Business Land Capacity
Tauranga Central Isthmus

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Contents

1. Introduction

Traffic modelling for the SmartGrowth project included a series of assumptions about the capacity of the Tauranga Central Isthmus to accommodate future employment. (Central Area - Future Development Issues Report February 2003, Transport Project Team)

Given the large increases in employment over current levels, the significance of potential changes to the road network arising from the model assumptions, and the overall importance of development of the isthmus in long term planning, a need was identified to review and validate the long-term planning assumptions about employment in the Tauranga Central Isthmus.

This report outlines the work done to validate the assumptions, the findings, and recommendations.

2. Background

The road network effects of each of the SmartGrowth "Growth Management Alternatives" have been modelled. In doing this a land use scenario for households and employment was provided. For the Tauranga Central Isthmus the following employment levels were included:

Alternative	Retail Employment (2051)	Non-retail Employment (2051)	Total Employment (2051)
Current approach (Red)	8783	16879	25,662
Low Density (Yellow)	8019	19739	27,758
High Density (Blue)	14847	24328	39,175

The Transport Project Team sets out the assumptions behind these employment levels in a report "Central Area Future Development Scenarios – Discussion Paper". This report was prepared because of concerns about the initial land use predictions prepared for traffic modelling. It concluded:

> *"Taken at face value, this presently reported assessment based on the combination of residential and employment locations as currently being applied effectively pictures a future in which there would be a significant intense population living within Tauranga Central who would travel outwards to distant scattered employment locations in the suburbs and at the peripheral margins of the expanded city.*
>
> *This is considered unlikely.*
>
> *Apart from significant commercial and social implications, such an intention is also identified as having undesirable and expensive consequences in transport planning. Accordingly, further refinement is needed."*

The report developed alternative predictions, lifting employment levels significantly to reflect a broadly held community vision of maintaining the relative importance of the Tauranga Central Isthmus, and to avoid adverse transport planning outcomes.

The employment levels were for modelling purposes and not based on any examination of physical capacity. Given the emerging community preference for a settlement pattern favouring residential intensification with a significant part of this occurring in the Tauranga Central Isthmus, refinement of the employment assumptions has become an essential task. Allowing residential intensification to occur in the

Central Isthmus without addressing employment adequately will potentially lead to road network development that will be environmentally and socially unacceptable.

3. Methodology

3.1. General Approach

The Tauranga Central Isthmus was divided into 10 areas for analysis. These zones are shown on the map below: Figure 1

