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**PART C: 2056 STRATEGIC TRANSPORT NETWORK INVESTIGATION**

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## 7.0 LAND USE

The Mt Lindesay/Beaundesert Strategic Transport Network Investigation aims to develop future transport systems that will cater for the needs of the community to the year 2056. To understand what these future demands could be on the transport networks, population and employment numbers for this timeframe were estimated.

Due to long term nature of the study, there are many variables (e.g. climate change, fuel availability and pricing, reduced rate of growth, government policies on environment, growth management, etc.) which could influence the future land use intensity and location. A number of potential futures were therefore considered to provide a variety of land use scenarios in response to these variables. The study, however, does not aim to define what specific events may lead to the numbers estimated. Instead each scenario developed is significantly different in total for the study area to allow for these future variables.

A 2056 timeframe has been specified in the project brief. Whilst this timeframe is quite specific, the main aim of defining such a timeframe is to acknowledge that we are looking a long way into the future and not within the timeframes of the South East Queensland Regional Plan.

The demographic scenarios discussed herein draw data from a number of sources, however the resulting demographic projections are unique to the Strategic Transport Network Investigation.

### 7.1 2056 Demographics Process

This study is dealing with a part of the South East Queensland region. It is clear that outcomes for the study area are in large part the result of overall growth in South East Queensland and the policies and market drivers across South East Queensland. There are also global influences which potentially affect travel cost and capability directly and will indirectly influence regional growth and the growth in the study area.

The overall approach to preparing the scenarios has been to adopt 2056 growth data for the whole South East Queensland region corresponding to the Planning Information and Forecasting Unit medium growth series. Forecasts at local government area level have been prepared to 2026 for use in other projects e.g. South East Queensland Regional Plan Preferred Pattern of Development model and South East Queensland Strategic Transport Model. The 2009 Regional Plan has also developed growth predictions to 2031, which are also based on the medium growth series. More recently the Southern Regional Water Pipeline Project developed the allocation of growth beyond 2026 to local government areas (pre amalgamation boundaries) and this has been used as the base for one scenario. Variations on this base scenario have been conducted for a more compact urban form and a more dispersed urban form.

This first scenario, based on the Pipeline Project, is also most closely aligned with the preferred development scenario from the Mt Lindesay North Beaundesert Study.

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The study area for the Mt Lindesay/Beaudesert Strategic Transport Network Investigation includes sections of the Logan City Council, Scenic Rim Regional Council and sections of the Gold Coast, and Ipswich local government areas (LGAs). Future population and employment has been predicted for all of these local governments as well as the Brisbane and former Redlands local government areas. This was important to understanding travel between these local government areas and the local government areas within the study area.

As noted above, the population and employment for the study area was considered in the context of the South East Queensland region. It was important to consider the potential for growth in the whole region and utilise this growth as a “control” future population for each of the scenarios. As a result, totals for each of the Sub-regional Organisations of Councils were considered as a percentage of the total population in South East Queensland. These were then broken down into local government areas (pre-amalgamation boundaries) and Ipswich, Logan and Scenic Rim Council were broken down into more detailed localities. These localities were then converted to the South East Queensland Strategic Transport Model zones. This process was repeated for each of the land use scenarios.

The overall process used to develop the 2056 population and employment figures for each scenario is outlined below. It is noted that the 2026 demographics contained in the 2005 South East Queensland Regional Plan have been used as a base case at 2026 for this study. Further planning has occurred since this time but as the 2026 timeframe was not the focus for this study, has not been revised. The details of these demographics across the study area were sourced from the South East Queensland Strategic Transport Model and have been described in Section 5.1. The process undertaken was:

- a South East Queensland regional population at 2056 was established, based on considering existing and future trends (medium growth);
- three future scenarios were developed which aimed to achieve different futures for the region and account for ongoing variables that will occur with potential growth of an area;
- the future South East Queensland regional population numbers were distributed across the South East Queensland sub-regions, and then the local governments (pre-amalgamation boundaries), based on the indicative planning for each of the local governments. Consideration was given to infill opportunities and greenfield sites that would be achievable under each scenario. Due to the timeframe of the study being beyond 2026, areas outside of the urban footprint were also considered. These were then used as control targets in the study area for each scenario;
- the available “developable land” in the study area was considered to confirm that the future demographics were achievable in the locations they were distributed to;
- the local components of each scenario were then refined for localities within the study area with population distributed in more detail within the Logan, Ipswich and Scenic Rim local government areas;
- the employment numbers were estimated based on achieving a jobs/population ratio target for each scenario. This was then used as a control target to distribute jobs in the study area;

- the distribution of employment within the study area considered the location and growth of existing and new centres and job type (i.e. service jobs, work from home jobs etc.);
- the population and employment numbers for each of the localities were then distributed across each of the new South East Queensland Strategic Transport Model zones.

The following documents and studies were used to inform the distribution of the population and employment numbers in the study area:

- South East Queensland Regional Plan, Office of Urban Management (June 2005);
- South East Queensland Regional Plan Amendment 1, Office of Urban Management (October 2006);
- Former Beaudesert Shire Council demographics;
- Mt Lindesay North Beaudesert (MLNB) study, Office of Urban Management (February 2006);
- Southern Regional Water Pipeline Project population projections;
- constraints mapping from local government planning schemes;
- Ipswich 2020 Vision, former Ipswich City Council (September 2005);
- Logan Draft Local Growth Management Strategy, Logan City Council (pre-amalgamation) (December 2006);
- Logan City Council Vision, Logan City Council (pre-amalgamation) (January 2007).

## 7.2 Trend Analysis

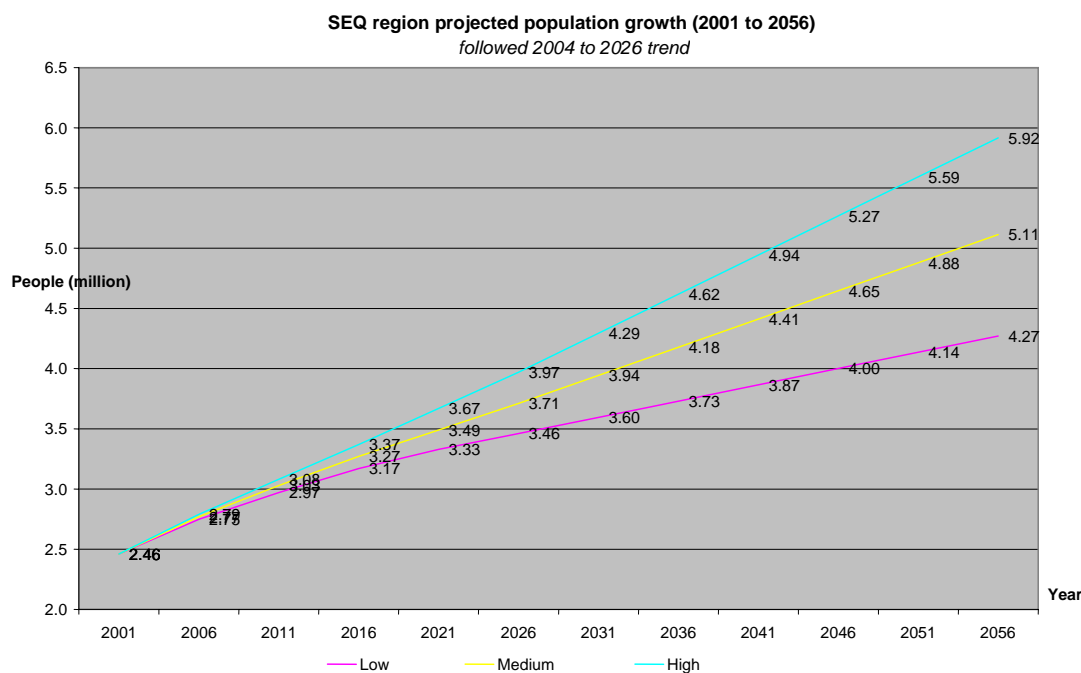
The 2056 population and employment scenarios developed for the Mt Lindesay/Beaudesert Strategic Transport Network Investigation utilised the medium series trend in the South East Queensland Regional Plan Amendment 1 (60,000 people across region per annum). The continuation of this trend resulted in a growth of approximately 1,400,000 people in the South East Queensland region to 2056 (total population in South East Queensland at 2056 – 5,110,000).

