ESSENTIAL ECONOMICS

Northern Geelong Growth Area

Urban Form and Capacity Assessment

Prepared for

Lovely Banks Development Group

by

Essential Economics Pty Ltd

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Disclaimer

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INTRODUCTION

Background

Lovely Banks Development Group commissioned Essential Economics Pty Ltd to assess the future activity centre needs in the Northern Geelong Growth Area (NGGA) within the City of Greater Geelong.

This Urban Form and Capacity Assessment report forms the first phase of works for this project, and provides an initial assessment of the following:

- Understanding of the future extent of urban development in the NGGA.
- Determining the potential dwelling and population yields within the growth area on the basis of geographic 'cells' that represent smaller sub-regions for use in future analysis. These cells are defined on the basis of sensible geographic divisions within the growth area.
- Mapping of current and expected future transport networks within Lovely Banks, as well as identification of any other aspects of urban form expected to influence activity centre planning and development.

1 GROWTH AREA DESCRIPTION

This Chapter provides an overall description of the Northern Geelong Growth Area, a major urban growth area identified for future development on the northern edge of urban Geelong.

1.1 Growth Area Location

The Northern Geelong Growth Area (NGGA) comprises a total of approximately 2,127 hectares of land located between the northern extent of the Geelong urban area and the Lara West growth area. Figure 1.1 shows the NGGA and surrounding land uses.

Comprising much of the locality of Lovely Banks, the NGGA is bounded by Staceys Road to the north, Evans Road to the west, and adjoining Rural Living zoned lots north of Plantation Road and west of Bacchus Marsh Road.

To the south-east of the NGGA is the Geelong Ring Road Employment Precinct (GREP) which has been zoned for heavy industrial uses. The types of activities in the GREP are expected to include manufacturing, storage, goods distribution, and heavier industry applications including port-related uses.

In the south are the well-established Geelong suburbs of Norlane and Corio.

Central Geelong is located 10km to the south-east of the NGGA and is the higher-order activity centre servicing the municipality of Greater Geelong and the wider G21 region. A key location for a wide range of retail, commercial, administrative and cultural facilities, the Central Geelong Action Plan (2013) estimates the Centre contributes approximately 17% of total economic activity in the City of Greater Geelong.

To the east of the NGGA, the Avalon Corridor forms an urban break between Geelong and metropolitan Melbourne, including protected areas of high biodiversity value. The Avalon Corridor also includes Avalon Airport, which is expected to be the location of significant growth in employment activity over coming years. The potential also exists for a new container port terminal to be located in the Avalon Corridor as part of the 'Bay West' option being considered at present by Infrastructure Victoria.