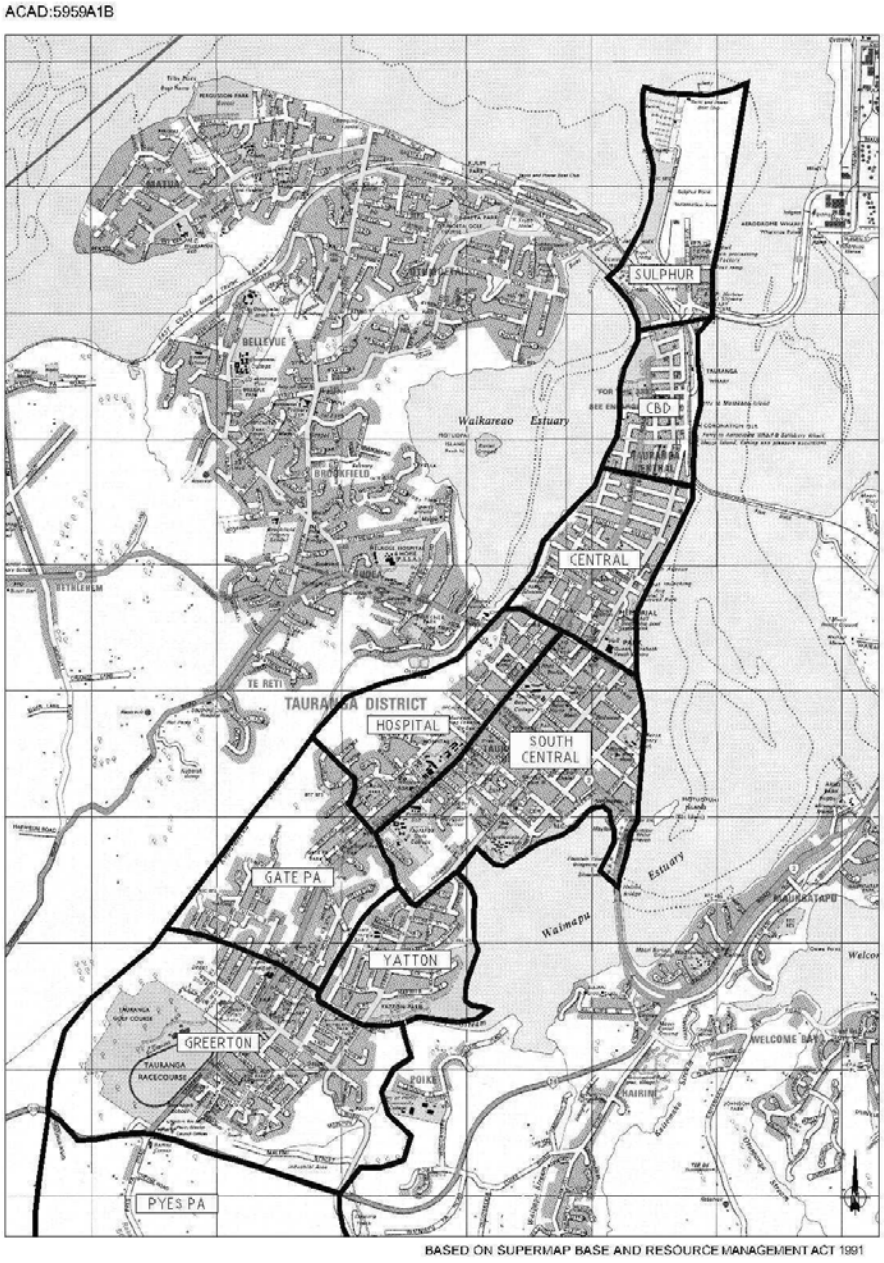

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Figure 1 : Central Tauranga Isthmus area boundaries and sub-zones

For each area, an analysis of employment potential was carried out.

The analysis took into account the "degree of difficulty" in providing for future capacity. This required opportunities for increasing capacity to be considered against defined criteria. The following criteria were used:

Degree of Difficulty	Potential to increase capacity
Easy	Within existing zoned area, and rule framework.
Moderate	With incremental additions to existing zoned areas, and new areas within greenfield locations.
Hard	With redevelopment of substantial sites already in other uses (residential, open space, etc).

The intention was to gain an understanding of what changes would need to take place to achieve increases in employment capacity, how attainable those changes were, and what could reasonably be relied on as capacity for long-term planning.

It was considered important to reach a position of relative confidence about the level of employment that could be achieved. The potential development areas identified in the "Hard" category are generally those that have merit from a location and access point of view. However, achievement is likely to be difficult because of current use, and potential public outrage in some cases e.g. use of long standing recreation/open space areas.

The employment yield of each area was calculated by applying an "employee per hectare" rate.

The detailed methodology was developed and tested in the field. The methodology was then peer reviewed by the Environment Project Team. The record of the peer review meeting is Attached (Attachment 1).

3.2. Fieldwork

All existing employment areas were inspected, and opportunities considered to expand existing areas or to develop new areas. This fieldwork took place over a two day period and was undertaken by a two person project team.

Field notes were recorded in a spreadsheet (See Attachment 2 – Summary Worksheet).

3.2.1. Land Area

The land area of individual land parcels was provided by Tauranga District Councils GIS. The areas were aggregated into homogenous areas taking into account likely employment intensity, and total areas calculated (See Attachment 4 – Area Calculations).

3.3. Employment Intensity

Indicator levels of employees per hectare were developed through an analysis of existing fully developed employment areas within the Tauranga District. (See Attachment 3 – Employment Levels).

Results were simplified to produce 5 indicator intensities:

Initial use of these indicators produced a total employment capacity for existing areas lower than the estimated 2001 level of employment. This demonstrated that the intensity indicators were too low to achieve alignment with the traffic model for 2001.

Indicators were factored up by 37% to calibrate the indicators to the estimated employment levels in 2001.

