

Issues Paper – Population & Dwelling Profile

Southern Moreton Bay Islands

Covering the Islands of Macleay, Lamb, Karragarra and Russell

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Overview Map of the Southern Moreton Bay Islands



1.0 SMI Snapshot Summary

		Section
2006 Statistics		
2006 Population	4,039 persons ERP	2.0
	4,239 persons Census Count	2.0
2006 Dwellings (Total)	2,795 dwellings	3.0
2006 Occupied Dwellings	1,890 dwellings	3.2
2006 Vacant Dwellings	905 dwellings	5.1
2006 Residents and Visitors Population*	6,150 persons approx.	5.2
2008 Statistics		
2008 Population	5,200 persons approx.	4.0
2008 Dwellings (Total)	3,369 dwellings	3.4
2008 Occupied Dwellings	2,366 dwellings	4.0
2008 Vacant Dwellings	1,003 dwellings	5.1
2008 Residents and Visitors Population*	7,412 persons approx.	5.3
Dwelling Statistics		
2006 Total Dwelling	2,795 dwellings	3.0
2006 Occupied Dwellings	1,890 dwellings	3.2
2006 Vacant Dwellings	905 dwellings	5.1
2006 Dwelling Vacancy Rate	32%	5.0
2006 SMI Occupancy Rate	2.2 persons / dwelling	3.2
2026 Future Occupancy Rate	2.0 – 2.1 persons / dwelling	7.0
Annual new dwellings (1981-2006)	95 dwellings/year	3.0
Annual new dwelling (2003-2008)	200 dwellings/year approx	3.3
Population Growth Statistics		
1981 to 2006 average growth rate	150 persons / year	2.1
1981 to 2006 percentage growth	8.8% / year (average)	2.1
2006 to 2026 projected growth rate	156 persons / year	2.2
2006 to 2026 percentage growth	2.9%	2.2
PIFU 2026 Population (Projected)	7,163 persons	2.2
Ultimate Population Projection		
Ultimate Population Projection	23,000 to 24,000 persons	7.0
Scenario 1 - PIFU Growth Extrapolation	Year 2140 (130 years growth)	7.1
Scenario 2 - High Growth Extrapolation	Year 2060 (55 years growth)	7.2

* Note – The Residents and Visitors Population is a theoretical maximum population if all vacant houses were occupied at the one time. This is believed to be highly improbable, but it does provide an ‘upper’ estimate for reference purposes. This is fully explained and analysed in Sections 5.2 to 5.4.

2.0 2006 Population

The **2006 Estimated Resident Population (ERP)** for the Southern Moreton Bay Islands (SMBI) was **4039 persons**.

SMBI forms part of the Statistical Local Area (SLA) of 'Redland (S) Balance', which has a 2006 population of 7073. This SLA area comprises North Stradbroke Island, Coochiemudlo Island as well as the Southern Moreton Bay Islands.

The SMBI comprise **3%** of the Redland City population, based on the 2006 population figures.

Table 1 gives a breakdown for each of the Southern Moreton Bay Islands.

Table 1 – 2006 ERP Population

Island	2006	
	No	%
Karragarra	136	3.4%
Lamb	385	9.5%
Macleay/Perulpa	1869	46.3%
Russell	1649	40.8%
SMBI Total	4039	100.0%

Source – ABS and State Government

The ERP figure discussed above is different to a Census count figure. The **Census count figure of 4239 people** is adjusted to take into account overseas travellers, interstate visitors, or residents away from their permanent place of residence on Census night.

The annual Estimated Resident Population (ERP) figures produced by the Australian Bureau of Statistics (ABS) do not go below an SLA level. For the 2006 ERP figure, the State Government has subsequently broken down the SLA to enable identification of Southern Moreton Bay Islands as per Table 1.

2.1 Population Change (1981 – 2006)

Table 2 shows the Island break-up of population growth from 1981 through to 2006.