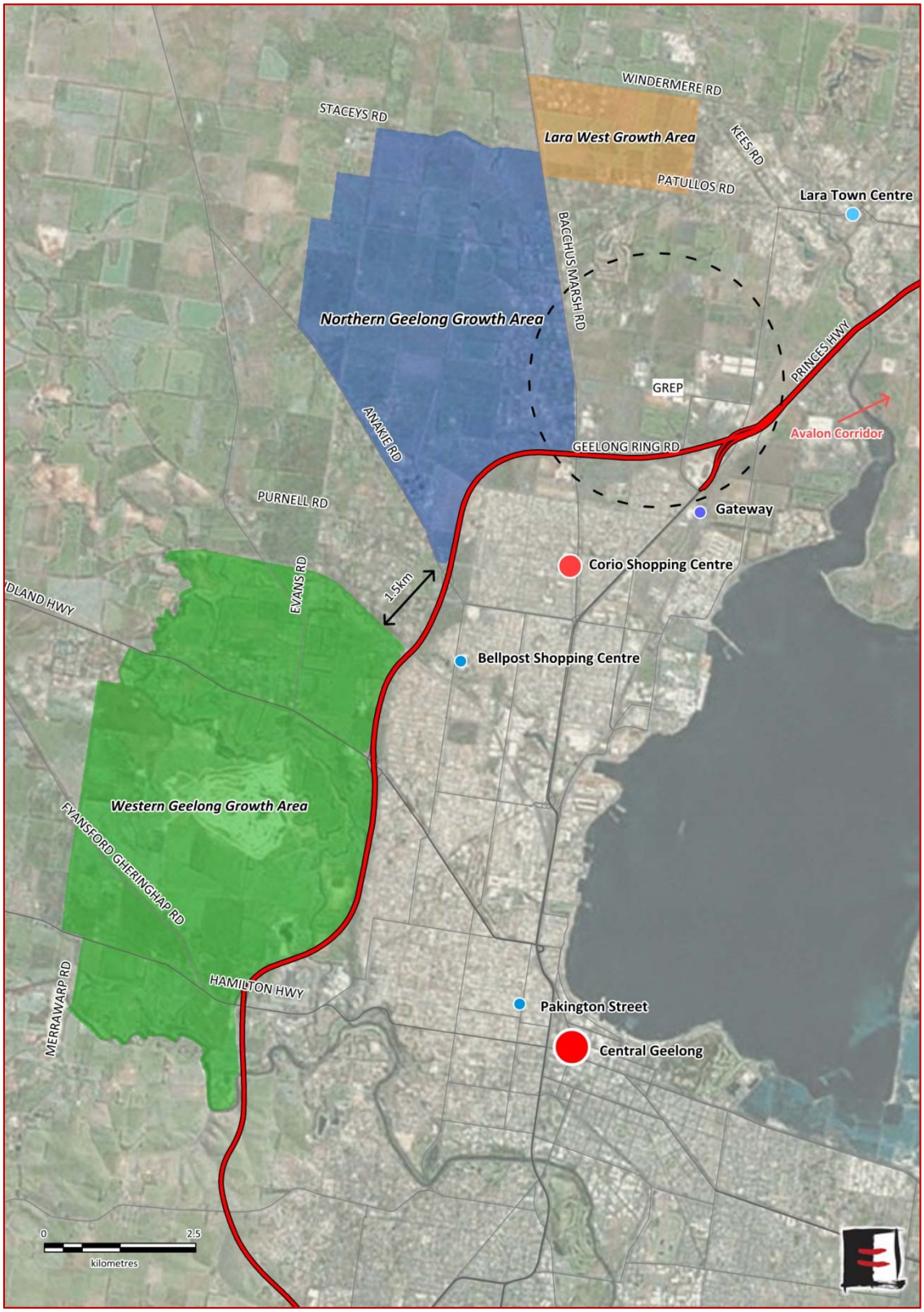
Western Geelong Growth Area

Future planning for urban development in Geelong also includes the Western Geelong Growth Area (WGGA) which is located approximately 2km south of the NGGA at its closest point.

The WGGA comprises of 2,300 hectares of land located west of the Geelong Ring Road which extends through parts of Batesford and extends from the Geelong-Ballarat in the north to the Barwon River in the south.

Figure 1.1 also shows the study area for the WGGA and its relationship to the NGGA.

Figure 1.1 Northern Geelong Growth Area Regional Context



Source: Essential Economics

1.2 Northern Geelong Growth Area Description

At present, the predominant land use in the NGGA is farming and rural living.

The landscape primarily consists of low rolling hills, as shown in Figure 1.2, and has been identified by previous studies by landowners and Council as being highly suited to future urban development.

Figure 1.2 Subject Site View

Source: Google Maps

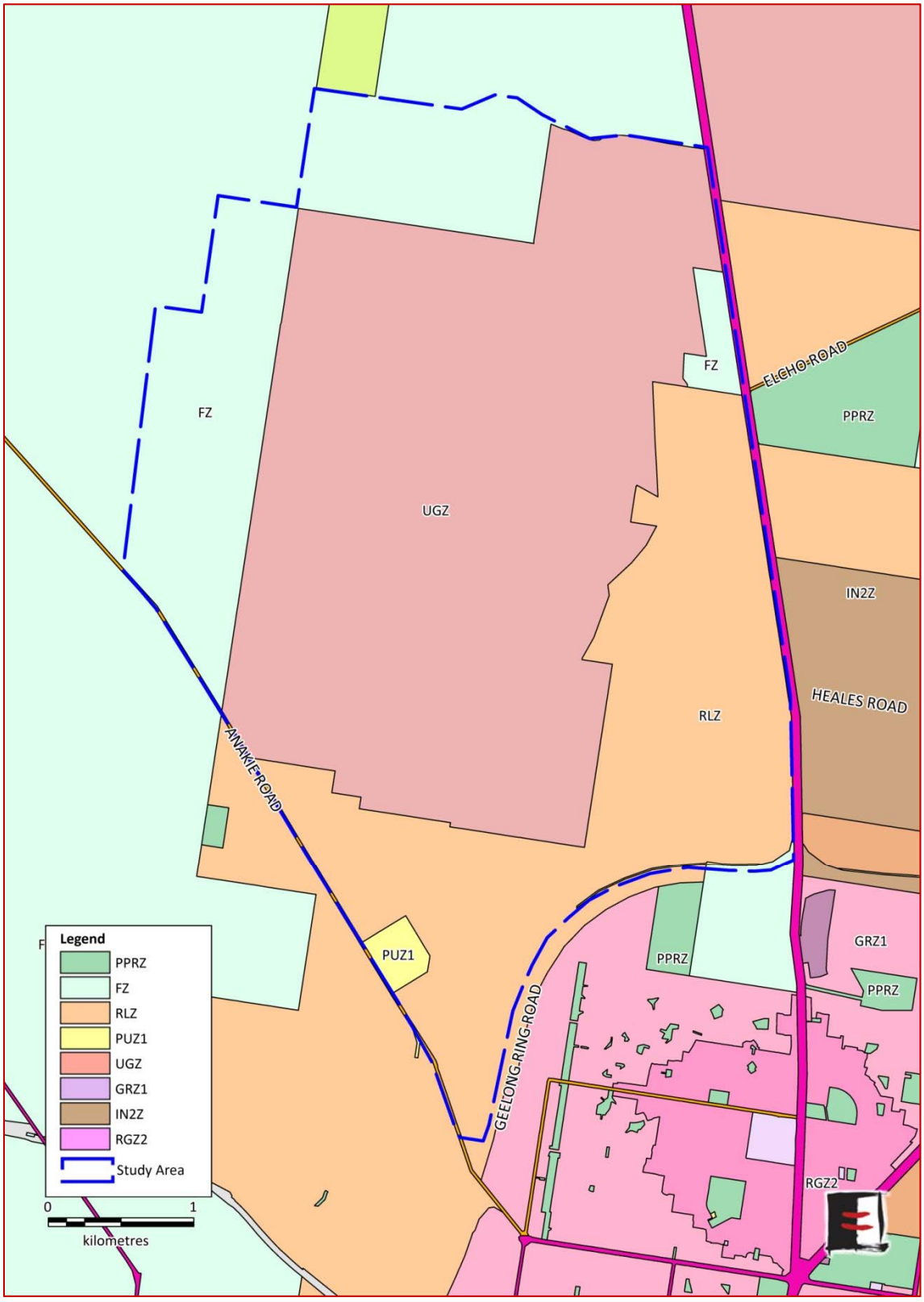
Planning Context

At present, the NGGA is comprised of land within four planning zones, as shown in Figure 1.3 and described as follows:

- Urban Growth Zone (UGZ): 1,115ha or 52%. This land was zoned for future urban development by Ministerial Amendment C322 to the Geelong Planning Scheme in November 2014.
- Rural Living Zone: 604ha or 28%. Includes land in the southern parts of the NGGA located adjacent to the Geelong Ring Road.
- Farm Zone (FZ): 394ha or 19%. Is located on the northern and western edges of the NGAA and potentially represents an extension of urban growth in addition to that identified in Amendment C322.
- Public Use Zone (PUZ1): 14ha or 1%. Includes the Barwon Water tanks along Anakie Road

A more detailed analysis of the implications of these zones for population growth and the distribution of dwellings is provided in Chapter 3 of this report.

Figure 1.3 Current Planning Zones



Source: Essential Economics

2 INFLUENCES ON FUTURE URBAN FORM

This Chapter describes a range of factors which will have a strong influence on the future nature of urban development in the NGGA. At present, the preliminary nature of planning for urban development in the NGGA means that in some instances, the exact influence which these factors will have on final urban development outcomes remain uncertain.

2.1 Current Understanding of Future Land Use Constraints

Our understanding of the future land use constraints at NGGA have been informed by the NWGGA context report produced by the City of Greater Geelong (CoGG), analysis by GTA Consultants, and various meetings with the Client, CoGG, GTA, WGGA project team etc.

The following land influences on future urban form and the developable land area calculations have been prepared with the benefit of the NWGGA context report (CoGG, 2016) and the preliminary analysis provided by GTA Consultants (email 16th September 2016).

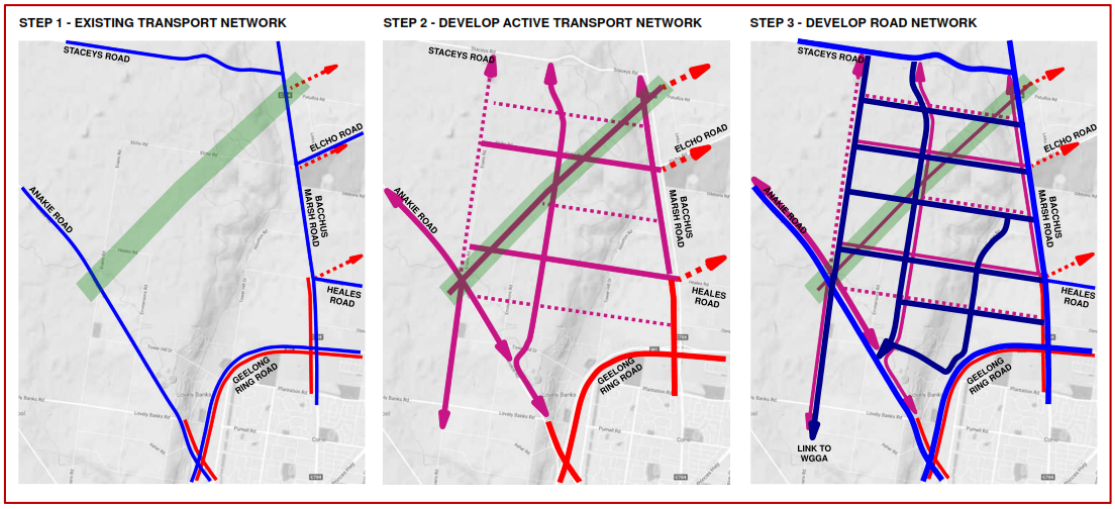
Road Network

The road and transport networks to be delivered in the NGGA will have a major influence on future urban development patterns.

Preliminary concepts for road and transport networks have been provided by GTA Consultants, and include two options as shown in Figures 2.1 and 2.2. It is emphasised that these options are preliminary in nature and may change subject to future design testing and analysis.

Option 1, shown in Figure 2.1, reflects an extension of the surrounding road networks into the NGGA with the use of a 'grid' pattern including a single north-south major internal road link.