The methodology used to predict the 2056 population for South East Queensland included linearly extrapolating the low, medium and high series trends from the South East Queensland Regional Plan to 2056. Figure 7.1 below contains the extrapolated low, medium and high series, following the 2004 to 2026 South East Queensland Regional Plan trend to 2056.

The 2026 to 2056 population predictions are based on the following South East Queensland yearly growth rates:

- low                      0.78%;
- medium                1.26%;
- high                     1.64%.

**Figure 7.1 Predicted 2056 low, medium and high series populations for South East Queensland, based on the South East Queensland Regional Plan Trend**



Discussions with the Mt Lindesay/Beaudesert Strategic Transport Network Investigation Technical Working Group (TWG) resulted in the medium series being adopted as the control total for the study population scenarios. This series results in a total 2056 population of 5,110,000 for South East Queensland. This population prediction included a growth of 1,400,000 people between 2026 and 2056.

It should be noted that Planning Information and Forecasting Unit (PIFU) of the Queensland Government do not have demographic data available for South East Queensland at a 2056 design year. The Planning Information and Forecasting Unit projected populations for the whole of Queensland, for the 2051 design year are as follows:

- low: 5,902,900 people;
- medium: 7,100,000 people;
- high: 8,730,600 people.

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### 7.3 Regional Pipeline Project Data

The Southern Regional Water Pipeline (SRWP) project, which has been granted Significant Project Status by the Queensland Government, is currently constructing a pipeline that will connect water sources across South East Queensland. The aim of the project is to manage the existing and long term water requirements of the councils including Brisbane City, Ipswich City, Logan City, Gold Coast City and Beaudesert Shire Councils (pre-amalgamation boundaries). These councils have joined with South East Queensland Water to form the Southern Regional Water Pipeline Company (SRWPCo). The Southern Regional Water Pipeline Company will build and operate a new bulk water network. The Southern Regional Water Pipeline Company has commissioned an alliance to oversee the planning, design and construction of the Southern Regional Pipeline Project. This alliance includes KBR, McConnell Dowell and Abigroup.

Demographic data was obtained from the Southern Regional Water Pipeline project and Table 7.1 below contains the resulting predicted 2051 population for South East Queensland and the 2026 to 2051 population growth for each local government area. The table also contains the 2004 to 2026 growth as per the South East Queensland Regional Plan.

The population numbers contained in the Southern Regional Water Pipeline data to 2051 are based upon the low series population predictions contained in the South East Queensland Regional Plan to 2026. The Regional Pipeline data was extrapolated from the South East Queensland Regional Plan 2026 population total of 3,265,900 to obtain the 2051 population of 4,547,553. It should be noted that the low series population numbers contained in the South East Queensland Regional Plan differ from those in Amendment 1.

**Table 7.1 Regional Pipeline Project (SRWP) Population Growth Distribution**

Local Government Area (pre-amalgamation boundaries)	2004 to 2026 (South East Queensland Regional Plan)		2026 to 2051 (Regional Water Pipeline)			
	Growth Population	Percent	Total Population at 2051	Total Percent	Growth Population	Growth Percent
<b>Brisbane City</b>	<b>197,403</b>	<b>18.71%</b> <i>(approx 17% at 2031*)</i>	<b>1,292,546</b>	<b>28.42%</b>	<b>147,037</b>	<b>17.54%</b>
<b>NORSROC</b>						
Caboolture Shire	55,010	5.21%	218,195	4.80%	38,456	4.59%
Caloundra City	70,493	6.68%	260,961	5.74%	105,652	12.61%
Kilcoy Shire	850	0.08%	4,892	0.11%	597	0.07%
Maroochy Shire	75,529	7.16%	242,632	5.34%	25,481	3.04%
Noosa	3,671	0.35%	52,739	1.16%	486	0.06%
Pine River Shire	66,082	6.26%	244,407	5.37%	42,835	5.11%
Redcliffe City	7,977	0.76%	61,055	1.34%	1,610	0.19%
<b>Total</b>	<b>279,612</b>	<b>26.51%</b> <i>(approx 24% at 2031*)</i>	<b>1,084,881</b>	<b>23.86%</b>	<b>215,117</b>	<b>25.67%</b>
<b>SouthROC</b>						
Beaudesert Shire	51,810	4.91%	252,122	5.54%	140,412	16.75%
Gold Coast City	253,562	24.04%	811,957	17.85%	82,806	9.88%
Logan City	27,051	2.56%	217,867	4.79%	17,530	2.09%
Redland Shire	23,208	2.20%	165,112	3.63%	15,691	1.87%
<b>Total</b>	<b>355,633</b>	<b>33.71%</b> <i>(approx 31% at 2031*)</i>	<b>1,447,357</b>	<b>31.83%</b>	<b>256,439</b>	<b>30.60%</b>
<b>WESROC</b>						
Boonah Shire	1,151	0.11%	10,565	0.23%	946	0.11%
Esk Shire	3,526	0.33%	21,815	0.48%	3,211	0.38%
Gatton Shire	5,252	0.50%	25,145	0.55%	3,332	0.40%
Ipswich City	181,949	17.25%	502,227	11.04%	185,107	22.09%
Laidley Shire	11,248	1.07%	42,592	0.94%	17,830	2.13%
Toowoomba City	19,156	1.82%	120,424	2.65%	9,064	1.08%
<b>Total</b>	<b>222,284</b>	<b>21.07%</b> <i>(approx 28% at 2031*)</i>	<b>722,769</b>	<b>15.89%</b>	<b>219,490</b>	<b>26.19%</b>
<b>Total South East Queensland region</b>	<b>1,054,932</b>	<b>100%</b>	<b>4,547,553</b>	<b>100%</b>	<b>838,083</b>	<b>100%</b>

\* See Table 5.3 in this report for further details on these percentages which have been sourced from the 2009 Regional Plan

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From Table 7.1 it can be seen that the population growth percentage for each of the ROCs to 2051 will remain largely the same as those predicted in the South East Queensland Regional Plan, between 2004 and 2026 and are similar to population growth percentages predicted in the 2009 Regional Plan for 2031. The most significant change at the ROC level is a 5% increase in the population growth in the WESROC. It is predicted that by 2051 SouthROC will have a total population of some 1,447,357 people. This is the largest population of the five Regional Organisations of Councils. The 2051 population predicted for the Brisbane City Council is 1,292,546 and the lowest population predicted is for the WESROC area with a 2051 population of 722,769.