Activity Type	Intensity (Employees per hectare)	Calibrated Intensity (Employees per Hectare)
Industrial High	50	68.5
Industrial Low	20	27.4
Commercial High	165	226.05
Commercial Medium	90	123.3
Commercial Low	70	95.9

On the assumption that intensity of employment will increase in future as a result of multi-floor development and conversion of low intensity activity to higher uses, further factors were tested to determine what levels of intensification would be needed to achieve the employment capacities used in the traffic model scenarios. No empirical information from other locations was available to benchmark appropriate intensity factors.

3.3.1. Employment Intensity Selection

The project team members made the selection of employment intensity for specific areas. Employment levels for each homogenous area were calculated by multiplying the land area by the selected employment intensity.

3.3.2. Employment Levels for Each Area

For each of the ten areas used for analysis, a sum of employment capacity is provided for “commercial” and “industrial” areas.

3.3.3. Employment Levels for Tauranga Central Isthmus

An aggregate sum of employment levels is provided for commercial and industrial areas. This can be compared with current employment levels, and the employment levels assumed in the SmartGrowth Traffic Model.

3.3.4. Employment Categories

The SmartGrowth Traffic Model refers to two categories of employment – “retail” and “non-retail”. The analysis of employment capacity also refers to two categories - “commercial” and “industrial”. The terms are **not** interchangeable. Only the total employment figures provide a basis for comparison.

4. Findings

4.1. Tauranga Central Isthmus Employment Capacity

The total level of employment estimated for the Tauranga Central Isthmus is as follows:

Degree of difficulty	Total Employment	Cumulative
Easy (Base Case)	25,928	25,928
Moderate	3,041	28,969
Hard	5,752	34,721

This estimate assumes intensity increases above current rates of at least 50% for high and medium intensity commercial areas, and lesser increases for other areas.

On this analysis, the estimated ***realistic capacity*** is considered to be the sum of the easy and moderate totals – 28,969.

4.2. Comparison with SmartGrowth Modelling Assumptions

The variance between the ***realistic capacity*** and the SmartGrowth modelling assumptions is as follows:

Alternative	Employment (2051)	Variance
Current approach (Red)	25,662	266
Low Density (Yellow)	27,758	1,830
High Density (Blue)	39,175	13,513

Therefore, employment assumptions used in the SmartGrowth modelling are higher that the capacity estimated in this analysis, and significantly so for the high-density alternative.

To achieve the capacity assumed for the high density alternative, the employment intensity would need to be twice that of current levels, or alternatively it would be necessary to bring in some or all of the areas regarded as "hard" to achieve. Both of these are considered unrealistic.

4.3. Validity of findings

A number of assumptions have been made to undertake this analysis. The main areas affecting the results are discussed below:

- The new areas have not been subject to a full assessment of feasibility or environmental effects. The assessment is based on local knowledge and experience of the project team.
- All new areas would require plan change procedures that involve potential for submissions and references. Any scenario building will suffer from this weakness.
- Incremental expansion of commercial areas into residential areas has been identified in a limited number of cases. Tauranga Central Isthmus is a high demand residential area due to proximity to services and recreation. The streetscape is high quality in many areas with established character housing. The area has been identified as a location for significant residential intensification in the medium to longer term. The identification of new employment areas has taken into account the objective of maintaining residential environmental quality.
- The employment intensity indicators are based off data from existing sites within Tauranga with intensification factors added.. More comparative assessment or benchmarking to other similar studies may improve this indicator. However, it is important to use information reflecting similar circumstances. Data from large metropolitan central business areas may not be entirely relevant, but is likely to be the most readily available.
- New types of mixed land use (e.g. mixed use retail, office and accommodation) in residential areas have not been specifically included in the analysis, apart from one area to the north of the CBD. It

was considered more likely that this mix would occur in the existing commercial areas, given the need for profile location.

- Residential zone commercial uses (offices, motels, etc) have not been assessed separately. It was assumed that these uses would not account for large-scale employment.

5. Discussion

5.1. Additional Employment Capacity

The estimates are subject to a number of assumptions that are difficult to test. However, there are some general conclusions that can be drawn that may affect policy development.

Similar gains in employment capacity are likely to be made through intensification of existing business areas compared to the addition of likely new areas.

Because much of the Central Isthmus is largely developed or committed, there are no opportunities for significant new development areas without facing substantial difficulty and risk. The opportunities for increased capacity in new locations have potential for strong public resistance . There is a significant doubt that areas in this category could be relied on as capacity for planning purposes. However, if the sites identified in the analysis were realised, further capacity 10% over and above the ***realistic capacity*** could be achieved. In the bigger scheme of things this would be a small gain that would be very hard to achieve.

