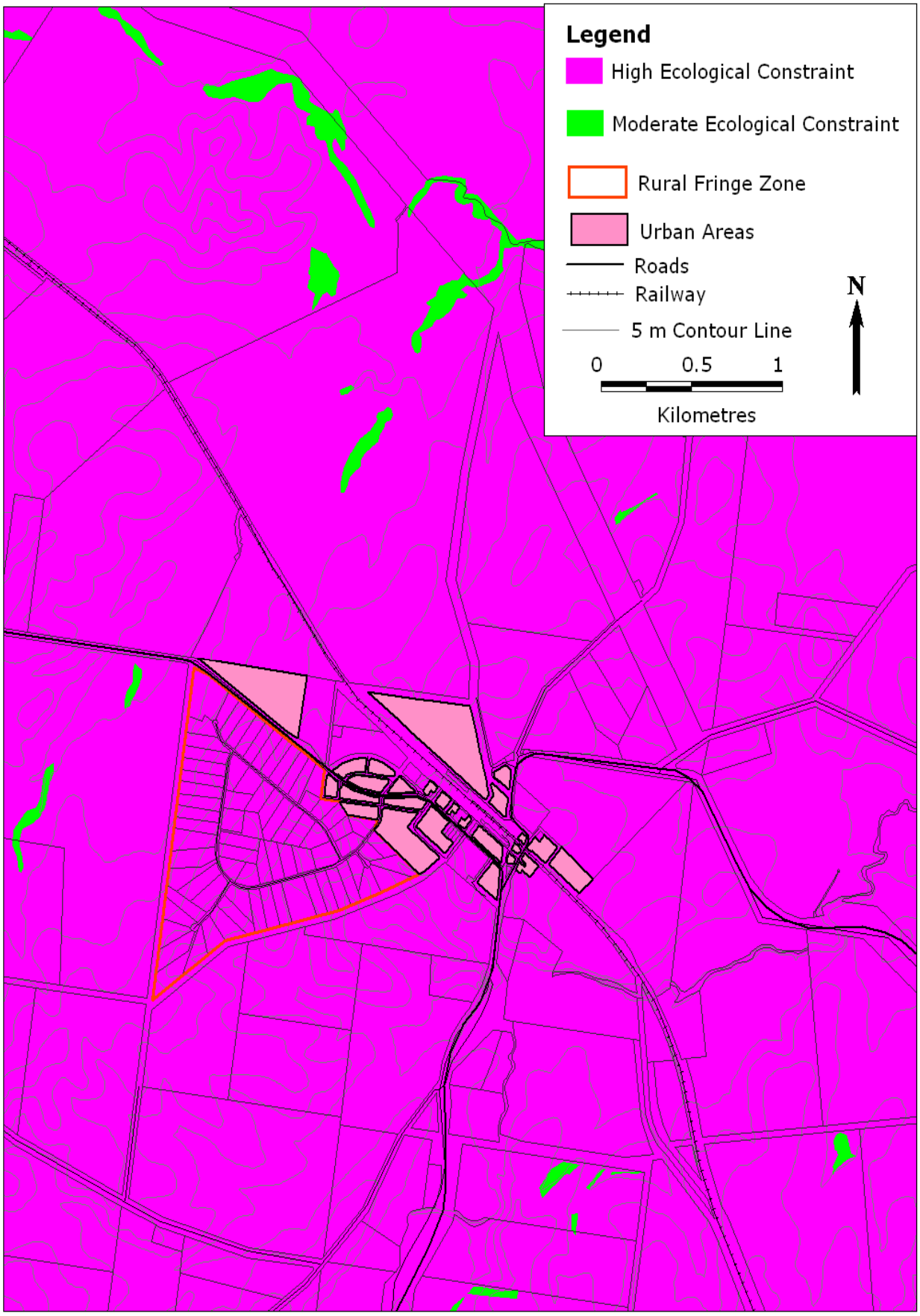
Map 5.14 shows the ecological constraints for Miriam Vale. This shows that there is a lot of land with ecological significance around the town. However as can be seen from map 5.15, there is some cleared land that would suggest it does not have as high ecological significance as the vegetated land.

These constraints have shown that there is some land that is suitable for future rural residential development to the north of the town on the eastern side of the railway line. The land is shown on map 5.16.

