Appendix D Retail Modelling

1.1 Introduction to Retail Modelling

Retail modelling has been conducted to identify the catchment capability of retail centres in the LGA. Subsections 1.2 through to 1.5 establish the parameters and inputs for the SGS Retail Model which include:

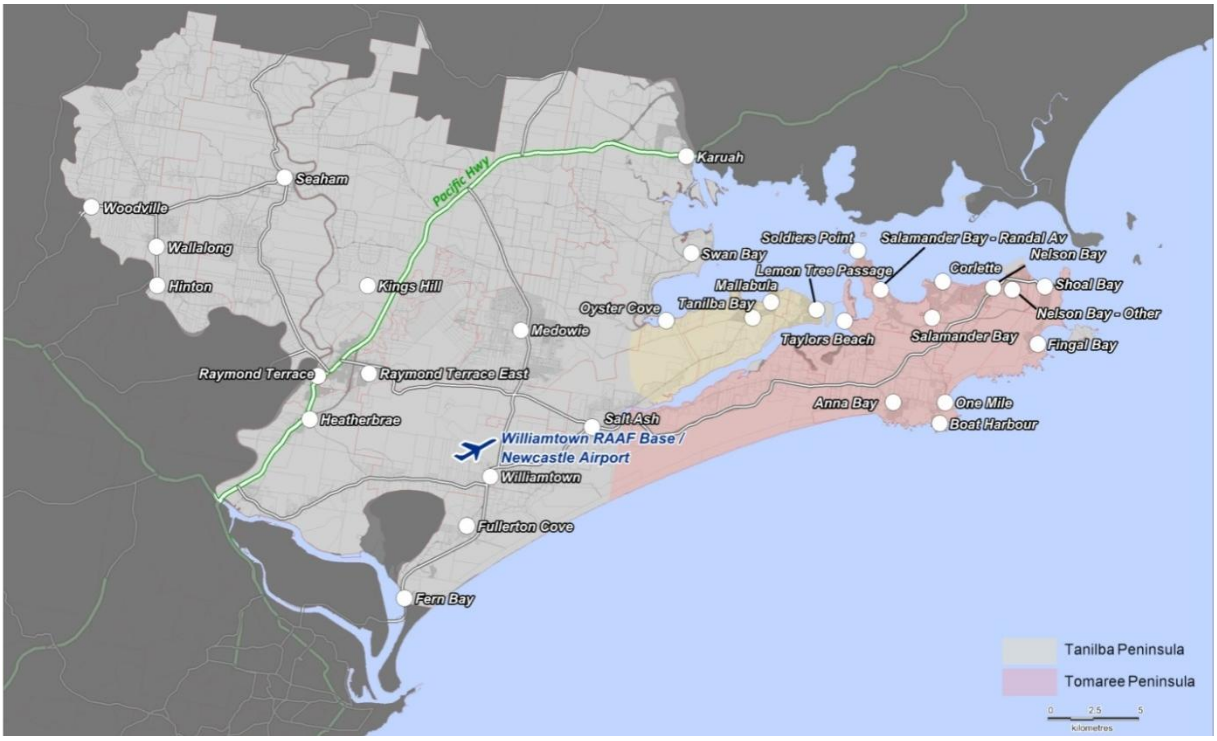
- the study area
- the available retail expenditure from residents within this study area and tourists
- the retail turnover at identified centres in the study area
- the amount of retail expenditure which is not captured by centres within the study area (i.e. escape expenditure)

Subsection 1.6 explains how the SGS Retail Model operates and subsection 1.7 presents the results of the modelling.

1.2 The Study Area

The study area selected for analysis is the Port Stephens LGA. Within the LGA there are 31 identified centres as shown in Figure 1.

Figure 1. Port Stephens Retail and Commercial Centres Study



Source: SGS 2009

1.3 Available Retail Expenditure

The pattern of retail expenditure at the national level for 2008 was drawn from ABS Retail Trade Trends, Australia (cat. no. 8501.0). The data was then modified for application to residents in the study area. This was achieved through use of:

- the 2003-2004 ABS Household Expenditure Survey (cat. no. 6535.0), which contains statistics on how local demographics affect retail expenditure
- distribution of household income data from the ABS Census of Population and Housing 2006

The modification was performed separately for each Census Collection District within the study area.

Table 1 shows the distribution of household incomes in the study area and across New South Wales. It shows that households in Port Stephens LGA have, on average, lower income profiles than the New South Wales average. This results in lower retail expenditure. A comparison of the average retail spending in each retail category for New South Wales and Port Stephens is shown in Table 2. The total average per capita expenditure in Port Stephens LGA is $8,910 per annum.