In SouthROC there is a significant increase in the percent of growth which occurs in the Beaudesert Shire (pre-amalgamation, now Scenic Rim and Logan City Council). The growth predicted in the former Beaudesert Shire between 2004 and 2026 is 4.91% of the total growth, whereas between 2026 and 2051 the former Beaudesert Shire area will contain 16.75% of the total growth in South East Queensland. It is predicted that the former Beaudesert Shire will have an increase in population of some 140,412 people between 2026 and 2051. As previously mentioned the total percentage of growth in the SouthROC area remained largely unchanged between 2004 and 2051. The amount of growth which is to occur in the Gold Coast local government area reduces from 24.04% to 9.88%. Gold Coast City Council is predicted to have a 2051 population of 811,957, making it the second most populated local government area in South East Queensland after Brisbane City Council (based on pre-amalgamation boundaries). It is predicted that the former Logan City Council will have a 2051 population of 217,867, with 2.09% of the total growth predicted in South East Queensland between 2026 and 2051.

It is estimated that the WESROC area will accommodate 26.19% of the South East Queensland growth between 2026 and 2051. A large amount of this growth is estimated to occur in the former Ipswich City Council with 22.09% of the total South East Queensland growth for this period. This is an increase from the 2004 to 2026 growth predicted growth percentage of 17.25%. The Ipswich City Council is estimated to have a 2051 population of 502,227 people, as a result of population increase of 185,107 people between 2026 and 2051. This is the largest increase in population for the period for an individual local government area (pre-amalgamation boundaries). Very limited growth is anticipated to occur in the former Boonah Shire which will make up 0.11% of the 2026 to 2051 South East Queensland population growth.

It is likely that the population growth trends between 2026 and 2051 will continue to 2056. This will result in the SouthROC remaining as the ROC with the largest population. The local government areas that will continue to experience the majority of the growth will be the Ipswich City Council, Beaudesert Shire Council, Brisbane City Council and Caloundra City Council (pre-amalgamation boundaries).



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## 7.4 Mt Lindesay North Beaudesert Study

As part of the Mt Lindesay North Beaudesert Study, a planning investigation was conducted to establish a preferred pattern of development. As part of this a number of different development scenarios were investigated.

A short list of three scenarios was then developed, with populations ranging from 150,000, 300,000 and 450,000 people.

The preferred pattern of development was chosen based on evaluation against South East Queensland Regional Plan objectives. The preferred option was further refined resulting in an ultimate population of 225,000 people rather than the original 300,000 people.

The report emphasises that developers and councils should strive for self containment of employment. Urban communities should be balanced with enterprise precincts and centres and job growth should initially exceed population growth.

The preferred pattern of development sees the establishment of a number of urban communities. A summary of the urban communities, enterprise precincts and centres as proposed by the report is contained below.

Large communities are to be located in the western region of the Mt Lindesay North Beaudesert study area. These communities are to be located at Greenbank Central and in the Flagstone/Undullah/New Beith area.

In the east of the Mt Lindesay North Beaudesert study area, new urban communities are to be located at Yarrabilba, Mundoolun and Bahrs Scrub. The existing community at Logan Village will experience a small amount of growth.

The proposed enterprise precincts will enable the Mt Lindesay North Beaudesert area to achieve a population/jobs balance i.e. one local job per resident worker. New enterprise precincts are to be located at Park Ridge, Yarrabilba and Flagstone. Further investigation is proposed to be conducted into the Bromelton industrial area. The enterprise precincts will include a variety of commercial, service industries, business parks, research parks and low impact industry. Park Ridge should be developed as an economic activity centre with knowledge based industries.

Major activity centres are to be located at Flagstone and Yarrabilba and a major rural activity centre should be located at Jimboomba. These centres are to include retail, commercial offices, entertainment, social and recreational facilities. Flagstone is to become a multi-functional centre, which in addition to centre activities should include regional community, regional health and tertiary education facilities. A number of lower order centres will service the Mt Lindesay North Beaudesert area. These will be located at Logan Village, Park Ridge, Greenbank Central, Logan Reserve, Bahrs Scrub and Mundoolun. Consideration should be given to increasing residential densities around the key centres.

The Mt Lindesay North Beaudesert study aims to achieve the regional target for new infill development of 15 dwellings per hectare. Flagstone, Greenbank Central, Jimboomba, Park Ridge and Yarrabilba are identified as locations where higher densities are to be considered due to their potential to become transit orientated communities. The estimated population for ultimate development in the Mt Lindesay North Beaudesert study is based on a yield of 12 dwellings per hectare and 2.7 persons per dwelling.

**Table 7.2 Indicative Populations for the Mt Lindesay North Beaudesert Study Area (Ultimate)**

<b>Residential development areas</b>	<b>Indicative maximum population (people)</b>
Bahrs Scrub	11,000
Boronia Heights/ Park Ridge	14,000
Cedar Vale *	2,000
Flagstone/ Undullah/ New Beith	52,000
Greenbank Central	12,000
Logan Reserve	16,000
Jimboomba	3,000
Logan Village	2,000
Mundoolun	17,000
Spring Mountain *	7,000
Yarrabilba	63,000
Development in other areas of MLNBSA	26,000
<b>Existing population</b>	<b>37,000</b>
<b>TOTAL</b>	<b>262,000</b>

**Note 1:** The ultimate population numbers will be determined and resolved through detailed planning undertaken in the development of Local Growth Management Strategies and structure plans.

\* Designated Rural Residential area

(Reproduced from: Mt Lindesay North Beaudesert Study Area Study Report Figure 6.3)

The preferred pattern of development will potentially provide 112,400 jobs. The following assumptions were used when calculating the employment numbers:

- a workforce participation rate of 65%;
- an unemployment rate of 5%;
- a population where 79% of the population is of working age.

**Table 7.3 Potential Jobs for the Mt Lindesay North Beaudesert Study Area by Employment Sector (Ultimate)**

<b>Employment sector</b>	<b>Potential number of jobs</b>
Enterprise precincts	28,400
Enterprise precinct at Bromelton*	30,000
Centres	23,500
Institutions (for example, schools, health)	11,200
Rural	500
Working from and at home	18,800
<b>TOTAL</b>	<b>112,400</b>

**Source:** Based on data from Urban Economics, 2005.

\* Located outside the study area. Will also service Beaudesert and Kooralbyn.

(Reproduced from: Mt Lindesay North Beaudesert Study Area Study Report Figure 6.6)

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Employment targets for the area that will help achieve self containment are as follows:

- Park Ridge/Boronia Heights/Logan Reserve (12,000 – 14,000 jobs);
- Greenbank Central (5,000 – 6,000 jobs);
- Flagstone (20,000 - 25,000 jobs);
- Yarrabilba (25,000 - 30,000 jobs).

## **7.5 Strategic Transport Network Investigation 2056 Land Use Scenarios**

In projecting for such a long time horizon to 2056, it is clear that a single estimate would not be adequate. While the South East Queensland Regional Plan sets a clear direction to 2026, policies beyond that point could change. Even up to 2026, there will be updates of the South East Queensland Regional Plan to refine the plan and respond to changing circumstances. The 2009 Regional Plan has just been released responding to such changes and considering a longer timeframe of 2031. The following land use scenarios aim to provide a number of future scenarios to ensure our future planning is robust enough to address such fluctuations.