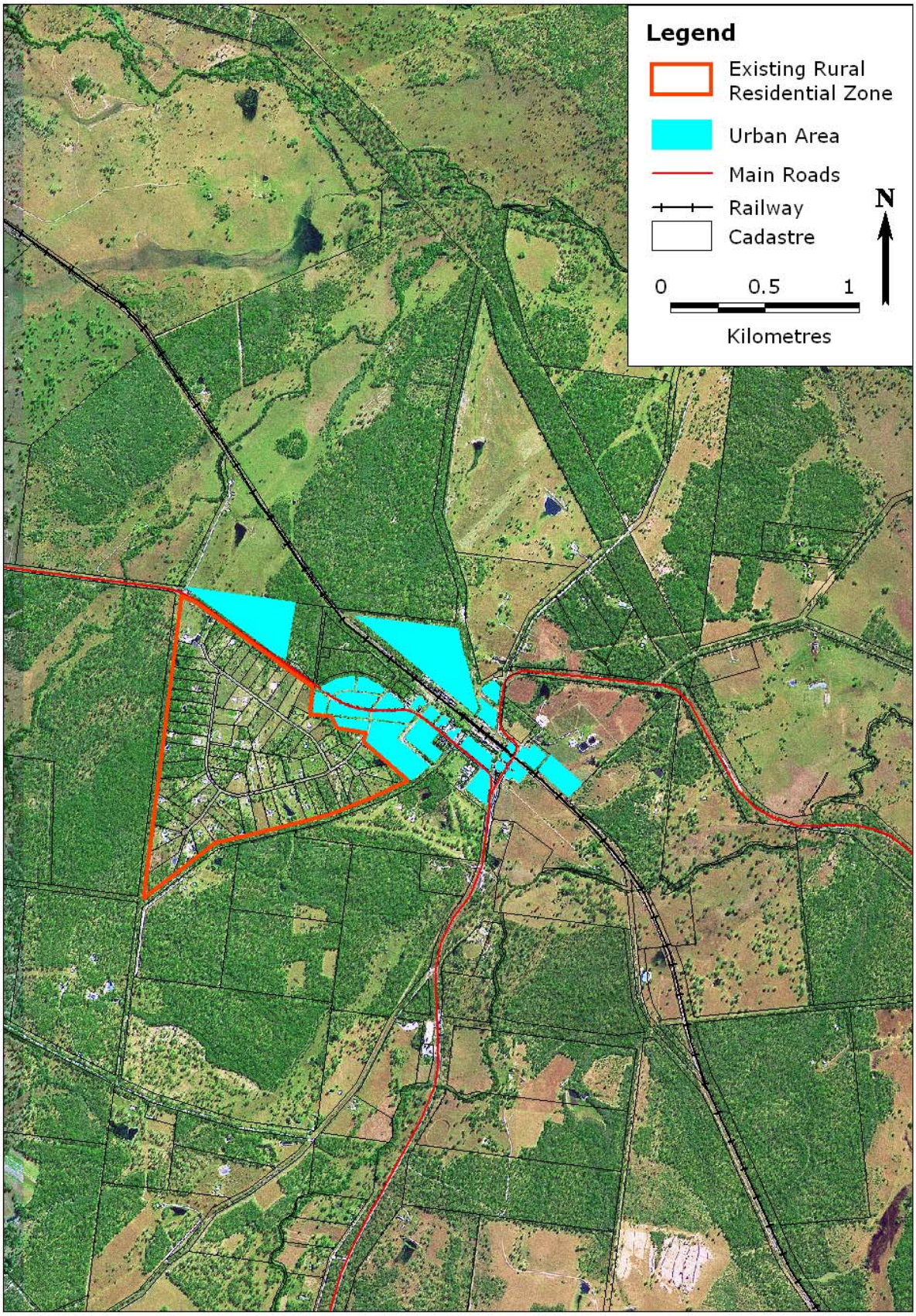
This will yield a total of 126, 1 ha lots.