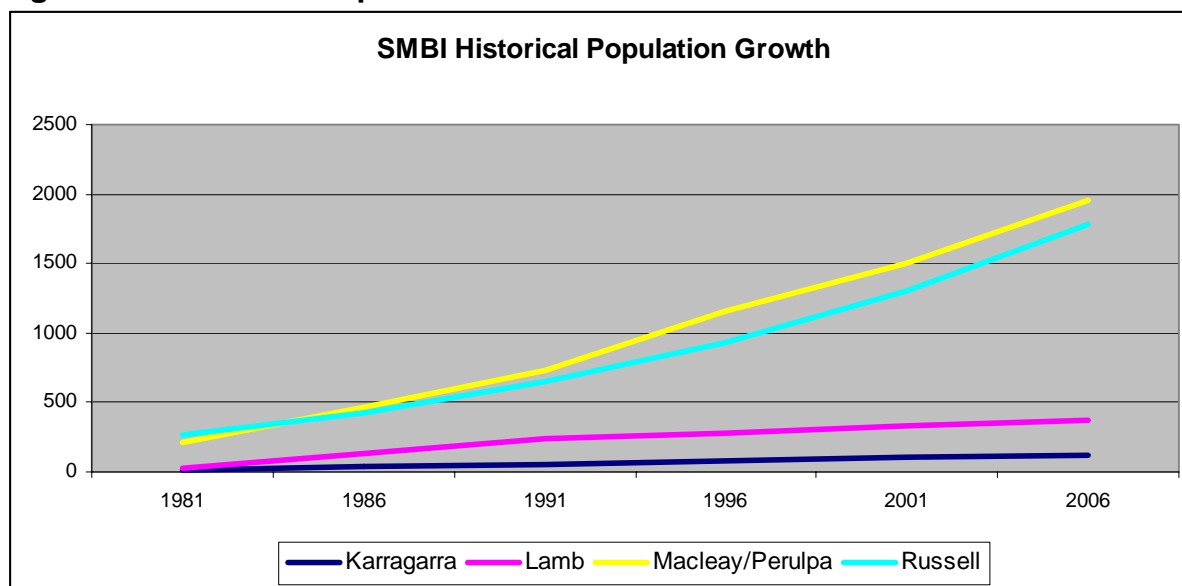
Table 2 – Historical Population Change

	Historical Population					
	1981	1986	1991	1996	2001	2006
Karragarra	15	42	49	82	103	126
Lamb	27	129	235	284	328	374
Macleay/Perulpa	207	468	729	1157	1,498	1,958
Russell	261	420	645	926	1,309	1,781
TOTAL	510	1059	1658	2449	3238	4239

Source – ABS – Census Counts

From 1981 to 2006 the Islands have had an average **annual increase of approximately 150 persons**, or an average percentage **increase of 8.8%**. Over the 5 year period from 2001 to 2006 the average annual percentage increase was 6.4% or 1001 persons or an annual increase of 200 persons.

Figure 1 – Historical Population Growth



Source - ABS

5 Year Summary Figures (2001 – 2006)

Russell Island has had an average annual increase of 94 persons.
Macleay Island has had an average annual increase of 92 persons.
Lamb Island has had an average annual increase of 9 persons.
Karragarra Island has had an average annual increase of 5 persons.

2.2 Future Population Growth (2006 – 2026)

The State Government produces population projections for Redland City, including the Southern Moreton Bay islands on a regular basis.

Table 3 below is based on the 2006 population projections produced by the Planning Information Forecasting Unit (PIFU) and provides projections to 2026.

Table 3 – Population Projections

Island	2006		2011		2016		2021		2026	
	No	% Inc	No	% Inc	No	% Inc	No	% Inc	No	% Inc
Karragarra	136	3.4%	140	3.0%	144	2.7%	150	2.3%	104	1.5%
Lamb	385	9.5%	416	9.0%	444	8.3%	480	7.5%	458	6.4%
Macleay/Perulpa	1869	46.3%	2099	45.2%	2375	44.5%	2841	44.3%	3199	44.7%
Russell	1649	40.8%	1992	42.9%	2374	44.5%	2944	45.9%	3402	47.5%
SMBI Total	4039	100.0%	4647	100.0%	5337	100.0%	6415	100.0%	7163	100.0%