5.2. "Out of Area" Employment

The analysis has been limited to the Tauranga Central Isthmus and this can lead to some key issues not being reflected in overall conclusions. There are employment centres just outside the Central Isthmus that could be the subject of change, providing capacity that has not been reflected in the SmartGrowth modelling to date.

As a general observation, because opportunities for increasing employment capacity in developed areas are very limited, provision in greenfield locations accessible to the Central Isthmus should be viewed as a positive strategic opportunity. Pyes Pa and Tauriko, and the tertiary campus development at Windermere are possible examples.

5.3. Implications for Strategy Development

The analysis shows that the assumptions for employment used to date in the SmartGrowth model are likely to be too high, particularly for the high density alternative.

There are several options available for taking the issues forward:

Do nothing – This would retain the employment levels unchanged, assuming that future innovations in mixed use, and new forms of employment generating activity may close the gap. It would also take into account the possibly lower trip generation from residents in this area (i.e. a higher proportion of non working age residents).

Undertake further analysis – This would focus on further research to improve information relating to the employment intensity indicators to determine whether significant gains can be made in providing additional capacity before taking any further decisions.

There is limited data available to improve intensity indicators. This remains the weakest component of the analysis. The methodology is very sensitive to the intensity indicator. Further work would improve the defensibility of the analysis.

Revise the model to align with the analysis – This would involve a revision of the employment scenario to recognise the estimated shortfall in capacity in Tauranga Central through provision in other areas. This could be done in conjunction with a revision of the land-use predictions for the "preferred" strategy.

6. Conclusion and Recommendations

The analysis has shown that capacity for employment is less than that assumed in the SmartGrowth Traffic modelling under each of the scenarios, particularly for the high density alternative.

The gap in capacity is to be closed by new information that may bring only marginal gains. However, the defensibility of the analysis would be improved by further work on the intensity indicators.

The recommendations are:

- Review employment intensity indicators against other studies and update if possible.
- Revise the traffic model employment assumptions for the preferred strategy to align with the ***realistic capacity*** estimate given in this report,
- Rerun the traffic model under the amended assumptions.
- Test sensitivity of modelling results to higher levels of non-working residents (lower trip generation)
- Revise network improvements or reduce household estimates to provide an acceptable outcome.

7. Attachments

Attachment 1 Peer Review Meeting Record

SmartGrowth
Record of Meeting
Environment Project Team
13 May 2003

Attendees

Andy Ralph, Craig Batchelar, Brian Croad, Ken Tremaine, Martin Butler, Nick Aiken

Apologies

Phillip Martelli, David Phizaclea

Purpose

The purpose of the meeting was to review a suggested methodology for validating the capacity of business alnd in the Central Tauranga Isthmus for the traffic model.

Craig presented a Powerpoint slide show on the background to the issue and methodology developed by him and Andy.

Comments

In the Central area people may not be working – ie households may include many retirees. A big question as to the sensitivity of the model to this issue.

Action:

Testing the sensitivity of the model to different trip generation.

What is the overall level of confidence in the model?

Action:

Review how the traffic flows today align with the forecast made in 1991.

Regardless of sophistication of the model there will be “wobbles” in the long term.

Query whether the model is good enough. Does it need to be completely updated? For example it does not deal with home/school trips or Saturday peaks. It is a home work trip model. Can it be relied as a base for building a financial contribution for growth related arterial roads?

Action:
Craig to seek advice from the Transport Project Team.

Overall agreement that the methodology is acceptable, although the extent of assumptions was of some concern. Important that the field work be carried out by people with excellent local knowledge/experience.

Action:
Proceed with completion of validation work and report on actions as noted above.

General Business Land Issues

Residential pressure has resulted in insufficient land being provided for business.

The market is not providing adequate land for business.

Land banking is a possibility. TDC Finance Group have analysed the costs of land banking at Papamoa and consider it non-viable. Results only reported 'obliquely'.

Other places appear to have worked this successfully eg Manukau.

From a regional perspective a road link to Rotorua may provide business capacity. Does it need to be in WBOP?

Action:
Nick to do a case study with Ken on business land including Manukau City experiences.