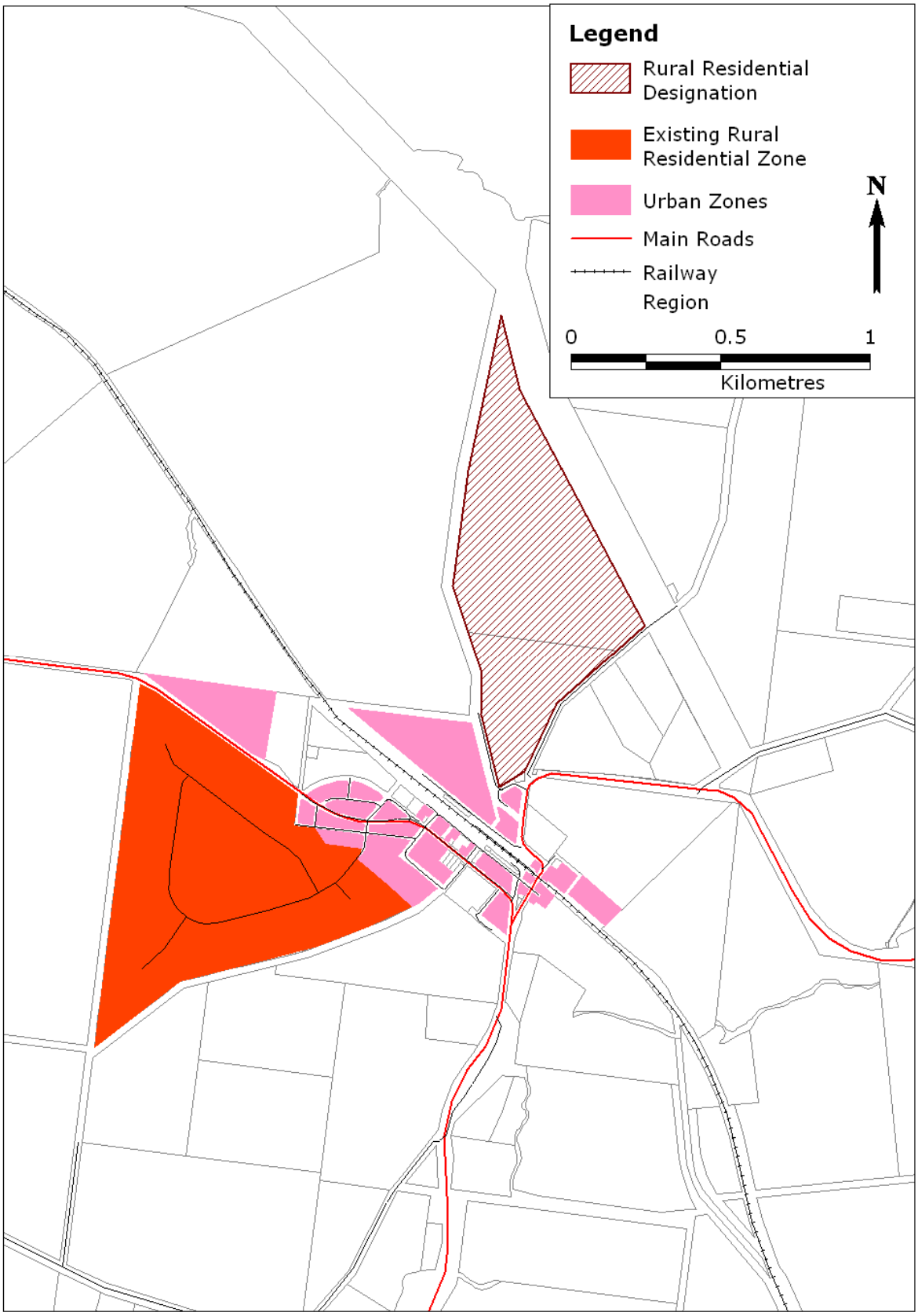
Map 5.15: Land Use Miriam Vale



Map 5.16: Ecological Constraints Miriam Vale



Map 5.17: Aerial Image Miriam Vale



Map 5.18: Recommended Designations Miriam Vale

5.4.6. Future Rural Residential: Agnes Water

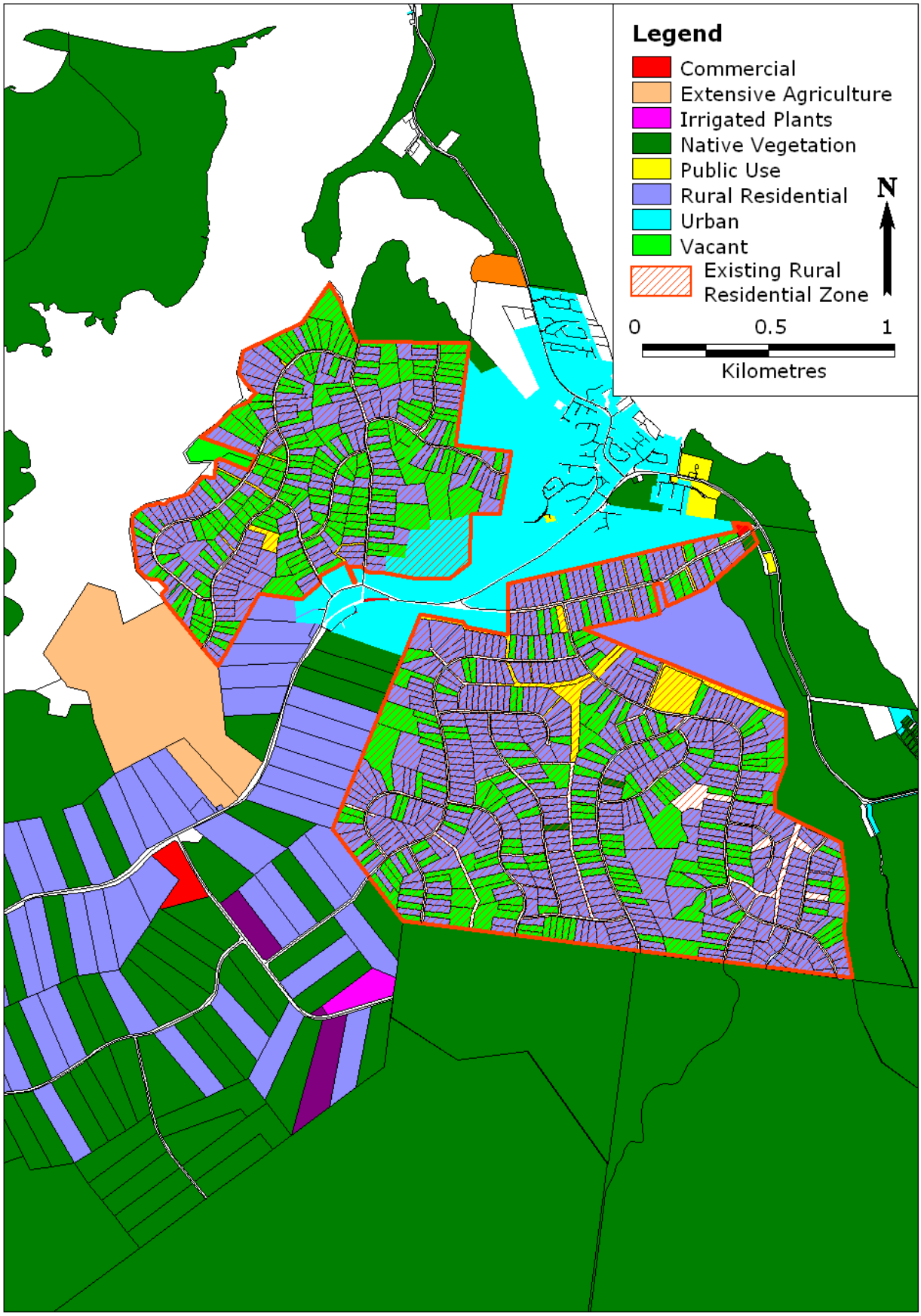
There is an existing rural residential zone to the south east of Miriam Vale which adjoins the urban area.