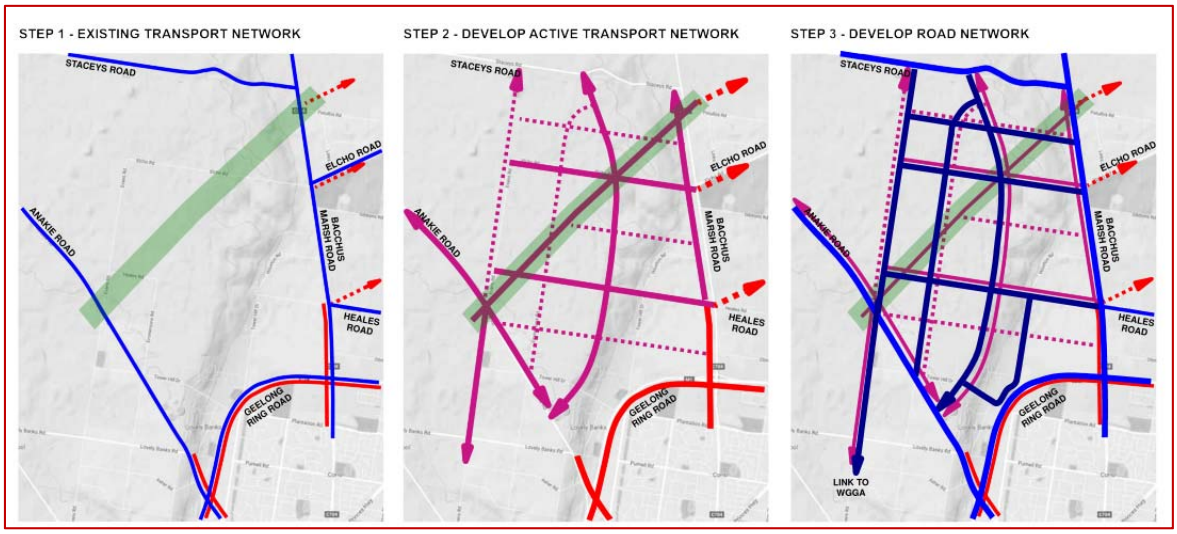
Figure 2.1 Road Network – Option 1



Source: GTA Consultants, 2016

Option 2, shown in Figure 2.2, has fewer east-west road links and two internalised north-south road links including a key curved road running through the centre of the NGGA.

Figure 2.2 Road Network – Option 2



Source: GTA Consultants, 2016

For the purposes of the current analysis, Option 1 has been identified as the basis for identifying expected future land use and development patterns in the NGGA.

This is based on discussions with Council, the Lovely Banks Development Group and GTA. Option 1 represents a simple extension of existing road network with the inclusion of a single major north-south link.

Sewer and Gas Pipeline Easements and Buffers

South West gas pipeline easement

The South West gas pipeline easement is 20-metres wide and runs from the north-eastern edge of the NGGA to the south-west edge. A large proportion of land in the NGGA will be impacted by the easement in terms of urban form and connectivity. For example, road crossings across the easement will be minimised to avoid safety risks.

Land immediately surrounding the South West gas pipeline easement is particularly sensitive to certain urban uses.

GPA Engineering undertook a Safety Management Study (SMS) in accordance with Australian Standard AS 2885.1-2012. The SMS provided a response to potential land uses within the gas pipeline measurement length (570 metres). The following, which is specific to the T92 Lara to Iona pipeline, provides commentary on full line retail land uses within the measurement length:

- **Prohibited** (not supported): up to 65 metres from the easement

- **Least Preferred**: between 65 metres and 350 metres from the easement
- **Acceptable**: between 350 metres and 570 metres from the easement
- **Preferred**: greater than 570 metres from the easement.

Note that the controls and land use mix applied in the South West gas pipeline measurement length areas may change as a result of additional expert analysis applied during the subsequent detailed design phase for the NGGA.

Land within the AusNet electricity transmission power line easements (assumed 70m)

The NGGA is traversed by two transmission easements measuring approximately 70m wide through the north-west and south-east corners of the site.

It is understood that no buildings are permitted within the easement. Buildings are permitted up to the easement boundary.

Buffers to Adjacent Land Uses

Lara Energetic Materials Manufacturing Plant (LEMMP) 1km industry buffer

This buffer applied to land in the north-west of the NGGA.

According to advice from Council, some non-sensitive land uses in this buffer may be developed if they do not compromise the operations of the LEMMP or pose risks to the wider community. However, the exact nature and scale of these uses is yet to be identified in detail.

At present, it is assumed the land is not developable for residential or intensive urban uses.

Geelong Ring Road Employment Precinct (GREP) 1km industry buffer

The GREP buffer applies to land in the south-east of the NGGA and protects the major industrial operations of this strategic employment precinct. This buffer affects the Rural Living Zone land west of Bacchus Marsh Road.

MC Herd 500m industry buffer

MC Herd Abattoir has been at its current site on Bacchus Marsh Road Corio since 1958, and is expected to remain at this location for the foreseeable future. A 500 metre buffer from this facility includes land in the very south-eastern edge of the NGGA. Council has indicated the importance of protecting key employment land from any further encroachment by land uses that may compromise the ability of these businesses to operate productively.

Existing Land Uses

The following existing land uses in the NGGA will remain at existing location for the foreseeable future, and will not be redeveloped for another urban use.

- Barwon Water tanks, Anakie Road
- Geelong Baptist College
- BP Service Station, Geelong Ring Road.

Heritage

Future urban development in the NGGA will need to reflect the presence of two parcels of registered heritage land north east and south of Lovely Banks. The sites comprise of a home of State architectural significance at 605 Bacchus Marsh Road, and the regionally significant Barwon Water Lovely Banks Basin located at 600 Anakie Road.