Source – Planning Information Forecasting Unit December 2006 Release

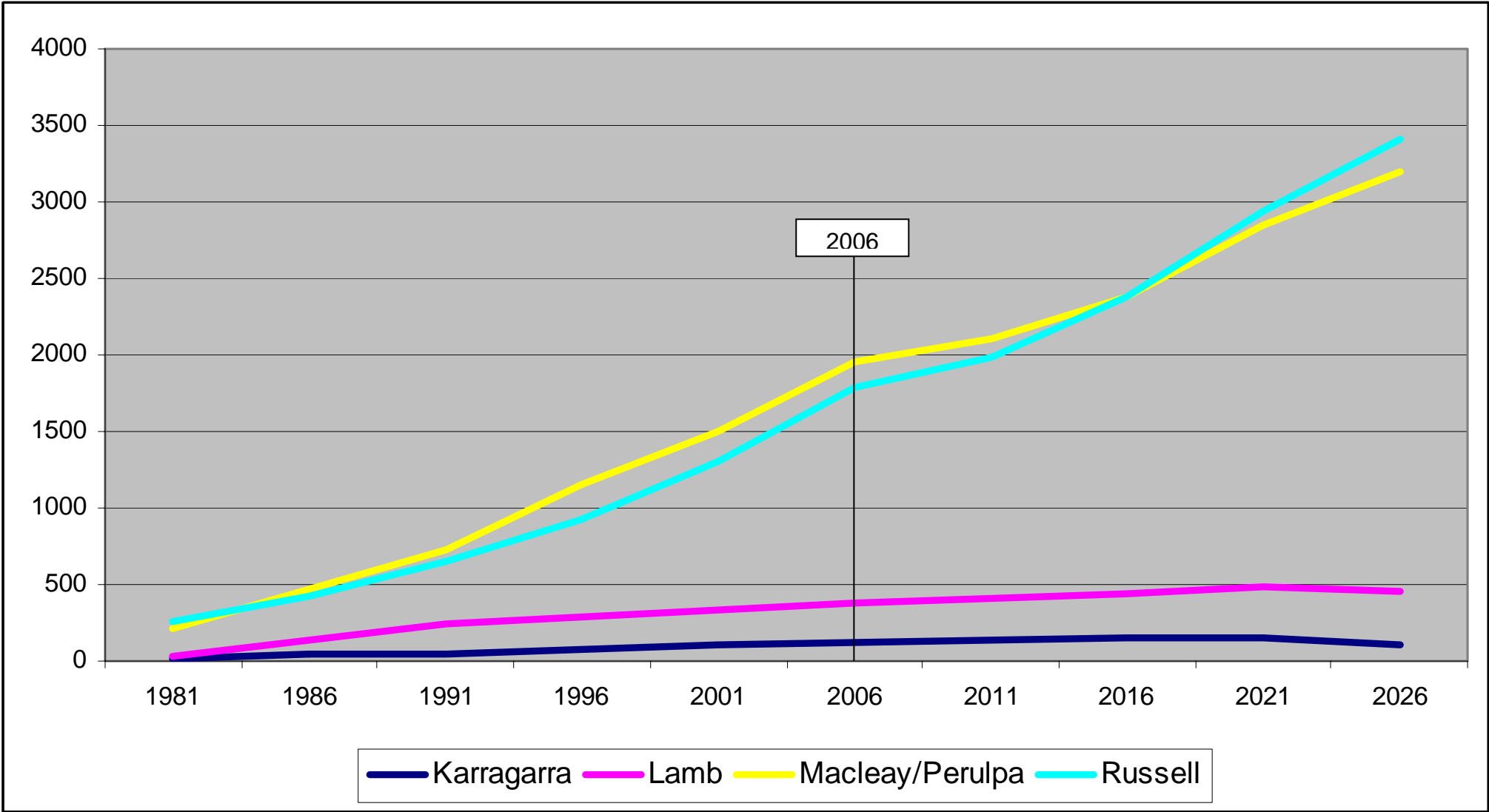
The population on the SMBI is predicted to increase from **4039 persons in 2006** to **7163 persons in 2026**, being a total of 3124 persons over the 20 years. This is an average annual increase of **156 persons per year** or **2.91%**.

In 2006, Macleay Island had a larger local population, than Russell Island, but this is expected to reverse post 2016.

Russell Island is predicted to grow by 1753 persons (106%) for the period 2006 to 2026. This is the highest increase across the Bay Islands.

The following table shows the historical population growth from 1981 through to 2006, combined with the future population projections to 2026 to provide an overview of growth across the four islands for 45 years.