Consolidate business land issues a key issue for JC to consider, including elevating landbanking a s aregional issue rather than Papamoa specific.

7.1. Attachments 2, 3 and 4- Spreadsheet – Summary Worksheet, Employment Levels, Area calculations.

Area Name		Sulphur Point	Employees	Central City	Employees	Cameron Rd	Employees	Hospital	Employees		Fraser	Employees	Gate Pa	Employees	Merivale	Employees	Waimapu	Employees	Greerton	Employees	Pyes Pa	Employees	All Areas	Cumulative
Area Identifier		10		CBD		15		20			24		23		26		27		Greerton					
Current Position (2001)																						-		
Employment	Retail																						0	
	Non-Retail																						0	
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**	**0**	**0**	
Future Potential																								
Easy		Chapel St CB(except WWTP)	1336	Intensification of inner core	4210	Intensification of existing CB zoning	3776	Tauranga Hospital developed in line with Strategic Plan proposals to 2021.	3000	Spec ial case	Fraser Street/Courtney Rd moves to higher intensity.	3127	Clarkson land intensifies as per development proposals.	564	Existing shop	38	Poike Rd develops as low density commercial business	396	Shopping centre intensifies.	1136	Small shopping centre	370		
		Cross Rd Industrial intensifies	493	Intensification of outer core	1206	Intensifiication of inner core(Elizabeth to first ave	686	Intensification of existing CB	766	CM	Taraunga Girls and Boys College at full development	200	Gilmours(Cameron Rd) area intensifies	385					Existing Maleme Street intensifies	3533				
		Port Zone - some redevelopment	1850	Intensificvation of waterfront - Strand - Civenco	327						Burrows Street intensifies	665	Courtney Rd (Greerton Side) intensifies	333										
		Marine Studies	50	Intensification of Marsh St.Nth CBD to Marsh Street remains Residential but with 2/3 converting to Office between McLean and Mission Street.	150														Sherwood industrial intensifies	860				
Potential Employment	Commercial		1386		5893		4462		3000			3992		1281		38		396		1136		370	20569	
	Industrial		2343						766			200				0		0		4394		0	5360	
	Total		**3729**		**5893**		**4462**		**3766**			**4192**		**1281**		**38**		**396**		**5530**		**370**	**25928**	**25928**
Moderate			0			Modest Commercial extension between 5th and 8th ave	205	Compass Village redeveloped to full Commercial Business capacity. Limted capacity	743	CL	Additional area 12-13 Ave(Boys College Side) retaining	129	Gilmours site extends to Sheppard / Manly Grove	296					Land opposite Maleme Street - rezoned Industrial from residential	110				
			0			Norris Street - to Commercial business - Cameron Rd side.	112	Recreation B 17 to 18 ave to Commercial business	500	CL			Munro Street chnages to Commercial.	189					Poike Rd extension	468				
			0					Additional area zoned CB between 12th and 13th Ave	65	CL									Relocation of Greerton school playing field	222				
								Eleventh Ave and Edgecumbe	24	CL														
Potential Employment	Commercial		0		0		317		566			129		485		0		0		690		0	2188	
	Industrial		0		0				743							0		0		110		0	853	
	Total		**0**		**0**		**317**		**1309**			**129**		**485**		**0**		**0**		**800**		**0**	**3040**	**28969**
Hard			0						0		Devonport/11th/12th Commercial business - relatively intect high amenity residetial area - some non-res uses Bowling Club, old diary factory.	778	Residential land between Gate Pa and Courtney Rd to Commercial business. (Hard to manage interface with Residential, but are is pinched between two employment areas and amenity will diminish over time)	533					Greerton Park(currently recreation area, low lying.	548	Cheyne Rd opposite Maleme (currently residential - awaiting development)	1347		
			0						0										Part of Tauranga Racecourse (50%) developed as high amenity business park	1278				
			0						0										Additional areas at Pooles Rd/Greerton Rd, Emmett St/Mansels Rd block rezoned from	1269				
Potential Employment	Commercial		0		0		0		0			778		0		0		0		1269			2046	
	Industrial		0		0		0		0					533		0		0		1826		1347	3706	
	Total	**0**	**0**	**0**	**0**		**0**		**0**			**778**		**533**		**0**		**0**		**3094**		**1347**	**5752**	**34721**