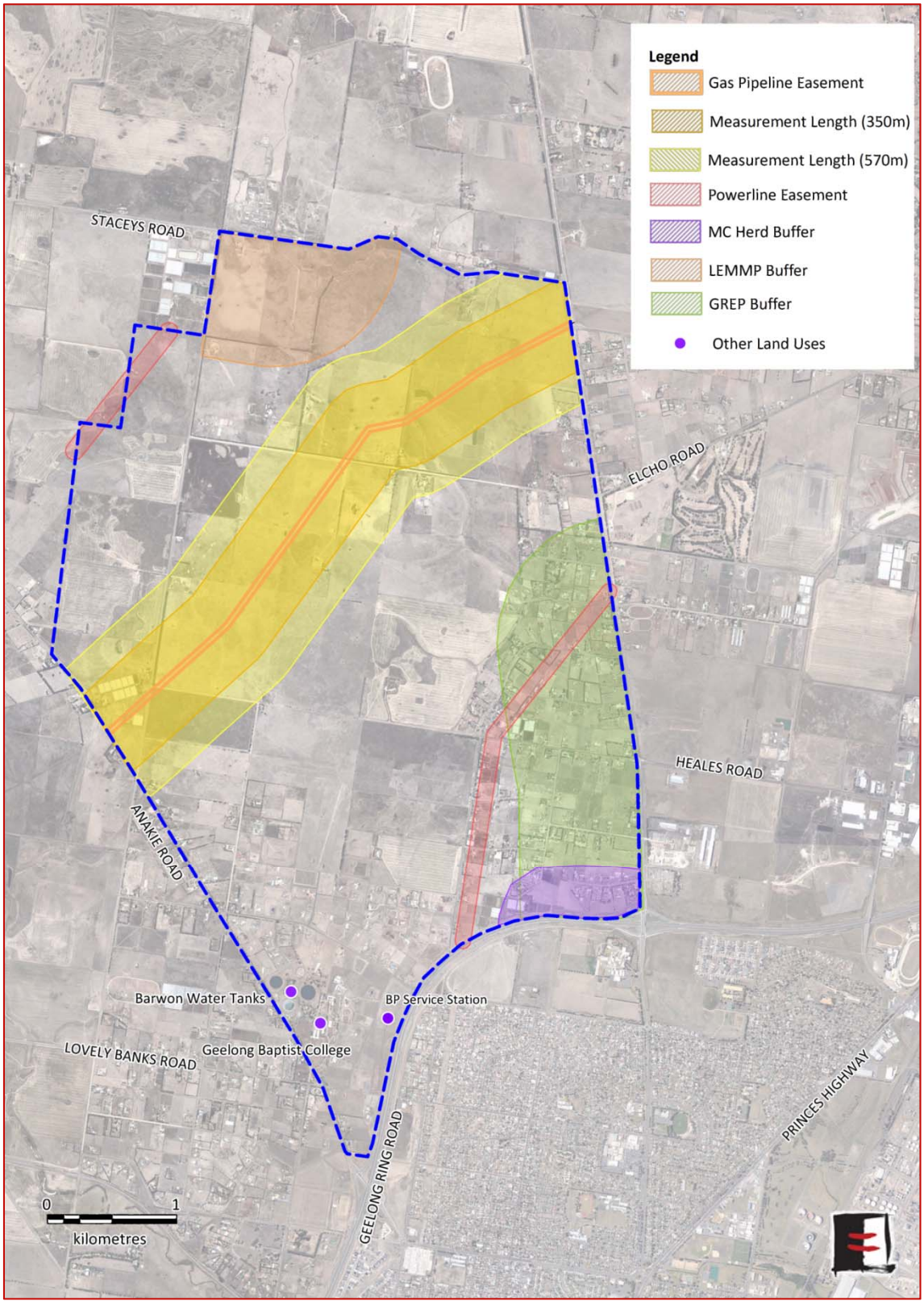
Rural Residential Areas

Although rural residential areas are located within the NGGA, the exact nature of future development in these areas remains uncertain. Initial guidance from Council indicates that:

- Within the GREP buffer and MC Herd industry buffers, no additional residential density will be allowed.
- In the rural residential areas outside the buffers, some additional residential density may be supported by policy. However, this is unlikely to result in standard urban growth area dwelling densities for the foreseeable future. For this reason, only some limited intensification of residential activity is included in forecasts of population capacity for these areas (see Chapter 3).

Again, the above existing expectations may be subject to some change based upon further detailed planning for the NGGA.

Figure 2.3 NGGA Urban Land Use Influences



Source: Essential Economics

2.2 Future Clarification of Urban Form Outcomes

Final determination of the Urban Form and Capacity of the NGGA will require further clarification of factors including (but not limited to):

- Road network layout and hierarchy
- Allowable uses in the LEMMP 1km industry buffer zone
- Layout and scale of various land uses and community infrastructure (parks etc.)
- Water catchments and drainage requirements.

3 DWELLING AND POPULATION YIELD ANALYSIS

This Chapter undertakes an assessment of the potential dwelling and population yields of the NGGA at full development. The analysis also includes the definition of 'cells' which allow for small area population estimates to be made, as an input to assessment of a future activity centre hierarchy serving the NGGA.

3.1 Population Capacity Analysis

Preliminary dwelling and population projections for the NGGA have been calculated using geographic 'cells' that represent smaller sub-regions for use in future analysis. These cells are defined on the basis of sensible geographic and planning divisions within the growth area.