Table 1. Distribution of Household Income (2006)

	Income Quintiles					Total
	Lower	Second	Third	Forth	Upper	
Per cent Port Stephens LGA Households	27%	21%	20%	20%	11%	100%
Per cent NSW Households	23%	18%	19%	20%	20%	100%

Source: SGS 2009, ABS Census of Population and Housing 2006

Table 2. Study Area Household Expenditure Variation by Retail Category ($2008)

	Supermarkets	Department Stores	Other Food	Clothing	Household Goods	Other Retail	Hospitality and Services	Total
Retail Expenditure capita per annum – Port Stephens LGA	$ 2,913	$ 764	$800	$ 690	$ 1,449	$ 1,286	$ 1,008	$ 8,910
Retail Expenditure capita per annum – NSW Average	$3,098	$843	$851	$776	$1,572	$1,423	$1,142	$9,496

Source: SGS 2009

Tourism is a major industry in Port Stephens and draws considerable expenditure from outside of the study region. The major destinations for this expenditure are Nelson Bay and the smaller centres on the Tomaree Peninsula. There is also some tourism activity in Lemon Tree Passage, on the Tilligerry Pensinsula

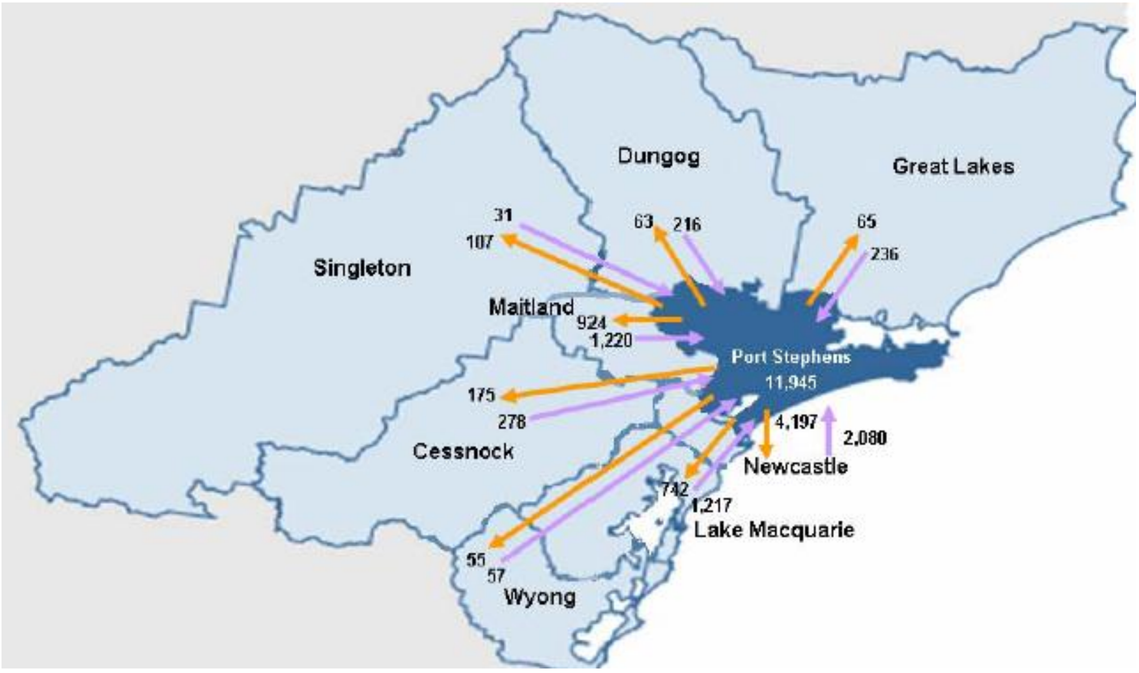
Expenditure by tourists visiting Port Stephens is estimated by Tourism Research Australia to be $40.3 million ($2007). However, only part of this expenditure is allocated to retail, with the remainder being spent on other goods or services such as accommodation, travel and entertainment. Using the distribution of spending in the Hunter Region, tourism spending on retail activities is estimated as follows:

- Food and Drink $13.3 million ($2007) per annum; classified in the retail model as Hospitality and Services
- Shopping $6.1 million ($2007) per annum; classified in the retail model as Other Retail

Available expenditure may also be generated by local workers who live outside of the LGA. Conversely, expenditure may be lost by residents who work outside of the LGA. Analysis done for the Port Stephens Economic Development Strategy shows that the number of workers who leave the LGA for work each day is greater than the number of workers who come to the LGA from elsewhere. In summary, JTW data shows that there is a net loss of people travelling outside of the LGA for work. Around 5,800 jobs in the LGA are held by people who live elsewhere. Around 8,500 residents in the LGA go elsewhere for work

This is shown in Figure 2 below. Although there is an imbalance, it is not significant in relation to the total population of the LGA. Furthermore, the amount of shopping done near a person's workplace is usually very minor.

Figure 2. Employment Patterns Port Stephens LGA



Source: Port Stephens Economic Development Strategy (2007)

1.4 Escape Expenditure

Escape spending refers to the extent to which retail spending by residents in a particular region 'escapes' to retail locations outside the region. A high level of escape spending identifies a relative lack of conveniently located retail facilities in the area, and may indicate latent demand for additional retail development. More typically in regional areas, escape expenditure occurs in categories where there is not the 'critical mass' to support development. This is true of bulky goods retail and department stores, which tend to serve a regional catchment.

The major destinations for escape expenditure from Port Stephens LGA are Newcastle and Maitland. This was supported in consultation with stakeholders.