Business Area Type	Intensity	Description	Measured Employment Rate Indicator (Employees per Hectare)	Adjustment factor to Calibrate result to 2001 employment levels	Calibrated Employment Ratio (employees per hectare)	Intensification Factor	Employment Rate/ha	
Industrial	High	Fully developed light industry (Birch Ave indicator - 48 employees per hectare)	50	1.37	68.5	1	68.5	
	Low	Fully developed heavy industrial (Port Zone indicator - 17 employees per hectare)	20	1.37	27.4	1	27.4	
Commercial	High	Fully developed Central City retail area (Grey/Devonport block indicator - 164 employees per hectare)	165	1.37	226.05	1.5	339.075	
	Medium	Fully developed non-centre mixed commercial retail area (9-11 Ave Indicator - 92 employees per hectare)	90	1.37	123.3	1.5	184.95	
	Low	Fully developed suburban retail centre (Brookfield indicator - 78 employees per hectare, Bayfair indicator - 65 employees per hectare)	70	1.37	95.9	1.25	119.875	

Sulphur Point									
Chapel Street CB	Cross Rd IB	Port Zone							
86879	22577	675000							
7266	45159								
1958	4289								
6179									
1476									
7671									
111429	**72025**	**675000**							
11.1429	7.2025	67.5							
Tauranga Central									
Core	Outer coreWaterfront	Waterfront							
12284	2823	7671							
8192	1363	5412							
6802	3925	13640							
3028	9384	254							
6951	7243	342							
3872	4564								
21259	2753								
14491	6773								
5720	3492								
24713	5802								
16849	4539								
	12545								
124161	**65206**	**27319**							
12.4161	6.5206	2.7319							

Cameron Rd									
Core	Cameron Rd CB	5th-8th Ave	Norris						
25104	12525	4064	6050						
2609	5540	2995							
4302	11799	4035							
5092	3238								
	5882								
	17711								
	14510								
	4107								
	2577								
	4742								
	9096								
	894								
	4080								
	8171								
	2141								
	2032								
	3620								
	3093								
	2081								
	2051								
	2836								
	13107								
	4272								
	7151								
	12020								
	15933								
	8169								
	11636								
	7342								
	1795								
37107	**204151**	**11094**	**6050**	**0**					
3.7107	20.4151	1.1094	0.605	0					

Hospital									
Cameron Rd CB	Compass Village	Rec B land- Clarke St	12/13 Ave	11th Ave to Edgecumbe					
5222	61984	41746	5441	2000					
4037									
8657									
6844									
1698									
14950									
41408	**61984**	**41746**	**5441**	**2000**					
4.1408	6.1984	4.1746	0.5441	0.2					
Fraser									
Fraser/Courtney CB	Burrows Street	Addition to 13th Ave	Addition at 11th and 12th Ave						
169098	2429	7000	31371						
	7090		10684						
	7454								
	3926								
	6102								
	8933								
169098	**35934**	**7000**	**42055**						
16.9098	3.5934	0.7	4.2055						
Gate Pa									
Clarkson	Gilmours	Courtney Rd	Gilmours extension	Munro Street	Gate Pa to Courtney				
4978	19138	17269	16023	2456	21426				
1477	1667	716		5590	5829				
24142				2161	50603				
16433									
47030	**20805**	**17985**	**16023**	**10207**	**77858**				
4.703	2.0805	1.7985	1.6023	1.0207	7.7858				

Merivale									
Shops									
718									
1916									
550									
3184									
0.3184									
Greerton									
Greerton Shoppping Centre	Maleme Street Industrial	Poike	Sherwood	Maleme Street	Poike Rd Extension	Greerton School Playing Field	Greerton Park	Race Course	Pools Rd
12940	5525	33023	12074	16000	25318	12000	80000	186500	68588
2983	301545		32153						
1396	37536		21431						
4124	171224		47653						
2146			12291						
1416									
601									
4167									
5726									
2399									
1077									
2125									
3230									
2780									
1874									
12441									
61425	**515830**	**33023**	**125602**	**16000**	**25318**	**12000**	**80000**	**186500**	**68588**
6.1425	51.583	3.3023	12.5602	1.6	2.5318	1.2	8	18.65	6.8588
Pyes Pa									
Small shopping Centre	Cheyne Rd								
20000	**196610**								
2	19.661								