Recognising the land use constraints identified in Chapter 2, the **gross** developable area in the NGGA is approximately 1,535 hectares once the easements, relevant buffers and road network are taken into account.

Subsequently, the gross dwelling densities and average household size provided in the NWGGA context report (CoGG, 2016) are applied as follows:

- Farming Zone and Urban Growth Zone land at 15.4 dwellings per hectare (standard density)
- Rural Living Zone land at 6.4 dwellings per hectare (low density)
- Rural Living Zone areas within industry and employment buffers (low density - no change).

A total development capacity of **15,370 dwellings** is identified with these preliminary assumptions. Using the anticipated average household size of 2.8 (CoGG, 2016), a total population of **43,040 persons** is forecast at development capacity.

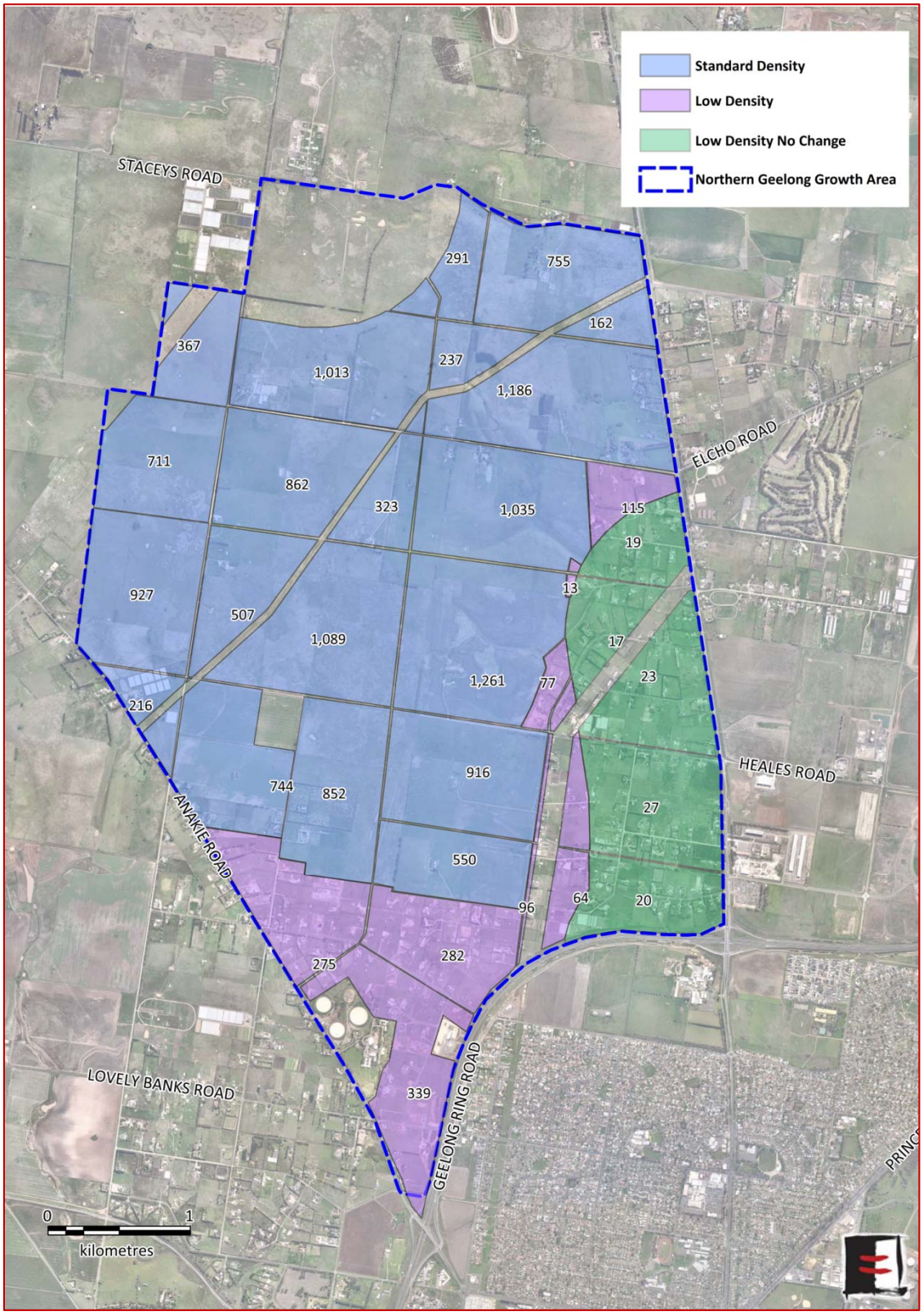
To reflect land devoted to schools, activity centres and parks, a **net** developable figure has been derived based on 70% of land being residential. According to these assumptions, the average lot size in the standard density residential areas of the NGGA will be approximately 450m^2. This is consistent with current industry expectations (see also Chapter 4).

The preliminary forecast of 15,370 dwellings for the NGGA is highly achievable and at the lower end of the 16,000 to 18,000 dwellings identified by Council in earlier scoping work.

However, the potential exists for higher dwelling and population forecasts in the NGGA subject to more detailed urban planning. This could include consideration of higher dwelling densities (say gross dwelling densities of up to 20/ha in standard residential areas) and medium to high density residential development in activity centres.