Map 5.19 shows the land use survey for the area and it can be seen that there are a number of vacant lots.

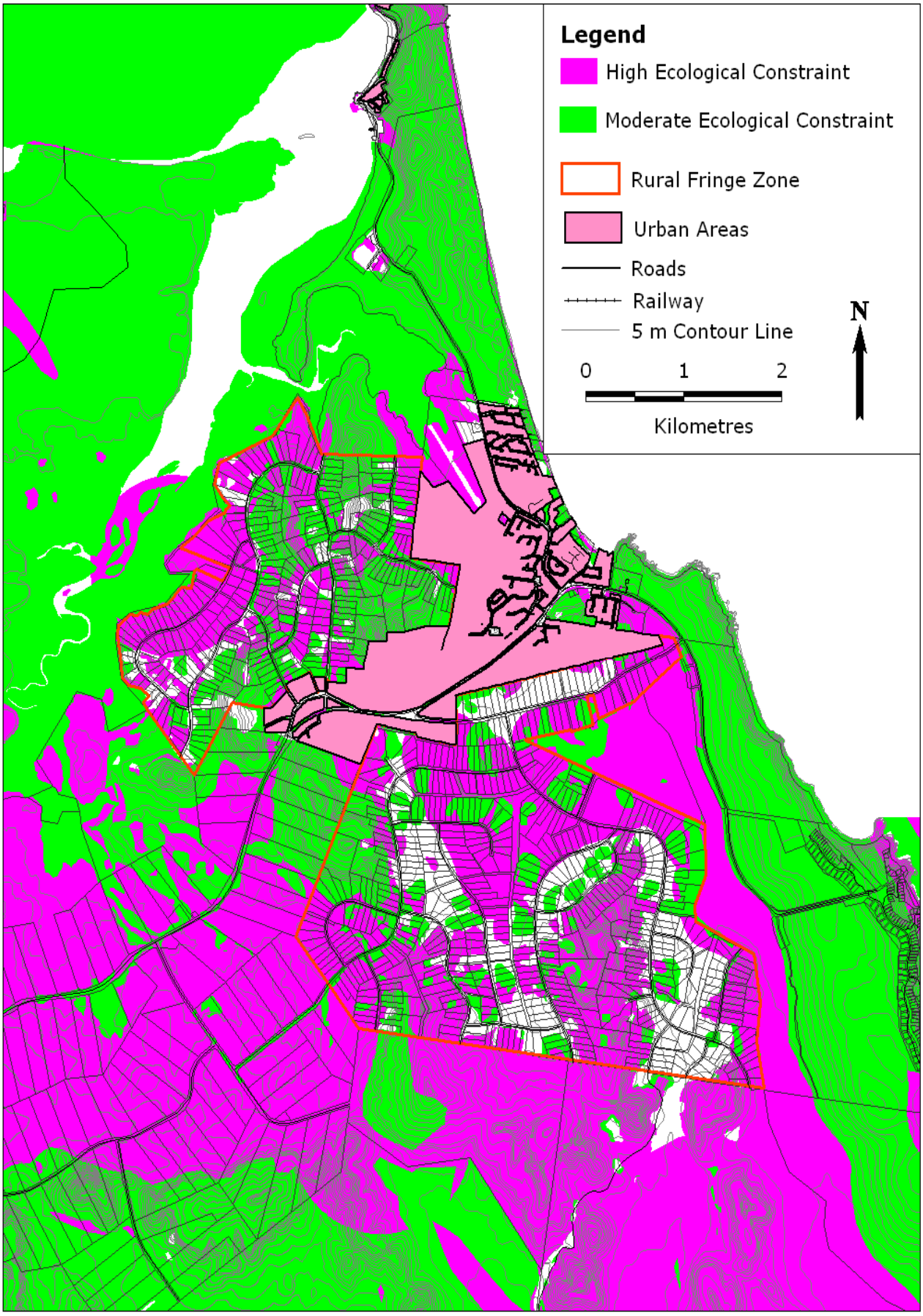
Map 5.20 shows the ecological constraints for Agnes Water. This shows that there is a lot of land with ecological significance around the town.

These constraints have shown that there is some land that is suitable for future rural residential development to the west of town on the main road. It is shown on map 5.21.