Local policies on growth management are expected to be a key determinant of future land use patterns. However, we can readily envisage that the South East Queensland region's future becomes increasingly uncertain and subject to global influences when the longer term is considered. As a result, this study has examined a range of future land use outcomes.

Three different population and employment scenarios were developed to distribute this population across the region. The three scenarios were:

- Scenario 1: current policy directions. This scenario utilised the Southern Regional Water Pipeline project data and is similar to the Mt Lindesay North Beaudesert study;
- Scenario 2: a more compact urban form with higher density development across South East Queensland, largely within the existing urban footprint. For the study area, this results in lower levels of growth and more compact development;
- Scenario 3: expansion of the urban footprint occurring whilst retaining environmentally significant areas. As the study area is seen as having fewer constraints than other parts of South East Queensland, this scenario resulted in an increase in the amount of growth within the study area.

The total populations for the local governments (pre-amalgamation boundaries) within the study area for each of the scenarios is contained in Table 7.4.

**Table 7.4****2056 Population Totals by local government area  
(pre-amalgamation boundaries)**

Local Government Area (pre-amalgamation boundaries)	2056 Total Populations		
	Scenario 1	Scenario 2	Scenario 3
Gold Coast	867,700	745,700	799,100
Ipswich	626,500	513,100	597,100
Logan	388,000	400,600	228,300
Redlands	176,000	280,100	177,400
Brisbane	1,390,500	1,639,000	1,355,500
Boonah	13,700	12,600	26,300
Beaudesert Shire	351,800	265,000	503,700

For the Study Focus Area, this correlates to the following 2056 population scenarios:

- Scenario 1 – 305,500;
- Scenario 2 – 237,000;
- Scenario 3 – 454,100.

Table 7.5 below contains the forecast population growth to 2056 for each of the scenarios developed.

**Table 7.5****2056 Population Growth by local government area  
(pre-amalgamation boundaries) for Each Land Use Scenario**

Local Government Area (pre-amalgamation boundaries)	Growth % (2004 -2026)	Scenario 1 Growth %	Scenario 1 Pop (growth)	Scenario 2 Growth %	Scenario 2 Pop (growth)	Scenario 3 Growth %	Scenario 3 Pop (growth)
<b>Brisbane</b>	<b>34.4%</b>	<b>17.5%</b>	<b>245,000</b>	<b>32.0%</b>	<b>448,000</b>	<b>15.0%</b>	<b>210,000</b>
<b>NORSROC</b>	<b>20.7%</b>	<b>25.6%</b>	<b>358,400</b>	<b>27.0%</b>	<b>378,000</b>	<b>22.0%</b>	<b>308,000</b>
<b>SouthROC</b>							
Beaudesert Shire	2.8%	16.8%	235,200	10.6%	148,400	28.0%	392,000
Gold Coast	17.1%	9.9%	138,600	10.0%	140,000	5.0%	70,000
Logan	5.4%	2.1%	29,400	3.0%	42,000	2.0%	28,000
Redland	3.3%	1.9%	26,600	2.0%	28,000	2.0%	28,000
<b>Total</b>	<b>28.6%</b>	<b>30.7%</b>	<b>429,800</b>	<b>25.6%</b>	<b>358,400</b>	<b>37.0%</b>	<b>518,000</b>
<b>WESROC</b>							
Boonah	0.3%	0.1%	1,400	0.1%	1,400	1.0%	14,000
Esk	0.5%	0.4%	5,600	0.1%	1,400	0.5%	7,000
Gatton	0.7%	0.4%	5,600	0.1%	1,400	0.5%	7,000
Ipswich	10.6%	22.1%	309,400	14.0%	196,000	20.0%	280,000
Laidley	0.7%	2.1%	29,400	0.1%	1,400	0.5%	7,000
Toowoomba	3.5%	1.1%	15,400	1.0%	14,000	3.5%	49,000
<b>Total</b>	<b>16.3%</b>	<b>26.2%</b>	<b>366,800</b>	<b>15.4%</b>	<b>215,600</b>	<b>26.0%</b>	<b>364,000</b>
<b>Total South East Queensland</b>	<b>100.0%</b>	<b>100.0%</b>	<b>1,400,000</b>	<b>100.0%</b>	<b>1,400,000</b>	<b>100.0%</b>	<b>1,400,000</b>

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Appendix F shows the forecast 2056 population and employment distributions for each of the scenarios in the study area. Detailed description of the land use scenarios are herein.

## **7.6 2056 Scenario 1: Current Policy Directions**

This scenario represents a continuation of the current policy settings proposed in the South East Queensland Regional Plan. That policy is to encourage infill development but at the same time flags areas indicating that expansion of the urban footprint may occur over time. This scenario utilises the same percentage allocations of growth across the region as that proposed in the Southern Regional Water Pipeline project, however the medium series population growth forecast is used. Similar trends to those proposed in existing planning documents were used as a guide to distribute the population to localities within local governments. These studies included the Mt Lindesay North Beaudesert Study, the Ipswich 2020 Vision and data obtained from the former Beaudesert Shire Council.

The study's scenarios do not seek to represent the effect of particular drivers of growth and land use change. There is a long list of potential drivers which individually or separately will influence the land use outcome. Scenario 1 could be an outcome resulting from retention of current policies, solution of energy supply and price effects, and technological changes dealing with global warming. Potential influences for this scenario (but not limited to) could be that changes in technology may have been developed which have addressed the issue of fuel supply and global warming, resulting in current trends continuing.

Scenario 1 allocates 30.7% of South East Queensland's growth in the SouthROC region, and 17.5% to the Brisbane City. This is representative of a continuation of the existing urban growth policies which encourage infill and controlled expansion of the urban footprint. NORROC and WESROC will experience similar levels of population growth, 25.6% and 26.2% respectively. Under this scenario the highest amount of growth within an individual local government area (pre-amalgamation boundaries) occurs in the Ipswich City Council with 22.1% of the South East Queensland growth or a population growth to 2056 of 309,400.

In this scenario, the former Beaudesert Shire would have a total population of 351,800 by 2056, with 235,200 additional people from 2026. For the Study Focus Area, this results in 305,500 people. The larger population areas within the Study Focus Area are concentrated at Flagstone, Yarrabilba, Beaudesert Town and Greenbank/Greenbank Central.

There are three sub-scenarios related to employment. Scenario 1A includes an approximate jobs/resident worker balance of 1 in the former Beaudesert Shire in 2056 (and 1.1 jobs per resident worker in the Study Focus Area) whereas Scenario 1B includes a jobs balance of 0.75 jobs per resident worker (and .8 jobs per resident worker in the Study Focus Area). Scenario 1C represents a smaller number of jobs located at Bromelton, with the majority of these jobs being redistributed throughout the study area.

The employment total for the former Beaudesert Shire under Scenario 1A is proposed at 143,900, with 117,700 additional jobs from 2026. Scenario 1B sees a total of 107,000 jobs at 2056, as a result of an increase of 80,800, between 2026 and 2056. Scenario 1C results in a total of 103,200 jobs at 2056, an increase of 77,000 jobs between 2026 and 2056.