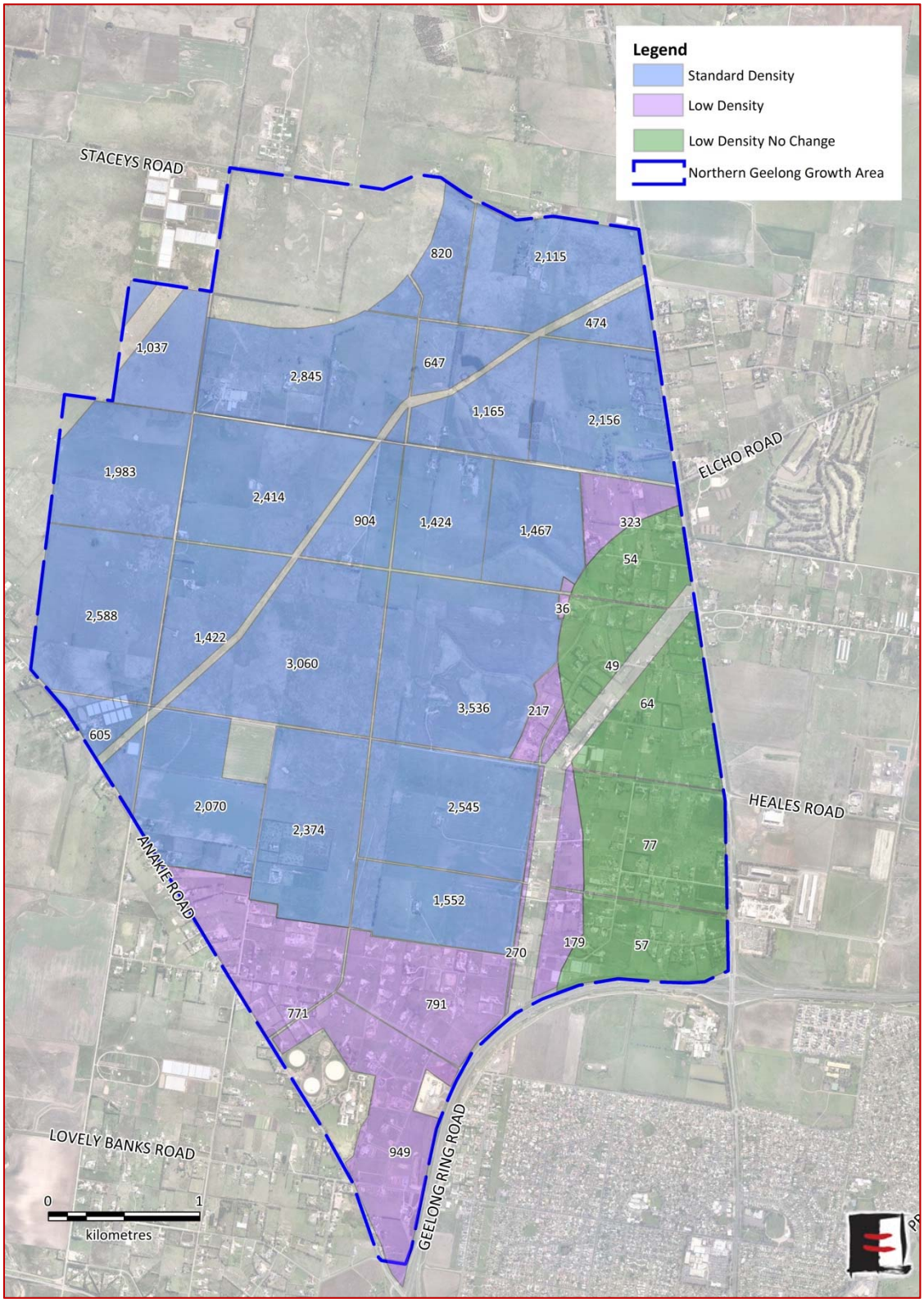
The preliminary forecast distribution of dwellings and persons in the NGGA is shown in Figures 3.1 and 3.2.

Figure 3.1 NGGA Preliminary Dwelling Distribution (15,370 dwellings)



Source: Essential Economics

Figure 3.2 NGGA Preliminary Population Distribution (43,040 persons)



Source: Essential Economics; CoGG

4 DWELLING DENSITY CONSIDERATIONS

The assumptions related to dwelling density which are applied to the NGGA are of vital importance in understanding the nature and scale of demand for activity centres and other community functions. In the context of the current early stages of planning for the NGGA, the uncertainty in relation to the final nature of urban development means that detailed consideration of dwelling densities and scenarios for different outcomes are understood.

4.1 Comparable Dwelling Densities

In order to provide a case study comparison for the NGGA, expected dwelling densities in the Wollert and Armstrong growth areas are described below.

Wollert PSP

The Wollert PSP was gazetted in April 2015 and is within the City of Whittlesea on the northern fringe of urban Melbourne. Similar to the NGGA, Wollert PSP includes a gas pipeline which has had a significant influence on future urban development outcomes.

An estimated population of 37,810 persons will live in the Wollert PSP at full development.

In the PSP, dwelling densities are sorted into 'Standard' and Medium' categories. The Standard densities have an average lot size of 550m^2 with the Medium density area having an average lot size of 300m^2 as shown in Table 4.1.