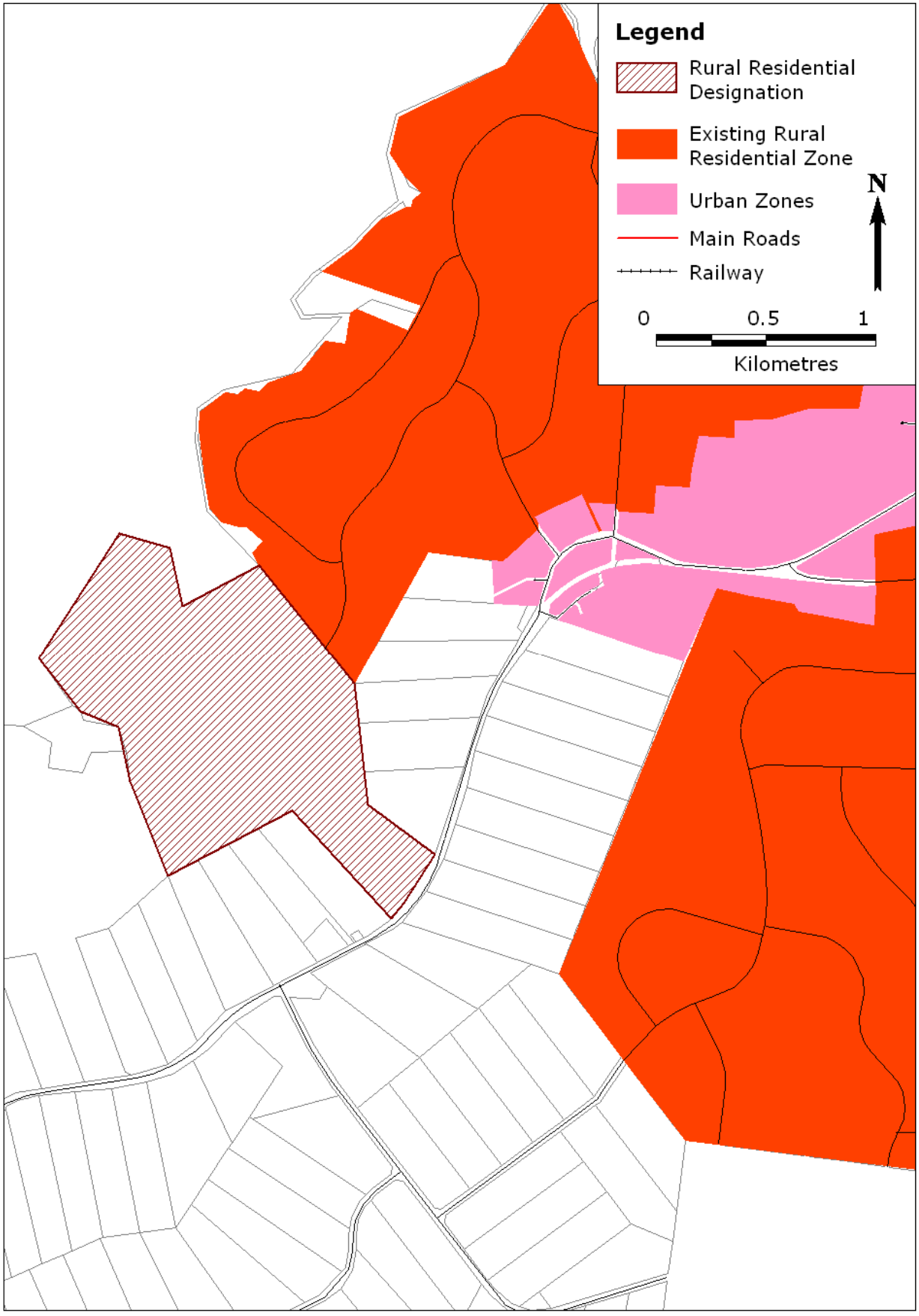
This will yield a total of 218, 1 ha lots.



Map 5.19: Land Use Agnes Water



Map 5.20: Ecological Constraints Miriam Vale



Map 5.21: Recommended Designations – Agnes Water

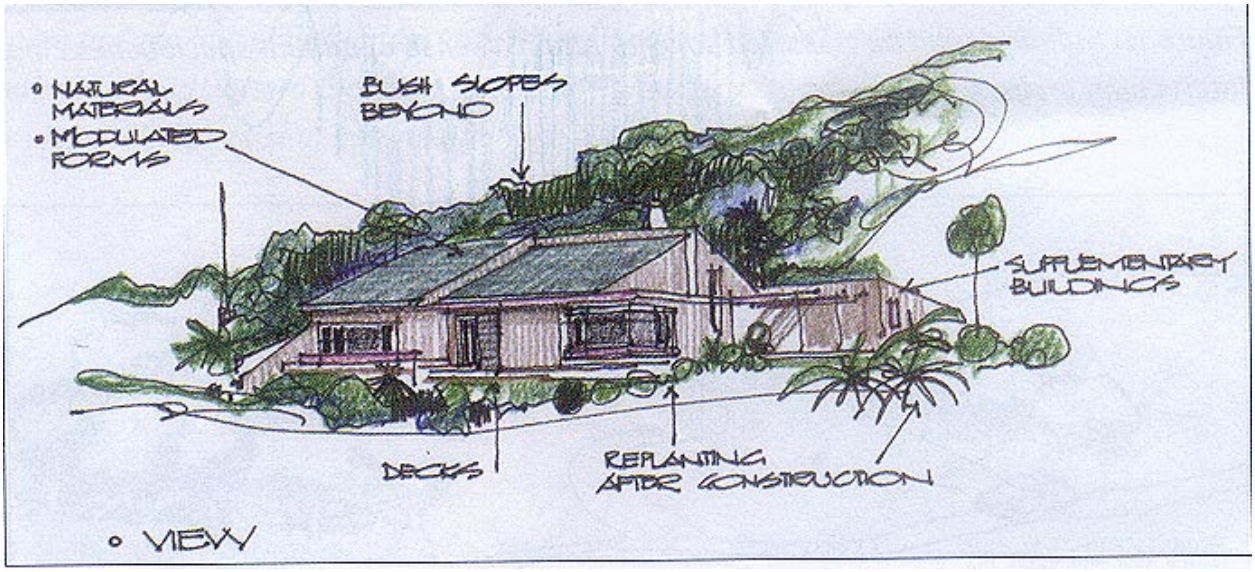
5.5. Dwelling Siting Guidelines

The siting of dwelling houses has potential to have a major impact on the landscape quality of an area. This impact can emanate from the following:

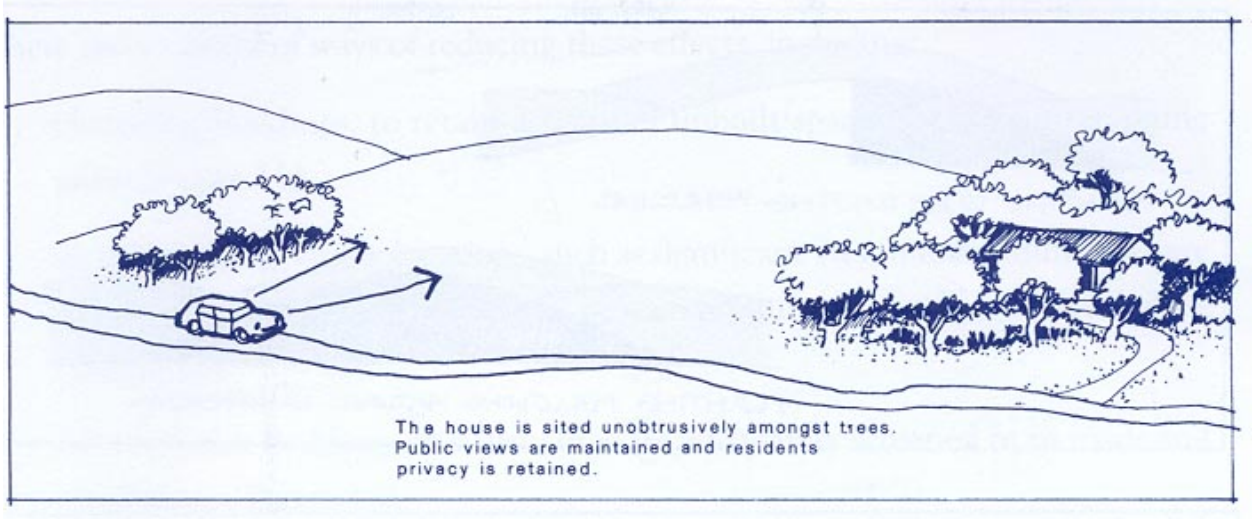
- Siting of dwellings
- Height and Scale
- Colour
  - ⇨ Walls
  - ⇨ Roof
- Vegetation
- Accessways
- Fences

DO YOU WANT ME TO INCLUDE PHOTOS OF GOOD AND BAD APPROACHES? I HAVE SOME FROM THE LGA BUT DON'T THINK IT IS WISE TO INCLUDE THEM

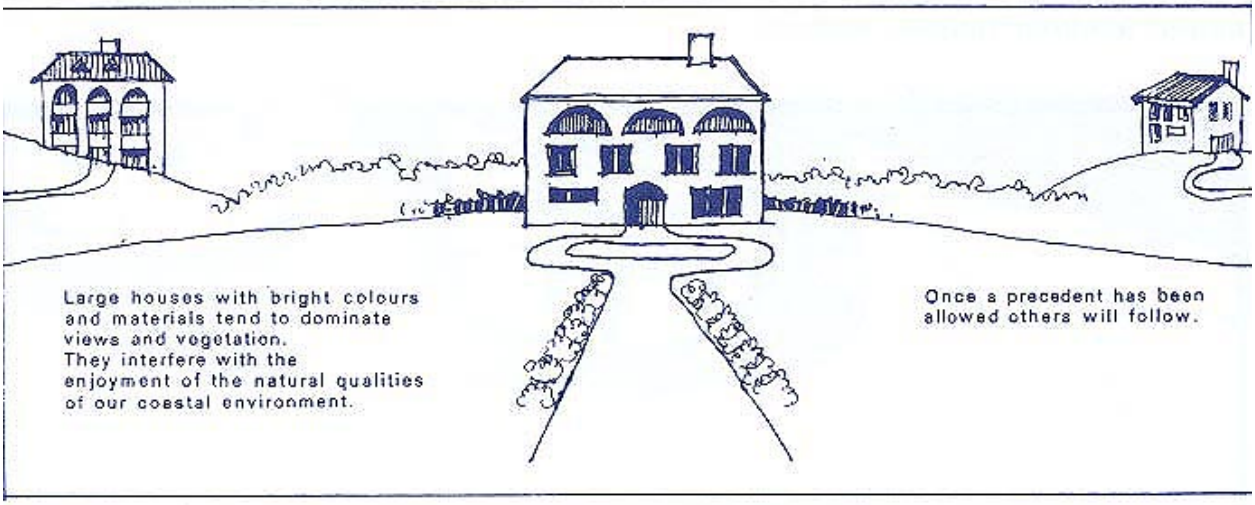
The following figures provide examples of why these are an impact.