The total value of escape expenditure is around $106 million, comprised primarily of Household Goods, Department Store retailing and Clothing and Footwear retailing. While Port Stephens does not contain any major department stores (such as Myer or David Jones), it does have a few discount department stores (Best and Less and Kmart) which retain some of the expenditure in this category. During consultation, stakeholders noted a shortage of high end department stores and high end clothing stores.

The expenditure lost in the Households Good category is likely to consist largely of bulky goods expenditure. Some of this expenditure is retained within the industrial precincts in the LGA which were not included as part of this study. The majority would however go to the major bulky goods precincts within the broader Lower Hunter Region.

1.5 Existing Retail Turnover

An on-foot assessment of existing land use at each centre within the LGA was carried out. Floorspace data at a fine grain industry level was collected and is analysed in section appendix A. For the purpose of retailing modelling, this floorspace data was converted to an estimate of existing retail turnover for a number of retail categories. This was achieved by applying typical retail turnover densities for each retail category with reference to expected escape expenditure (discussed in section 1.4.

The following centres have no retail or commercial floorspace and hence have a turnover value of zero:

- Boat Harbour
- Fullerton Cove
- Hinton
- Kings Hill
- Mallabula
- One Mile
- Oyster Cove
- Swan Bay
- Taylors Beach
- Wallalong
- Williamtown (excluding airport)

The estimated retail turnover for each of the centres in the study areas is presented in Table 3 .

Table 3. Estimated Retail Turnover $'000 ($2008)

	Supermarkets	Department Stores	Other Food	Clothing	Household Goods	Other Retail	Hospitality and Services	Total
Anna Bay	1,944	-	5,004	801	2,403	2,504	2,586	15,242
Corlette	1,144	-	-	-	1,414	-	1,194	3,752
Fern Bay	510	-	-	-	-	-	460	970
Fingal Bay	689	-	844	-	-	-	-	1,533
Heatherbrae	-	-	-	-	-	-	-	-
Karuah	365	-	975	-	2,190	1,908	351	5,789
Lemon Tree Passage	349	-	2,143	-	-	966	1,821	5,280
Medowie	20,487	-	1,843	389	-	1,832	432	24,983
Nelson Bay	10,844	-	10,444	11,846	-	22,263	31,960	87,357
N.Bay Other	1,686	-	1,226	-	-	-	1,217	4,129
Raymond Terrace	52,454	19,339	11,519	10,820	13,908	27,527	6,972	142,538
Raymond Terrace East	1,002	-	1,313	-	-	429	1,809	4,554
Salamander Bay	51,045	18,530	4,295	12,301	12,431	20,129	6,161	124,894
S. Bay Randal Av	799	-	2,674	-	401	986	1,984	6,844
Salt Ash	1,701	-	3,712	-	-	-	767	6,180
Seaham	134	-	146	-	-	98	-	379
Shoal Bay	1,008	-	-	741	-	1,146	10,265	13,159
Soldiers Point	637	-	-	468	-	-	1,977	3,083
Tanilba Bay	24,151	-	5,947	1,430	4,361	5,448	2,463	43,800
Woodville	531	-	-	-	-	368	-	899

Source: SGS, 2009

1.6 SGS Retail Model

This section models the source of turnover for each centre. The SGS Retail Model provides a method of accurately predicting the market share and trade catchment of a shopping centre, using elements from both mathematical and survey data based models. The SGS Retail Model is built upon international research as well as the extensive experience SGS has gained from undertaking retail studies.

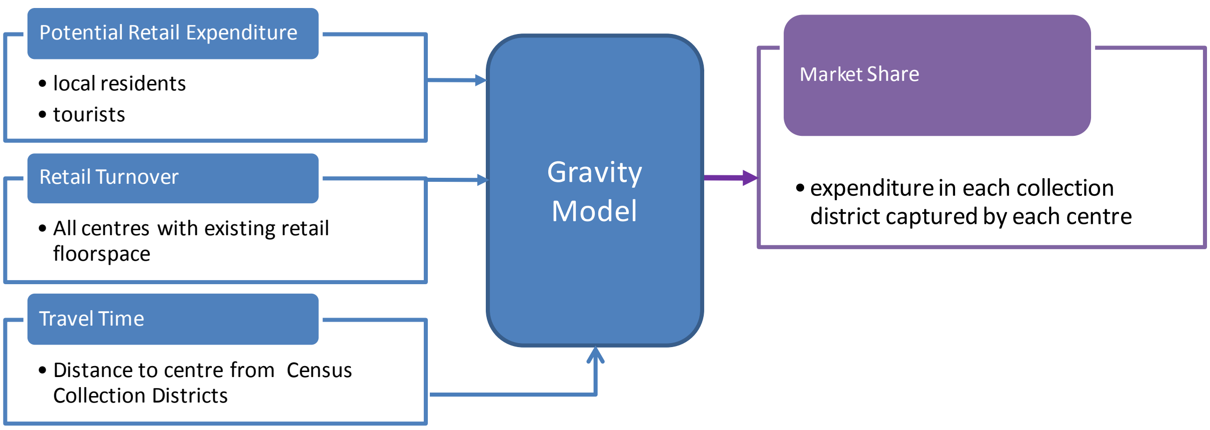
The SGS Retail Model determines Market Pull by means of the following equation:

$$\frac{(\text{“Attractiveness” of the Shopping Centre}) * (\text{Floorspace of the shopping centre})}{(\textbf{Travelling time} \text{ from the shopping centre to the customer})^{2}}$$