Figure 2 – 45 Year Island Growth



3.0 Dwellings and Housing

There was an estimated **2,795 dwellings** on the Southern Moreton Bay Islands in 2006. The Island break up of these dwellings is shown in Table 4:

Table 4 – SMBI Dwellings – Island Breakdown

	Total Dwellings					
	1981	1986	1991	1996	2001	2006
Karragarra	33	44	72	98	108	125
Lamb	47	106	168	209	255	268
Macleay/Perulpa	204	301	539	823	982	1,260
Russell	123	332	452	661	841	1,142
TOTAL	407	783	1231	1791	2186	2795

Source - ABS

According to the Census data total dwellings (occupied and unoccupied) have grown relatively steadily from **1981 to 2006 with an average of 95 dwellings constructed annually** on the Southern Moreton Bay Islands during the 25 year period.

- Karragarra Island had an average of 18 new dwellings per 5 year Census cycle, with annual figures ranging from 11 to 26 dwellings.
- Lamb Island had an average of 44 new dwellings per 5 year Census cycle, with annual figures ranging from 13 to 62 dwellings.
- Macleay / Perulpa Islands had an average of 211 new dwellings per 5 year Census cycle, with annual figures ranging from 97 to 284 dwellings.
- Russell Island had an average of 204 new dwellings per 5 year Census cycle, with annual figures ranging from 120 to 301 dwellings.

3.1 Island Breakdown – Dwelling Growth

Table 5 – Dwelling Increases – 5 Year Breakdown

	Island	No. Inc	% Inc
1981 – 1986	Karragarra	11	33%
	Lamb	59	126%
	Macleay/Perulpa	97	48%
	Russell	209	170%
1986 – 1991	Karragarra	28	64%
	Lamb	62	58%
	Macleay/Perulpa	238	79%
	Russell	120	36%
1991 – 1996	Karragarra	26	36%
	Lamb	41	24%
	Macleay/Perulpa	284	53%
	Russell	209	46%
1996 – 2001	Karragarra	10	10%
	Lamb	46	22%
	Macleay/Perulpa	159	19%
	Russell	180	27%
2001 – 2006	Karragarra	17	16%
	Lamb	13	5%
	Macleay/Perulpa	278	28%
	Russell	301	36%

A couple of notable exceptions in the relatively steady dwelling growth include the 2001 to 2006 period for Russell Island where 301 dwellings were built. This is almost 50% above the average.

The other notable difference was for the same period (2001 to 2006) where Lamb Island dropped well below the long term average of 44 dwellings to only build 13 dwellings in the 5 year period.

Source - ABS

3.2 2006 Dwelling Occupancy Rates

The 2006 average occupancy rate for the Southern Moreton Bay Island is **2.2 persons per dwelling**. The individual Island results are shown in Table 6, and are much lower than mainland suburbs such as Redland Bay which was recorded at 3.0 for the 2006 Census.

Table 6 – Dwelling Occupancy Rate Calculations

	Population	Occupied Dwellings	Occupancy Rate
Karragarra	124	66	1.9
Lamb	373	171	2.2
Macleay/Perulpa	1957	873	2.2
Russell	1778	780	2.3
	4232	1890	2.2

Source- ABS

The 2006 Census indicated a large percentage (32% approximately) of houses on the SMBI were not permanently occupied. The opportunity exists for these 'non permanent resident' houses to be occupied in peak and other times such as weekends, school holidays and public holidays. During these times the Islands population would be greater than the figures discussed here. For more details on this issue refer to Sections 5.2 and 5.3 of this paper.

3.3 New Dwelling Approvals 2003 – 2008

New dwelling approvals from 2003 to 2008 have been relatively constant until 2007 where there was a spike. The average annual number is slightly less than **200 dwelling approvals per year**, with a high in 2007 at 240 and a low in 2006 at 170 approvals.