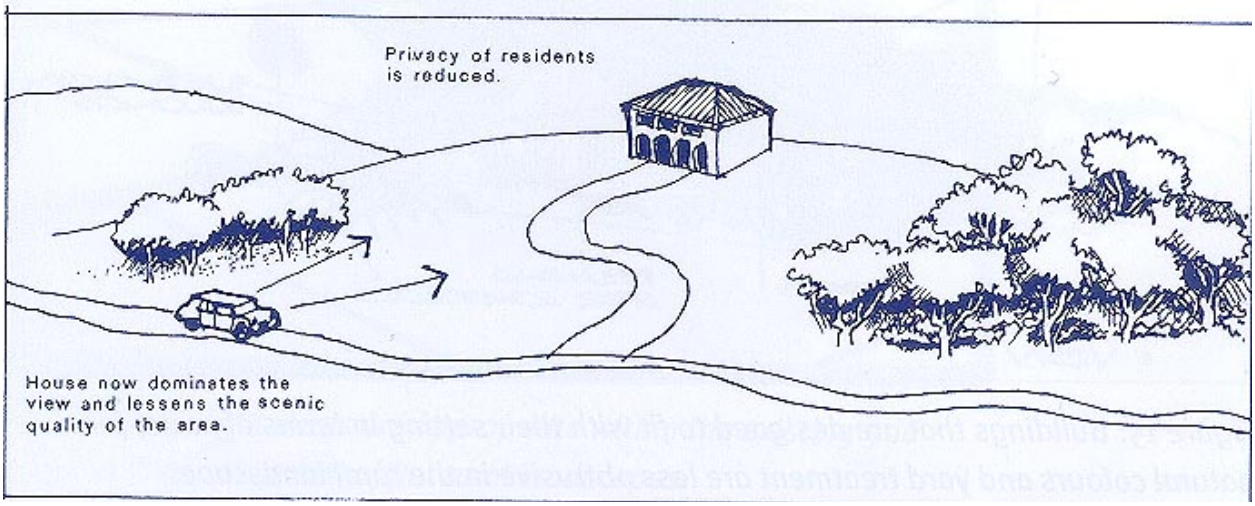
Siting of Dwellings
Source: NZ Ministry for the Environment



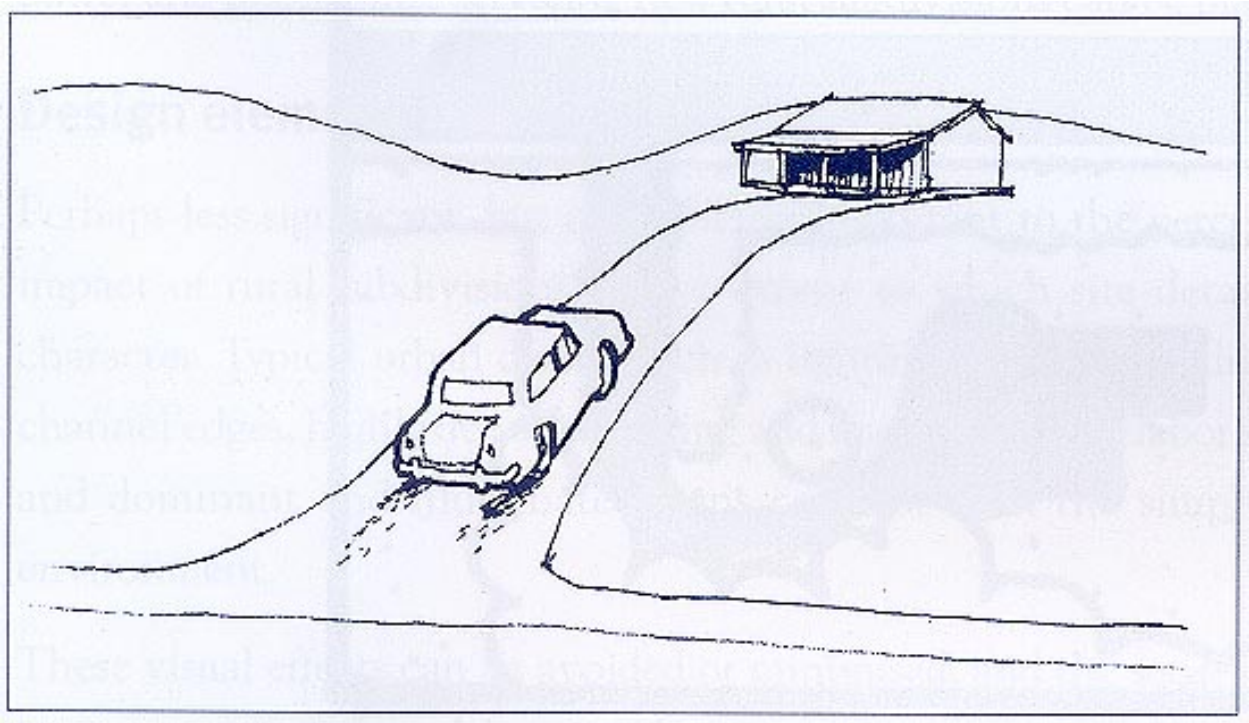
Good House Siting
Source: NZ Ministry for the Environment



Bad House Siting
Source: NZ Ministry for the Environment



Bad House Siting
Source: NZ Ministry for the Environment



Bad use of Access ways
Source: NZ Ministry for the Environment

The following are development principles that should be incorporated in any development controls for siting of dwelling houses.