The “attractiveness” of a shopping centre is a value that represents supply-side attributes such as the centre’s appearance or design layout. Unlike other models, the SGS model does not attempt to measure the effects of design layout or product mix in terms of attractiveness. Instead, it uses the shopping centre’s known **retail turnover** (see section 1.4 above) as a basis and works backwards to find the “**attractiveness**” value at the present time. This attractiveness value is then used to estimate how centres perform given the **potential retail expenditure of the study area** (see section 1.3 above)**.** This technique has only become possible in recent years due to advances in computer technology and optimisation theory that simply did not exist in years past.

The model outputs the share of expenditure of Census Collection District captured by each centre (i.e. market share). The model inputs and outputs, in the context of the current study, are summarised in Figure 6.

Figure 3. SGS Retail Model



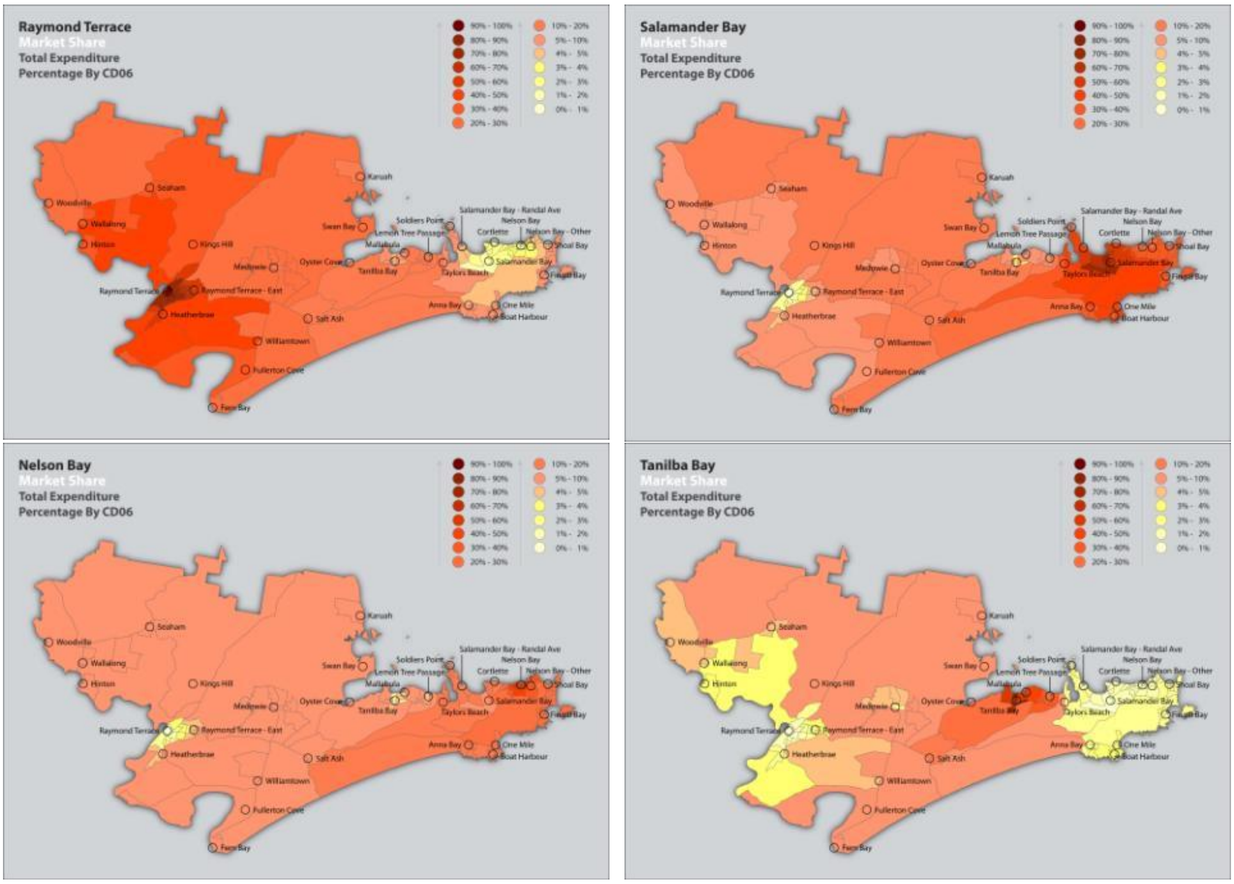
Source: SGS 2009

1.7 Retail Modelling Results

Market share measures how much of the available expenditure in each collection district is captured by a particular centre. Larger centres may attract a significant share of expenditure from collection districts which are some distance away. In contrast, small centres are only likely to attract a significant share of expenditure from collection districts which are close by.