Table 7 – New Dwelling Approvals – 2003-2008

	New Dwelling Approvals					
	2003	2004	2005	2006	2007	2008
Karragarra	6	8	4	9	2	3
Lamb	12	12	6	8	15	4
Macleay/Perulpa	81	79	76	72	94	86
Russell	73	92	91	81	129	115
TOTAL	172	191	177	170	240	208

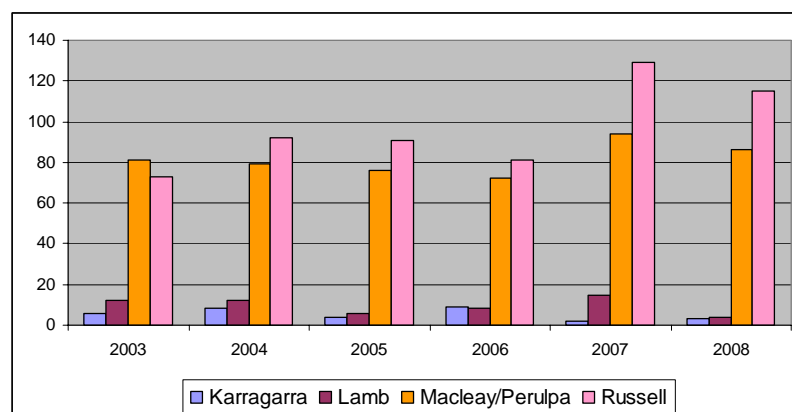
	New Dwelling Approvals - 6 Monthly Splits					
	2006 (Jan to 30 June)	2006 (July to 31 Dec)	2007 (Jan to 30 June)	2007 (July to 31 Dec)	2008 (Jan to 30 June)	2008 (July to 31 Dec)
Karragarra	4	5	2	0	2	1
Lamb	3	5	6	9	2	2
Macleay/Perulpa	32	40	49	45	57	29
Russell	34	47	64	65	76	39
TOTAL	73	97	121	119	137	71

Source – Redland City Council, Land Use Planning data extract

Figure 3 – Annual Dwelling Approvals – 2003-2008

Source – Redland City Council, Land Use Planning data extract

Additional data sources for the SMBI such as New Refuse Charges and New Water Connections were also analysed for all of these years. The figures generated showed a high level of correlation with the dwelling approvals. This indicates that a high proportion of dwelling approvals on the Islands are pursued to construction/completion and occupancy.



Based on historical demographic profiles generated by the State Government, the average number of dwelling approvals from 1996 to 2001 was approximately 70 per year. This indicates that the 6 year period from 2003 to 2008 has shown almost a three fold increase in the average annual figure prior to 2001. The increase has predominantly occurred mainly on Macleay and Russell Islands.

3.4 Confirmation of 2006 Dwelling Numbers

To confirm the number of dwellings reported in the 2006 Census a detailed count was conducted using the 2008 aerial photography. This resulted in a total of **3,369 dwellings** being counted for 2008.

Table 8 – 2008 Photography Dwelling Count

	Residential Dwelling Count - July 2008 Photography
Karragarra	143
Lamb	323
Macleay/Perulpa	1479
Russell	1424
TOTAL	3369

Source – Redland City Council, Land Use Planning data extract

The 2008 dwelling count needs to be adjusted for comparison with the 2006 Census figure. Dwelling approvals from the date of the Census to the end of 2008 were subtracted. It is acknowledged that not all approved dwelling will be constructed, but the accuracy rate was considered to be sufficient for this purpose. The results of these calculations come within 29 dwellings (1.2% difference) of the Census figures and generally confirm the census results for 2006.

2008 Aerial Photography	3,369
2008 Dwelling Approvals	208
2007 Dwelling Approvals	240
2006 Jul-Dec Dwelling Approvals	97
TOTAL	2,824
2006 Census – Dwellings	2,795
Difference	29

An individual Island breakdown was done based on the above methodology. This provided very close results for Russell, Macleay and Karragarra Islands. Lamb Island resulted in 31 dwellings difference and this was reviewed further.

The 2006 Census reported 268 dwellings on Lamb Island. A review of the 2005 aerial photography revealed approximately 303 dwellings. When combining the 303 dwellings with the July to December 2006 dwelling approvals and all of the 2007 and 2008 dwelling approvals, a result of 327 dwellings was calculated for Lamb Island. This is only 4 dwellings different from the 2008 airphoto count figure.

The other Islands calculate very closely and confirm the Census figures. Russell Island was only 9 dwellings difference and Macleay Island was only 1 dwelling different.

In total, the difference was only 0.9 % variation between the Census figures and achieved count. If the difference noted on Lamb Island is applied, the variation for all of SMBI reduces to 6 dwellings or 0.2%.