- Houses should blend in with the surrounding landscape;
- Buildings are not to be sited on ridge lines or in prominent locations;
- Use trees as a backdrop to blend the houses into the landscape;
- Houses are to be of low scale and long rather than short and high in form;
- Use veranda's to conceal the presence of reflective windows;
- Colours of walls should be of earthy dark tones;
- Roofs should be of a similar hue to the walls and not be reflective; and
- Proximity to boundaries to ensure that appropriate distances are kept between the buildings in the landscape.

Chapter 7: Conclusion

Gladstone Regional Council are investigating the potential for rural residential development for the future.

Rural residential development occurs throughout the region in 2 different types – estates with lots of 1 – 2 ha in Beecher, Burua, Calliope, Benaraby, Wurdong Heights, and Agnes Waters. The other type are scattered throughout the rural areas on lots of 1, 2 , 4 and up to 40 ha in size.

The Region is projected to grow over the next 20 years and it is anticipated that rural residential development will form part of this growth.

A set of rural residential development criteria have been applied to the region and rural residential development is proposed to occur in the following locations:

- Beecher – Burua
- Benaraby
- Miriam Vale
- Agnes Water

The recommended areas should be incorporated into the new planning scheme.

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Appendix 1: Land Use Survey Methodology

A major component of this study has been a land use survey of all of the land within the rural parts of the LGA. The purpose of the land use survey is to gain an indication of the land use trends.

The preparation of a land use survey is one of the most important components when studying rural land. .

The land uses to be surveyed have been categorised into primary and secondary land use categories. The primary land use categories are as follows:

- Rural Residential
- Irrigated Plants
- Intensive Animals
- Extensive Agriculture
- Vacant Zoned
- Commercial
- Extractive industries
- Public Use
- Village
- Native Vegetation

Definitions of each use which were used for the purpose of identifying the land uses are as follows:

- *Rural Residential* means a house on a lot that is greater than 1 ha generally, and is in a rural environment where the main source of income is from other sources than agriculture use of the land.
- *Irrigated plants* means the growing of vegetables and ornamental plants for commercial gain using the application of irrigated water and includes market gardening, protected cropping structures, orchards, vineyards, and other similar uses.
- *Intensive Animals* means the rearing of animals using a feeding method other than natural grazing and includes poultry and piggeries mainly.
- *Extensive Agriculture* means the growing of plants using natural rainfall or the rearing of animals using grazing as a feeding method. It also includes the growing of fodder crops and irrigated pasture.
- *Vacant Zoned* land is land that is zoned for rural residential use and is mostly cleared of native vegetation and which does not have any dwellings or other structures on it.
- *Commercial* uses are uses that are used for a commercial or industrial type of use and which do not have any dwellings associated with them.
- *Extractive Industry* means a use that extracts material from the land and includes sand and clay mining and quarrying of sandstone and other stones.
- *Public Uses* mean a use that is commonly used and or operated by a public authority or associated body. It includes community facilities, golf courses and Government owned uses of the land
- *Native Vegetation* means a lot that has no dwellings or structures on it and which has the majority of the land covered in native vegetation.

The detailed categorisation is presented in the following table:

LAND USE SURVEY CODES

PRIMARY		SECONDARY	
Description	**Code**	**Description**	**Code**
Rural Residential	RR	Dwelling	DW
Vacant	VA	Cleared Land	CL
Native Vegetation	NV	Native Vegetation	NV
		National Park	NP
Irrigated Plants	IP	Irrigated	IR
		Orchard	OR
Intensive Animals	IA	Aquaculture	AQ
Village	VI	Urban	UR
Extractive Industry	EI	Hard Rock	HR
		Limestone	LI
Extensive Agriculture	EA	Grazing	GR
Public Use	PU	Bushfire Brigade	BF
		Church	CH
		Council	CL
		Crown Land	CR
		Electricity	EL
		Hall	HL
		School	SL
		Telstra	TL

There are 3 components to the carrying out of the land use survey as follows:

- Preliminary identification of land use.
- Study area inspection.
- Data entry and mapping.

Preliminary identification of land use occurred in the office prior to the field inspection. Each lot is coded with a unique code for the prime and secondary land use using a Geographic Information System (GIS). The prime land use comes from the above list and the secondary land use will identify the type of use. For example, a prime land use might be irrigated plants and a secondary use might be market garden or protected cropping. This list has been customised to the individual situation. This was done using aerial photography and satellite imagery which is georectified to match the cadastre. An assumption can be made that a dwelling house rural residential uses except where they are vacant. An assumption was also made that lots less than 40 ha which did not have an intensive agricultural or commercial, industry, public or government use were rural residential. A map was then produced with contrasting colours are assigned to the codes to show where the individual uses are. In particular,

they show where the rural residential, urban and non-agricultural uses are located in relation to the agricultural uses.

The study area inspection was carried out by windscreen survey of all of the roads within the rural parts of the LGA. This was done to check the primary land use categories and also to enter secondary ones that could not be identified from the aerial photos. As each road is driven on the land use is clarified against the preliminary identification. Signage, which gives an indication that the property may be use for a secondary use such as a home business or a commercial use was also noted.