An overview of the share of available expenditure from each collection district captured by the four largest expenditure destinations is shown in Figure 4. The images indicate that the population in the collection districts immediately surrounding, and to the south of, Raymond Terrace spend over half their available expenditure in Raymond Terrace. All other collection districts spend a considerable amount in each of the largest expenditure destinations. As the centres decrease in size their share of available expenditure captured decreases significantly (Figure 5 and Figure 6).[1]

Figure 4. Market Share Captured by Raymond Terrace, Salamander Bay, Nelson Bay, Tanilba Bay (all retail categories)

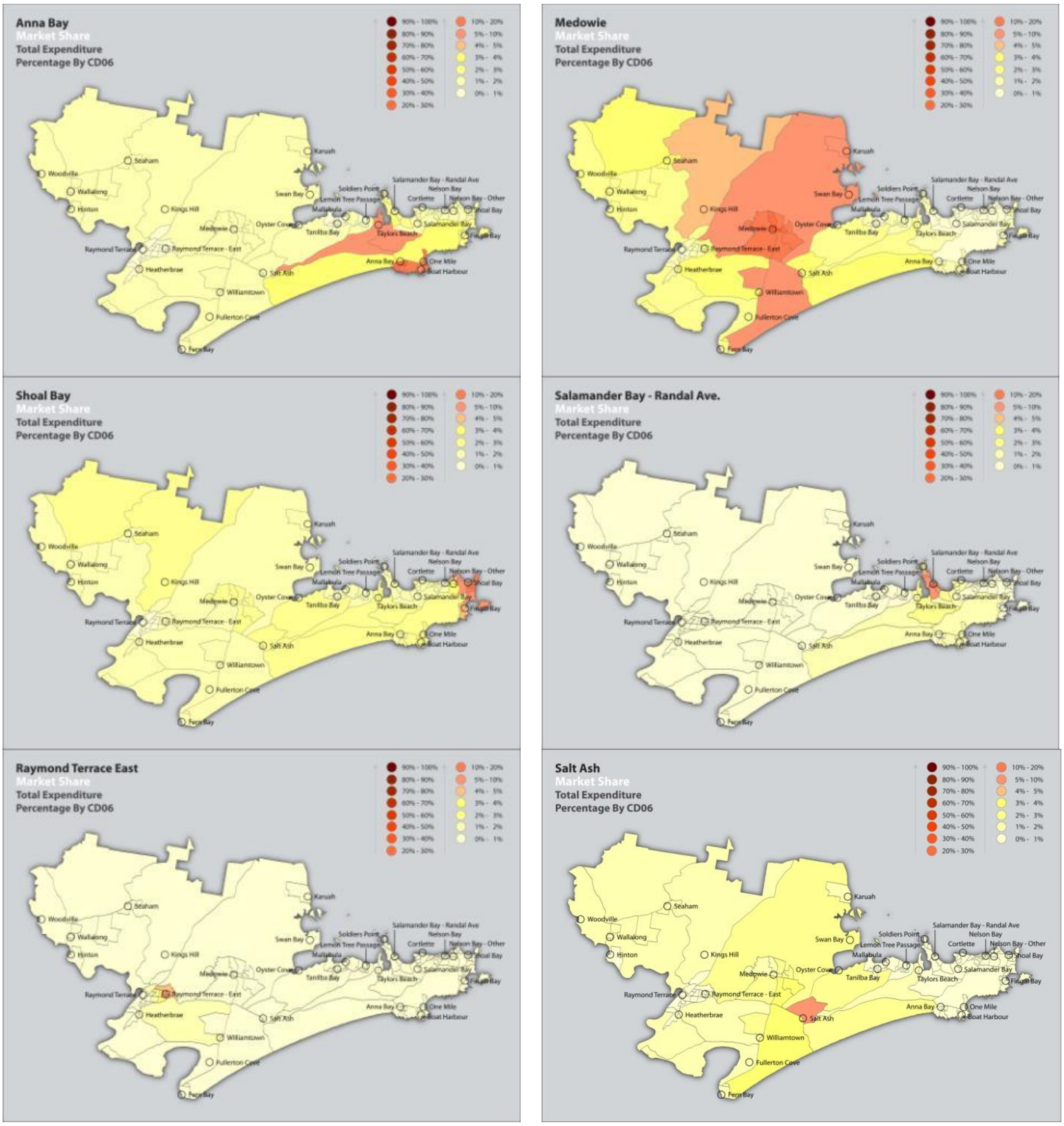


Source: SGS 2009

Figure 5. Market Share Captured by Anna Bay, Medowie, Shoal Bay, Salamander

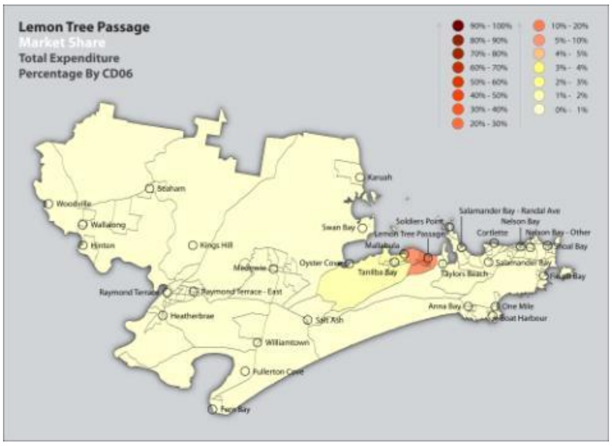
[1] Note: Images are only displayed for centres where the market share from more than four collection districts is greater 2%.