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The employment total for the Study Focus Area under Scenario 1A is proposed at 132,100, with 113,500 additional jobs from 2026. Scenario 1B sees a total of 96,500 jobs at 2056, as a result of an increase of 77,800, between 2026 and 2056. Scenario 1C results in a total of 92,700 jobs at 2056, an increase of 74,000 jobs between 2026 and 2056. Key employment areas are located at Flagstone, Yarrabilba, Beaudesert Town and Bromelton.

Appendix F shows the population and employment under these scenarios in more detail.

### **7.7 2056 Scenario 2: Higher Densities**

Under Scenario 2 there is limited expansion of the existing urban footprint to 2056. This results in higher density development occurring within the urban footprint.

Within the study area, Scenario 2 would result in a more limited expansion of the urban footprint around towns and centres and considerably higher densities at these locations.

Potential influences leading to this scenario include higher fuel prices, and/or low fuel availability, stricter land use policies, or a more compact urban form to maximise the benefits of more funding for and an emphasis on green modes of transport.

Scenario 2 allocates 25.6% of South East Queensland's growth to the SouthROC region, 32% to Brisbane City and WESROC captures 15.4% of South East Queensland's growth. It should be noted that the percentage of growth in the WESROC area under this scenario is significantly less than under Scenarios 1 and 3.

This scenario concentrates growth in Brisbane and existing urban areas with nearly double the share of growth to Brisbane City when compared to Scenario 1. Growth in the outer parts of South East Queensland, the study area and WESROC particularly have reduced growth allocations.

This scenario results in the former Beaudesert Shire having a total population of 265,000 by 2056, with 148,400 additional people from 2026. The total employment for former Beaudesert Shire Council is proposed at 102,600, with 76,400 additional jobs from 2026.

For the Study Focus Area, this scenario results in a population of 237,000 and 95,000 jobs. Key population and employment areas are reduced, concentrating on Beaudesert Town, Greater Flagstone, Jimboomba, Greenbank/Greenbank Central and Yarrabilba.

Scenario 2 contains an approximate jobs/population balance of 1 job per resident worker in the Study Focus Area.

Appendix F shows the population and employment under these scenarios in more detail.

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## 7.8 2056 Scenario 3: Expansion of Urban Footprint

This scenario has a more dispersed population growth focused on areas like the Study Focus Area and Ipswich local government area which have large tracts of land with fewer current or potential constraints. Potential influences on this scenario could result from the retention of the existing timber and tin policy in inner Brisbane; a reduction in the amount of developable land near the coastline as a result of global warming and flooding; or the preservation of open space belts in South East Queensland.

The Study Focus Area is potentially a less constrained area for potential development. There are some flooding and other environmental constraints in large areas. However the balance areas are relatively less constrained than others in South East Queensland.

Within the study area, this scenario would result in the expansion of the urban footprint around townships and centres and an overall increase in the amount of urban footprint within the study area.

Scenario 3 results in 37% of South East Queensland's growth occurring in the SouthROC region and 15% occurring in Brisbane City Council. NORSROC will experience a slightly higher percentage of South East Queensland's growth than WESROC, with 22% of growth occurring in NORSROC and 26% of growth occurring in WESROC. Under this scenario the highest amount of growth within an individual local government area occurs in the former Beaudesert Shire with 28% of the South East Queensland growth. Under this scenario the Ipswich City Council also experiences a significant proportion of the South East Queensland growth, 20% or a population increase of 280,000.

In this scenario, the former Beaudesert Shire would have a total population of 508,600 by 2056, with 392,000 additional people from 2026. For the Study Focus Area, the population estimated is 454,100. Key population locations are the same as those outlined in Scenario 1, with the exception of the inclusion of Mundoolun and Stockleigh as development areas, and more growth in Undullah Valley.

There are two sub scenarios related to employment. Scenario 3A contains an approximate jobs/population balance of 1 job per resident worker in the Study Focus Area in 2056. Scenario 3B proposed a jobs/population balance of 0.8 jobs per resident worker.

The total employment for former Beaudesert Shire Council under scenario 3A is proposed at 201,300, with 175,100 additional jobs from 2026. Scenario 3B sees a total increase in jobs between 2026 and 2056 of 125,900, resulting in a 2056 employment total of 152,100 jobs. For the Study Focus Area, these numbers are 187,800 jobs at 2056 under Scenario 3A and 140,300 jobs under Scenario 3B. Key employment areas are the same as those outlined in Scenario 1.

Appendix F summarise the population and employment under these scenarios in more detail.

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## 7.9 Constraints Mapping

The physical and environmental constraints within the study focus area were mapped to establish the amount of developable land available. This was used to verify the different demographic scenarios by ensuring that the population numbers predicted for each zone could be accommodated in that zone. The mapping layers used were provided from the former Beaudesert Shire Council Planning Scheme.

Assumptions were made as to what development constraints would exist at 2056. The following was assumed to be a development constraint at 2056:

- World Heritage area;
- conservation estate area;
- regional natural conservation area;
- flood hazard;
- medium and high landslide hazards;
- water supply catchment area;
- defence establishment;
- airfield;
- cultural heritage feature;
- streams;
- wetlands;
- tidal influence area.

It should be noted that the constraints mapping was used to measure the approximate availability of land for greenfield development. For this reason existing development areas were excluded from the land available for future development.

The potential population that could be accommodated in each of the zones was calculated base upon the following assumptions sourced from the Mt Lindesay North Beaudesert study report:

- 12 dwelling per hectare;
- 2.7 persons per dwelling.

The assessment indicates that there is an extensive area that could be available for development. However, this potential developable land only utilises approximately 40-45% of the total area in the former Beaudesert Shire. Key growth areas include areas around Cedar Grove, Flagstone, Greenbank/Greenbank Central, Bromelton, Mundoolun, Undullah Valley and Yarrabilba. The land use scenario with the largest population in the study focus area utilises only 10% of the total developable land in the former Beaudesert Shire. This means that despite ongoing development pressures there will still be significant areas within the former Beaudesert Shire that will retain natural environment and rural areas.