Table 4.1 Wollert PSP Dwelling Density Comparison

Precinct	Average Lot Size
Standard Density	555m^2
Medium Density	300m^2
Wollert PSP Total Average	**375m^2**
NGGA Preliminary Average	**450m^2**

Source: City of Whittlesea, 2015
Note: Figures are rounded

The overall dwelling density identified in the Wollert PSP is higher than the preliminary estimate for the NGGA. This reflected in an average lot size of 375m^2 in the Wollert PSP which is 16% smaller than the 450m^2 average lot size indicated by the NGGA preliminary assumptions (note the average lot size for the NGGA excludes the existing and proposed rural residential areas).

Armstrong Creek - Horseshoe Bend PSP

The Horseshoe Bend PSP was completed in September 2014 for the City of Greater Geelong and outlines five residential sub-precincts with varying dwelling densities, as shown in Table 4.2.

Table 4.2 Armstrong Creek – Horseshoe Bend Dwelling Density Comparison

Precinct	Average Lot Size
Sub-Precinct A	440m^2
Sub-Precinct B	625m^2
Sub-Precinct C	625m^2
Sub-Precinct D	420m^2
Sub-Precinct E	500m^2
Armstrong Creek Average	**485m^2**

Source: City of Greater Geelong, 2015
Note: Figures are rounded

On an overall basis, the average lot size envisaged by the Horseshoe Bend PSP is 485m^2. This is marginally larger than the 450m^2 average lot size identified in the preliminary estimates for the NGGA.

4.2 NGGA Higher Density Scenarios

The preliminary urban capacity estimate for the NGGA of 15,260 lots is based on what are considered to be highly achievable assumptions of lot density and developable area. In reality, the potential may exist for a higher density dwelling outcome, including a higher population. The exact nature of urban development in the NGGA will remain subject to more detailed planning.

On this basis, scenarios have been developed based on the achievement of higher dwelling densities. These scenarios assume that the employment and industry buffers will not be available for residential development, though this may change in the future subject to possible long-term achievable development outcomes **[Note: any changes to buffers are not advocated or endorsed, and are subject to long-term policy decisions which are impossible to predict at this time].**

According to the scenario analysis (see Table 4.3), an increase in dwelling density could mean an increase in total lot production to 20,450 lots, or approximately +5,100 additional dwellings relative to the preliminary forecast described in Chapter 2 of this paper. The higher lot production is based on 20 dwellings per gross developable area in the growth areas, and 11 dwellings per hectare in the Low Density residential area.

The scenario analysis highlights the need for planning flexibility to be applied for community infrastructure, including activity centres, subject to detailed urban development patterns being determined by the subsequent growth area planning process.

Table 4.3 Residential Density Scenarios for NGGA

Precinct	Dwelling Density Scenarios					
	Adopted Scenario	***Dwellings per hectare***				***Higher Density Scenario[1]***
Standard Density	**15.4**	16	17	18	19	**20**
Low Density	**6.4**	7	8	9	10	**11**
	Number of Dwellings					
Standard Density	**14,000**	14,540	15,450	16,360	17,270	**18,180**
Low Density	**1,260**	1,380	1,580	1,770	1,970	**2,170**
Low Density No Change	**106**	106	106	106	106	**106**
Total Dwellings	**15,370**	16,030	17,140	18,240	19,350	**20,450**
Total Population	**43,040**	44,880	47,980	51,070	54,170	**57,270**

Source: Essential Economics
1. Higher density scenarios for illustrative purposes only and are subject to detailed urban planning for the NGGA

5 SUMMARY AND CONCLUSION

This Chapter provides a description of the key analysis and conclusions for the NGGA arising from the urban form and capacity assessment.

1 Northern Geelong Growth Area Description

The Northern Geelong Growth Area (NGGA) comprises a total of approximately 2,127 hectares of land located between the northern edge of the Geelong urban area and the Lara West growth area. Located in proximity to the Geelong Ring Road Employment Precinct, Avalon Airport and the Avalon Corridor, the NGGA will have a profound influence on future economic performance of the northern areas of the City of Greater Geelong.

Future urban planning for urban development in Geelong also includes the Western Geelong Growth Area (WGGA) which is located approximately 2km south of the NGGA at its closest point.

2 Influences on Future Urban Form

Urban form in the NGGA, including the location of activity centres, will be highly influenced by the location of various planning and development constraints. These constraints include a 20 metre gas pipeline easement with surrounding measurement lengths of 350m and 570m, electricity transmission lines, and various employment related buffer zones. Activity centre locations will also be influenced by the road network applied within the precinct.

At present, approximately 30% of the NGGA is in the Rural Living Zone (RLZ). This land is concentrated in the south and south-east of the NGGA, and includes some land also located within industry buffer areas. Although some intensification of development is expected in those RLZ areas outside industry buffers, no change in dwelling density is likely within the buffer areas.

3 Dwelling and Population Yield Analysis

A preliminary dwelling and population yield analysis for the NGGA has been prepared with consideration of the identified influences and constraints, as well as recognition of the need for land devoted to schools, activity centres and parks etc.

A total development capacity of 15,370 dwellings and population of 43,040 persons has been identified by the analysis, at the lower end of Council's initial project scoping analysis. The assumptions used in the preliminary analysis have been specifically identified as being 'achievable'. Additional dwelling development may be possible subject to more detailed future urban planning.