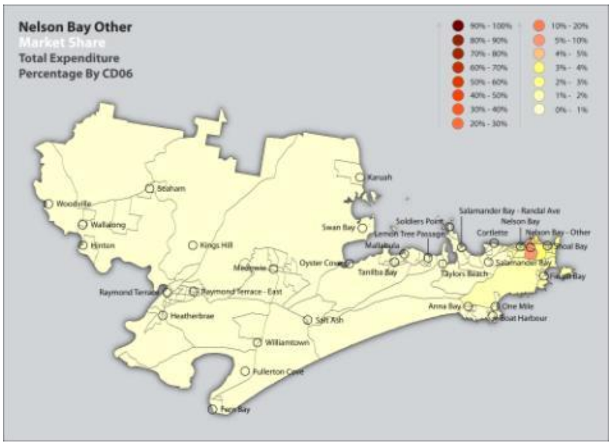
Bay – Randall Ave, Raymond Terrace East, Salt Ash, (all retail categories)



Source: SGS 2009

Figure 6. Market Share Captured by Lemon Tree Passage, Nelson Bay Other (all retail categories)



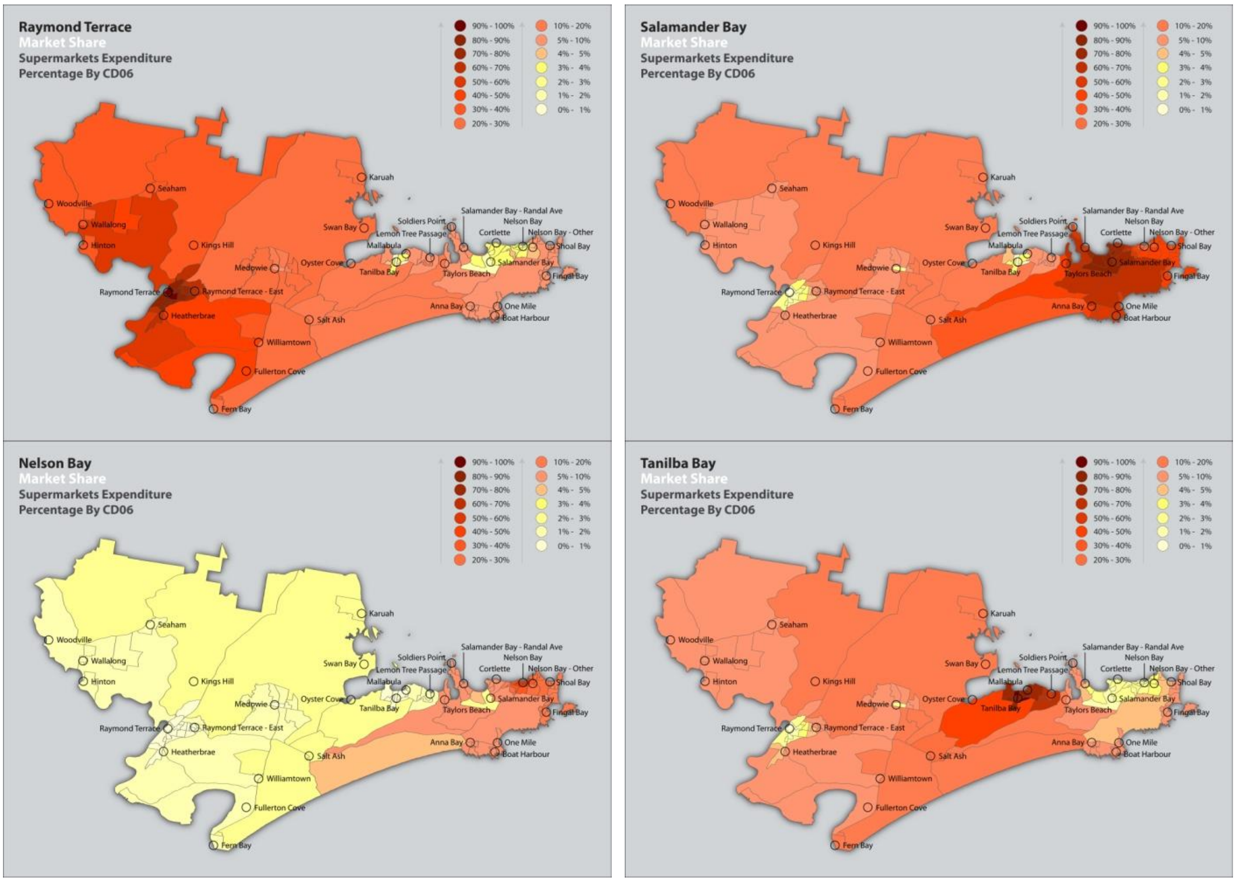


Source: SGS 2009

Analysis of market share has also been done for supermarkets. It is relevant to look at this category of retail separately because supermarkets are typically the anchor development for centres. It should be noted that this analysis includes large supermarkets, such as Woolworths, as well as smaller supermarkets and grocery stores, such as Friendly Grocer.