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## 8.0 NETWORK TESTING

### 8.1 Modelling Process

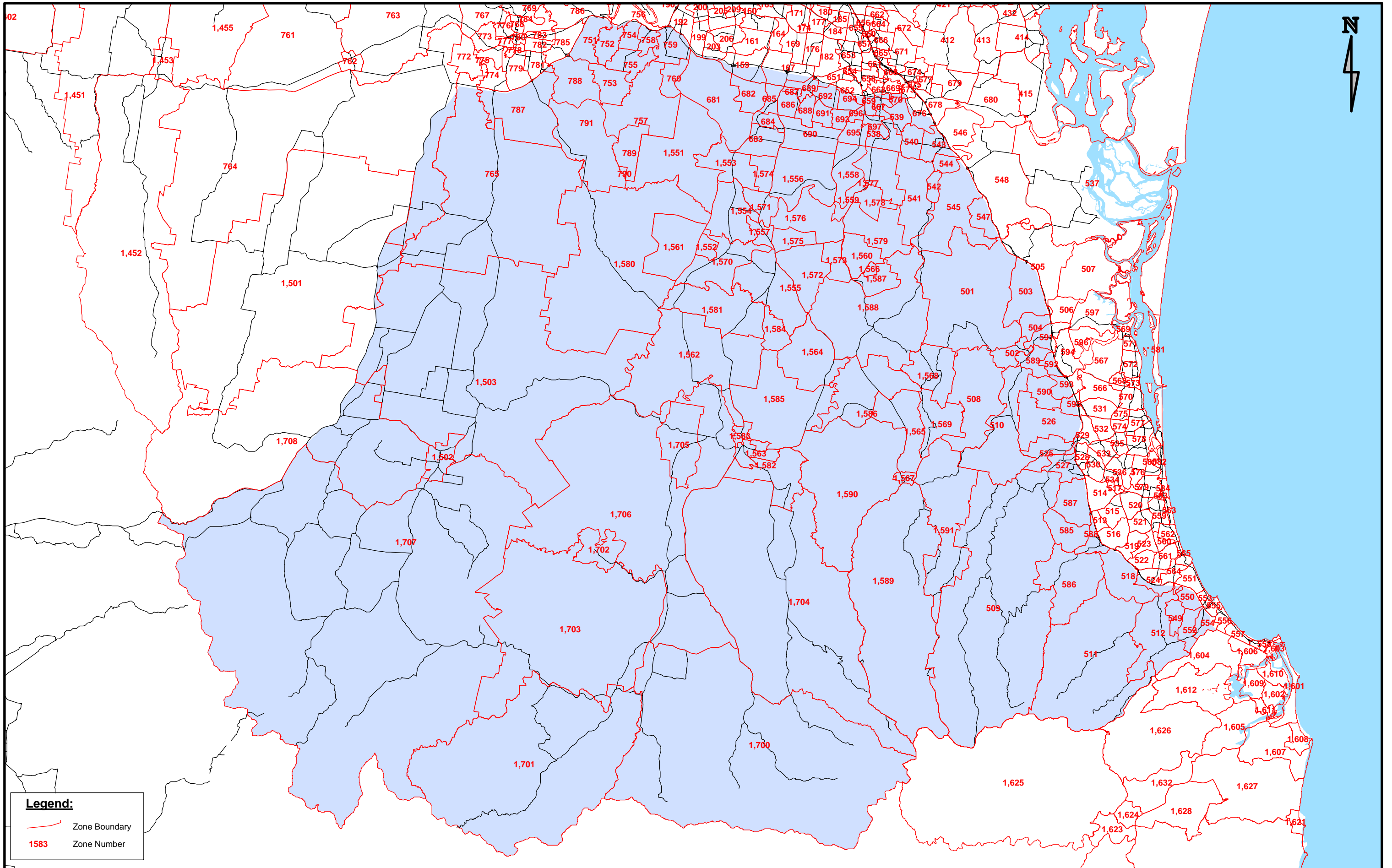
The South East Queensland Strategic Transport Model (SEQSTM), developed by the ConnectWest consortium, has been adopted and refined for the 2056 strategic modelling component of the Mt Lindesay/Beaudesert Strategic Transport Network Investigation.

The South East Queensland Strategic Transport Model is a four step strategic transport model, developed in the EMME/2 modelling platform, and extends from the former Cooloola Shire (now part of Gympie Regional Council) in the north to Tweed Shire in the south and west to the former Gatton Shire (now part of Lockyer Valley Regional Council). The model is comprised of approximately 800 traffic zones. Further details on the development of the South East Queensland Strategic Transport Model can be found in the South East Queensland Strategic Transport Model – Model Development Report (ConnectWest Consortium, 2007).

For the purposes of the Mt Lindesay/Beaudesert Strategic Transport Network Investigation, the South East Queensland Strategic Transport Model has been extended to include the whole of the former Beaudesert and Boonah Shires and the zone system within the study area has been refined to match the Preferred Pattern of Development Veitch Lister Consulting-Zenith zone system. Figure 8.1 illustrates the zone system adopted within the Mt Lindesay/Beaudesert study area.

A full build of the refined South East Queensland Strategic Transport Model was undertaken for each land use scenario being assessed utilising a combination of the base South East Queensland Strategic Transport Model mode share factors and the low case mode share factors for the study area. The trip distribution for each build was based on a 2026 network that included some base 2026 upgrades.