A pattern similar to that of total expenditure emerges in Figure 7 and Figure 8[2]. However, there is generally more variation across the LGA for the market share of supermarket expenditure than for total expenditure. This reflects the fact that residents shop more locally for grocery items. The comparison highlights the role larger centres play in offering a wider range of goods.

Figure 7. Market Share Captured by Raymond Terrace, Salamander Bay, Nelson Bay, Tanilba Bay (supermarket expenditure)



Source: SGS 2009

[2] Note: Images are only displayed for centres where the market share from more than four collection districts is greater 2%.

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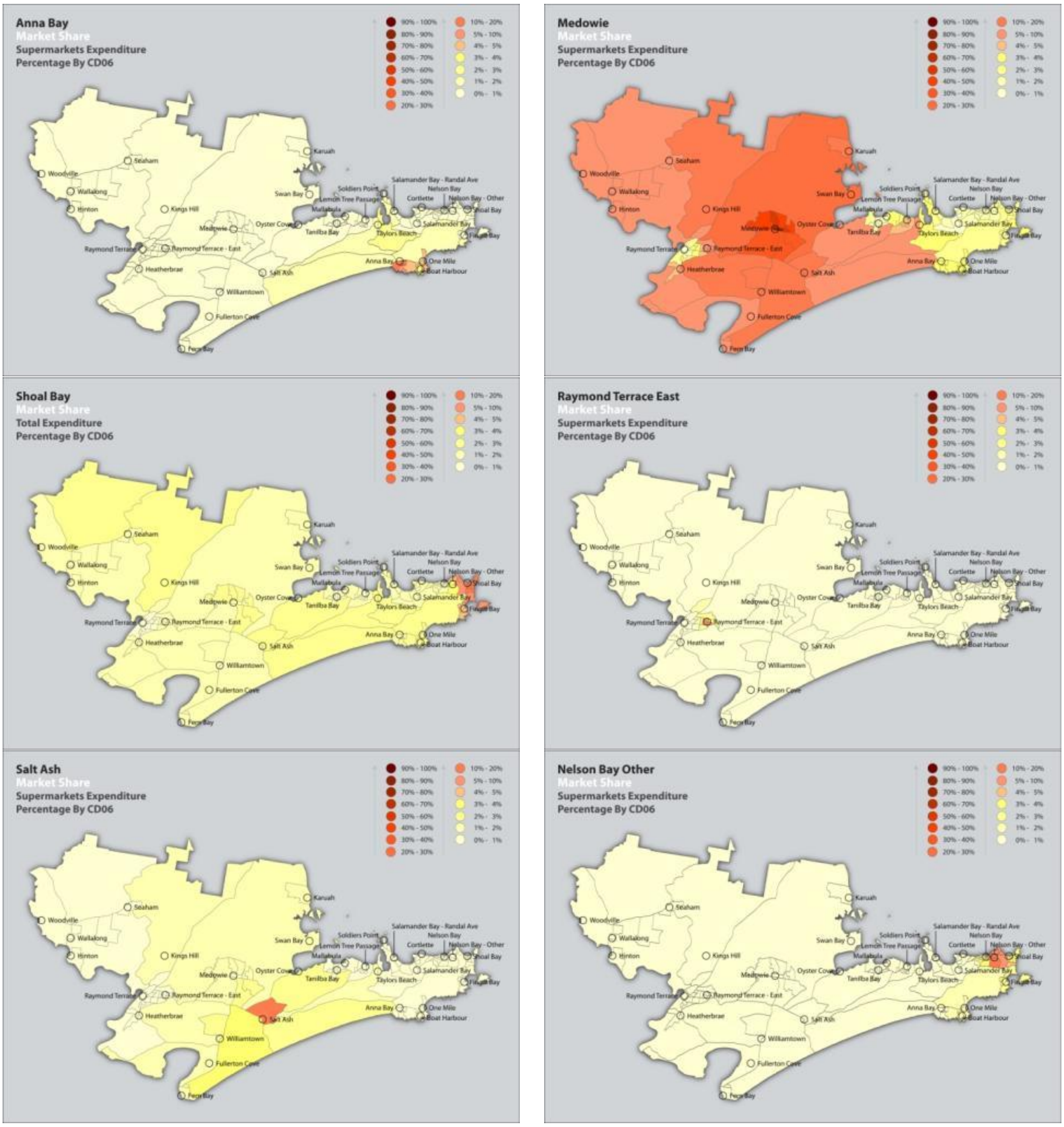
Figure 8. Market Share Captured by Anna Bay, Medowie, Shoal Bay, Raymond Terrace East, Salt Ash, Nelson Bay- Other (supermarket expenditure)