The process which has been adopted for analysis is shown on Figure 8.2



PROJECT TITLE:  
**Mt Lindsay Beaudesert STNI**

DRAWING TITLE:  
*Model Zoning System In Study Area*

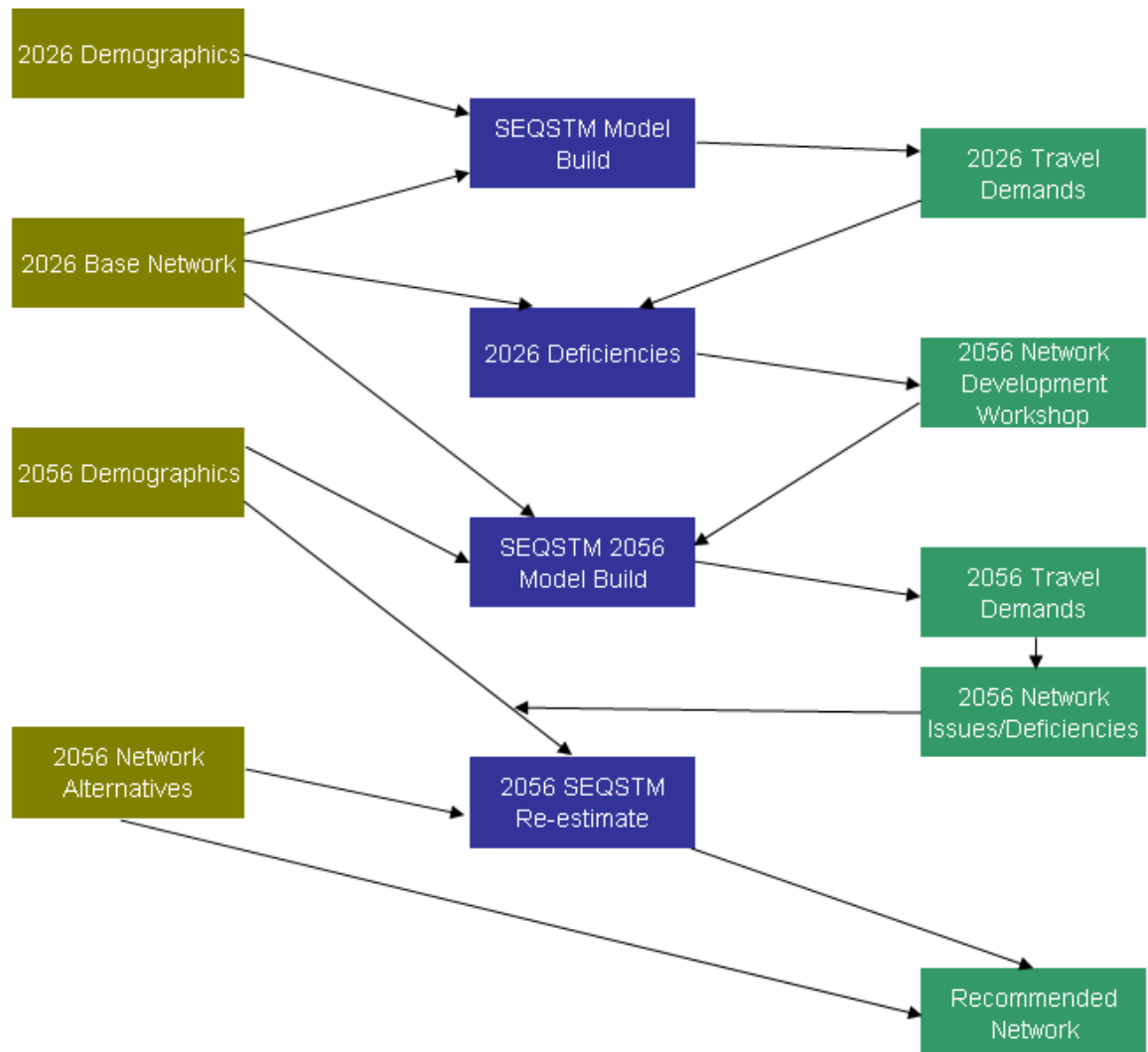
FIGURE NO.  
 8.1

PROJECT NO.  
 CE005519

DATE DRAWN  
 01/08/2007

**Figure 8.2**

**Modelling Process**



## 8.2 Overall Demands

Table 8.1 outlines the total person trip demands in the study area by land use scenario.

**Table 8.1****2056 Overall Study Area Demands (Person Trips)**

Land Use Scenario	Beaudesert Shire (now part of Logan City and Scenic Rim Councils)			Ipswich City (pre-amalgamation boundary)			Model Balance		
	Population	Jobs	Travel Demand	Population	Jobs	Travel Demand	Population	Jobs	Travel Demand
1A	351,812	143,912	2,098,206	626,514	250,862	3,584,712	4,344,714	1,765,841	29,602,968
1B	351,812	107,008	1,916,073	626,514	250,862	3,613,993	4,344,714	1,765,841	29,751,254
1C	351,812	103,208	1,699,251	626,514	250,862	3,411,200	4,344,714	1,769,641	30,070,277
2	265,012	102,568	1,533,134	513,114	207,290	2,936,295	4,550,514	1,821,305	30,778,257
3A	508,612	201,256	2,998,060	597,114	240,510	3,411,513	4,182,314	1,680,753	28,537,374
3B	508,612	152,066	2,405,998	597,114	240,510	3,294,907	4,182,314	1,680,753	29,160,813

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It can be seen from Table 8.1 that the travel demand in the former Beaudesert Shire is maximised in Scenario 3A, where the greatest population and employment totals for the Study Focus Area result in the greatest level of travel demand. Conversely, Scenario 2 results in the lowest level of travel demand where population and employment are also low.

### **8.3 2056 Modal Demands**

Three public transport mode share scenarios (low, medium and high) were modelled, after consultation with the Department of Transport and Main Roads and TransLink Transit Authority, for each land use scenario. The scenarios were also varied depending on the origin-destination type, namely:

- within the Study Focus Area centres;
- between the Study Focus Area centres;
- from the Study Focus Area centres north to Brisbane/Logan.

The adopted mode share scenarios are outlined in Section 6.5 of this report.

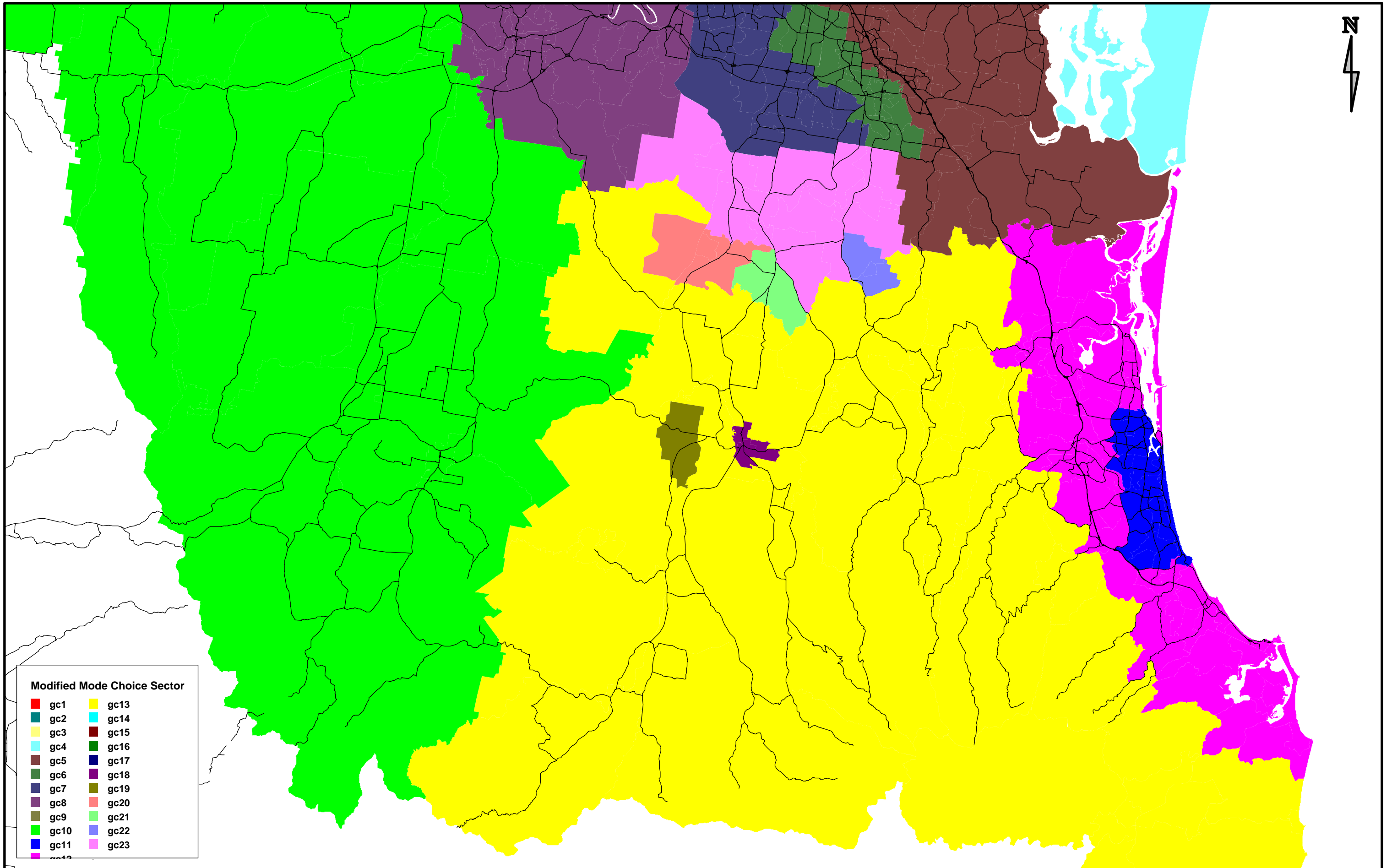
The South East Queensland Strategic Transport Model utilises a sector to sector based system of mode choice factoring, with factors based on observed data. For the purposes of the Mt Lindesay Beaudesert Strategic Transport Network Investigation, the mode choice sector system was modified to create sectors for the various cities within the study area. The modified mode choice sector system is shown on Figure 8.3.

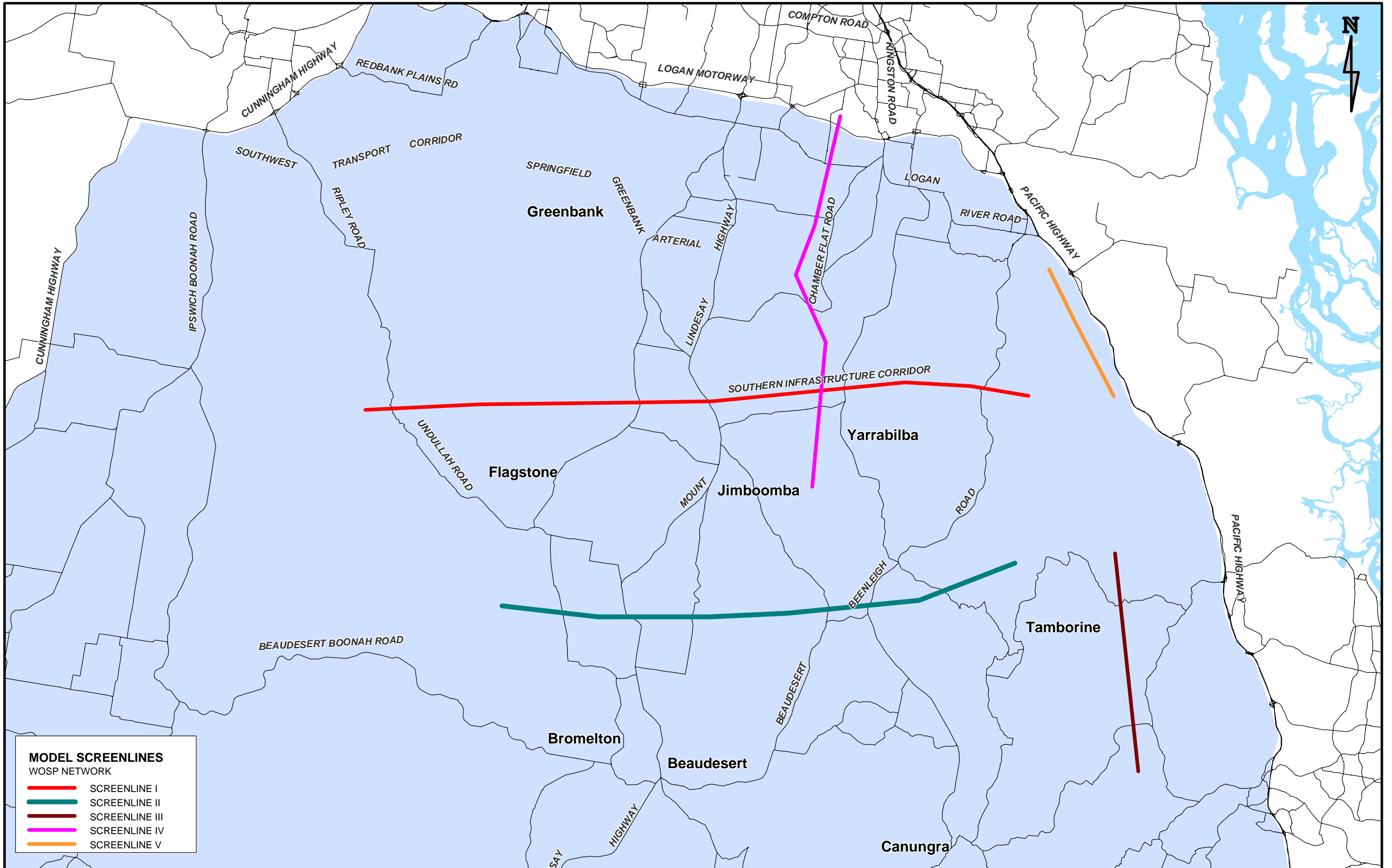
As discussed in Section 7.1, the 2056 South East Queensland Strategic Transport Model for each land use scenario were subject to the full model build process with the low public transport scenarios in place. In order to create demands for the medium and high mode share scenarios, an additional factoring process was created to create new private vehicle person trip matrices derived from the low mode share and modified using the medium and high mode share scenarios. These revised private vehicle person trip matrices were subsequently fed back in to the final steps of the South East Queensland Strategic Transport Model to create new private vehicle matrices.

### **8.4 2056 Travel Patterns**

In order to gain an understanding of how travel patterns change with each land use scenario a system of screenlines were developed that capture all travel movements from the study area to the wider South East Queensland region. These screenlines are shown on Figure 8.4.

Table J8.1 details the screenline data from the model for each base run of the land use scenarios.





**MODEL SCREENLINES**  
WOSP NETWORK

- SCREENLINE I
- SCREENLINE II
- SCREENLINE III
- SCREENLINE IV
- SCREENLINE V



PROJECT TITLE:  
**Mt Lindesay Beaudesert STNI**

DRAWING TITLE:  
*Model Screenlines*

FIGURE NO. 8.4
PROJECT NO. CE005519
DATE DRAWN 16/02/2009

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It can be seen from Table J8.1 that the north-south links at the northern edge of the study area carry approximately 160,000 vehicles per day in Scenario 1A. A similar level of vehicles also can be seen in Scenario 2. It should be noted that whilst Scenario 2 has a population of approximately 100,000 less in the former Beaudesert Shire than Scenario 1C, the level of employment between the two scenarios is almost the same (refer Table 8.1 Overall Demands). This indicates that the employment centred in the former Beaudesert Shire has a significant impact on the levels of travel from the Shire to the north.

It can be seen from Table J8.2 that as the employment balance reduces from Scenarios 1A to 1B and 1C, the movements from the study area north to Logan and Brisbane (Screenline 1) reduce marginally, however a much greater reduction in trips occurs further south at Screenline 2. This would tend to suggest that the reduced employment opportunities at Beaudesert Town and Bromelton reduce that quantity of trip making between the northern and central parts of the shire. The greatest jobs variation between scenarios is at Bromelton. This pattern can also be seen in the comparison between scenarios 3A and 3B.

The balance of the employment to population does not have a significant effect on the other screenlines, particularly to the northern and southern parts of Gold Coast City. For the most part, travel across these screenlines stays relatively consistent between the Scenario 1 and Scenario 3 variations.

Another indicator of the influence of the employment to population balance is an assessment of trip matrices themselves. In order to understand the influences of employment and population on trip making, a system of sectors (or groups of traffic zones) was developed and the trip matrices were subsequently compressed to these sectors. The sector system that was adopted was based on the proposed centres within the Study Focus Area and the other major centres in adjoining local government areas. This sector system is illustrated on Figure 8.5.

The travel pattern data by sectors is given fully in Appendix G, however the key points to note include:

- as the employment opportunities within the Study Focus Area reduce from Scenario 1A to 1B and 1C, the number of internal trips within the study area also reduces;
- similarly, the quantity of internal trip making within the Study Focus Area reduces between Scenarios 3A and 3B reflecting reduced employment opportunities.

The overall outcome of this assessment can conclude that as the employment levels in the Study Focus Area reduce, the overall trip demand within the Study Focus Area also reduces, resulting in less self-containment and potentially increased trip making from the Study Focus Area to the surrounding local government areas. It is also noticeable that additional jobs attract trips into the Study Focus Area.