Source: SGS 2009

1.8 Kings Hill

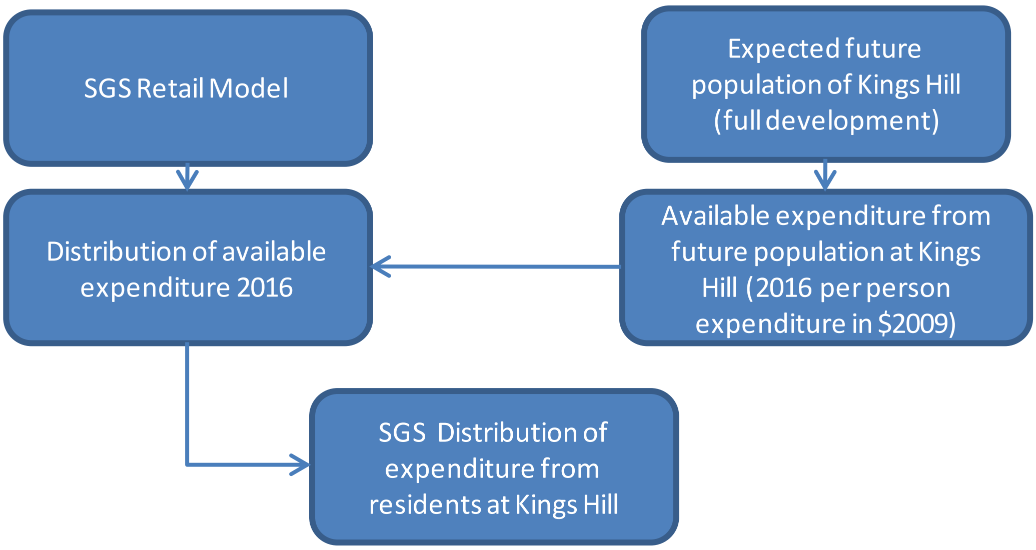
Kings Hills is one of the major urban growth areas proposed for Port Stephens LGA. Development of Kings Hill could provide 4,700 dwellings and 12,000 people over the next 20 years Although preparatory studies indicate that the Williamtown airport ANEF 20 contour is sufficiently far away from the site that development is 'unconditionally permissible for the whole site' , there have been delays in the approval of the plans due to this issue. A draft LEP is currently being prepared by Council.

The Port Stephens Economic Development Strategy notes that at Kings Hill:

'The urban development will include some local employment, with mixed use development in the village and employment lands on the highway. The village area will see the development of local convenience retail and services and a supermarket and specialty shops. This would comprise a supermarket (3,000 m2) and specialty retail and ancillary retail services (4,000 m2).'

Council has requested that SGS consider the potential for retail development at Kings Hill. This has been achieved using the retail model, as detailed in the preceding section. A summary of the method followed in this section is provided in Figure 9.

Figure 9. Method of Assessment



One of the outputs of the SGS retail model is the distribution of available retail expenditure in 2016 across all centres in the LGA. This distribution is based on:

- the 2016 population of the LGA's planning districts (as determined by .id)
- the relative attractiveness of each centre ('attractiveness' is based on the performance relative to the proximity of other centres and the distribution of expenditure)

If full development yield at Kings Hill is achieved, the population will be around 12,000 people. Associated with this population, there will be $104.3 million of additional retail expenditure available.

This expenditure will be split across the centres hierarchy. The nature of this split will be similar to the split of expenditure from areas elsewhere in the LGA. For the purpose of this assessment, the distribution of additional retail expenditure is assumed to be similar to that in the 'Medowie - Ferodale – Campvale' district. This district has a 2016 population similar to that expected to be realised in Kings Hill. Further, Medowie is designated as a Town Centre. It is however closer to Raymond Terrace and therefore the results presented here are likely to indicate an upper limit of the supportable floorspace at Kings Hill.

Taking the split of expenditure in 'Medowie - Ferodale – Campvale' district, applying it to the $104.3 million of additional retail expenditure associated with the development of Kings Hill suggests distribution of supportable floorspace as shown in the table below.

Table 4. Kings Hill distribution of supportable retail floorspace

	Major Regional	Stand Alone	Town Centre	Village	Small Village	Neighbour -hood	Escape (Elsewhere)
Supermarket floorspace (sqm)	397	160	2,530	23	65	19	245
Total retail floorspace (sqm)	3,610	1,800	8,483	1,163	972	63	4,803

Relating this to specific centres, this suggests that:

- As Raymond Terrace is the LGA's major region centre, it can be expected that an additional 3,610 sqm of total retail floorspace (inclusive of 397) sqm of supermarket floorspace will be supported in this location. The Commercial and Industrial Lands Study indicates that there is sufficient capacity within Raymond Terrace to accommodate this additional demand.

- While Salamander Bay is the LGA's only standalone shopping centre, Kings Hill's proximity to Raymond Terrace and to bulky goods precincts in Maitland is likely to mean that most of the additional stand alone shopping centre floorspace will go to Raymond Terrace or Maitland LGA.

- As a proposed town centre, the additional 8,438 sqm of retail floorspace at the town centre level (inclusive of 2,530 sqm of supermarket floorspace) could be supported at Kings Hills.

- The additional 2,199 sqm of retail floorspace (inclusive of 107 sqm of supermarket floorspace) at the village level, small village and neighbourhood centres combined could be added to the share of floorspace in Kings Hill. We would not expect a significant share of residents to leave the centre they live in for the types of goods and services offered at centres of this level elsewhere.

In summary, around 10,700 sqm of floorspace, of which 2,500 is dedicated to supermarket floorspace could be supported in Kings Hill with the population associated with full development.