Table 9 – Island breakdown of Aerial Photography count

	2006 Dwellings	Dwelling Approvals			2008 Dwellings Calculated	2008 Dwellings - Photography	Number Difference	% Difference
		2006 (Jul-Dec)	2007	2008				
Karragarra	125	5	2	3	135	143	8	5.9%
Lamb	268	5	15	4	292	323	31	10.6%
Macleay/Perulpa	1,260	40	94	86	1480	1479	-1	-0.1%
Russell	1,142	47	129	115	1433	1424	-9	-0.6%
	2795	97	240	208	3340	3369	29	0.9%

Difference between calculated and photogrpahy
29 dwellings

	2006 Dwellings	Dwelling Approvals			2008 Dwellings Calculated	2008 Dwellings - Photography	Number Difference	% Difference
		2006 (Jul-Dec)	2007	2008				
Karragarra	125	5	2	3	135	143	8	5.9%
Lamb	303	5	15	4	327	323	-4	-1.2%
Macleay/Perulpa	1,260	40	94	86	1480	1479	-1	-0.1%
Russell	1,142	47	129	115	1433	1424	-9	-0.6%
	2830	97	240	208	3375	3369	-6	-0.2%

Difference between calculated and photogrpahy
-6 dwellings

Source – Redland City Council and ABS

4.0 Calculating the 2008 Population

The 2008 population figure can be generated from two different methods. The first is a 'Dwelling based Population Figure' and the second utilises Australia Post and the mail distribution network on the Islands and is called the 'Postal based Population Figure'.

4.1 Dwelling based Population Figure

The number of dwellings on the Islands has been confirmed for July 2008 at 3,369. By utilising Councils ownership records and the electoral roll data, occupied and unoccupied dwellings can be determined. Of the occupied dwellings an **occupancy rate of 2.2** persons is applied to calculate the number of permanent residents on the Islands.

2006 Total Dwellings	2,795
2008 Total Dwellings	3,369
2006 Occupied Dwellings	1,890
2006 Vacant Dwelling	905
2006 Vacancy Rate	32.38% for all Islands
2008 Total Dwellings	3,369
2008 Vacant Dwellings (Section 5.1)	1,003
2008 Occupied Dwellings	2,366
Apply Occupancy Rate (2.2ppd)	5,205 persons (approx)

The Island breakdown for 2008 of the Dwelling based Population Figure.

Table 10 – 2008 Dwelling / Population breakdown

	2008 Total Dwellings	2008 Occupied Dwellings	2008 Dwelling based Population
Karragarra	143	94	207
Lamb	323	239	526
Macleay/Perulpa	1479	1054	2319
Russell	1424	979	2154
TOTAL	3369	2366	5205

Source – Redland City Council, Land Use Planning data extract

4.2 Postal based Population Figure

In conjunction with Australia Post an estimation of the number of residents was performed based on the postal distributor's local knowledge of Russell Island.

This review estimated that there are approximately 2170 people residing on Russell Island at the end of 2008. This is based on local knowledge by the distribution network on Russell Island.

The Dwelling based Population Figure calculated the population to be at 2154 persons. This is a 16 person difference to the Postal based Population Figure and confirms the methodology used in this analysis.

5.0 Rental Properties – 2006 and 2008

In 2006 the Census reported a total of 2795 dwellings. Of these there were 476 dwellings across the Islands that were rented, or a total of 17% of the Islands dwellings.

Table 12 – 2006 Rental Properties

Island	2006 Dwellings	2006 Rentals	% Rentals
Karragarra	125	15	12%
Lamb	268	38	14%
Macleay	1260	214	17%
Russell	1142	209	18%
TOTAL	2795	476	17%

Source – ABS

In 2008 there are 3369 dwellings present based on the aerial photography. In reviewing the information available through Councils datasets it is estimated that there are approximately 940 dwellings rented (28%) on the Islands, and a balance 1009 that are vacant (30%).

Table 13 – 2008 Rental Properties

	2008 Dwellings	2008 Rentals	% Rentals	2008 Vacant	% Vacant
Karragarra	143	31	22%	49	34%
Lamb	323	95	29%	84	26%
Macleay/Perulpa	1479	377	25%	425	29%
Russell	1424	436	31%	445	31%
TOTAL	3369	940	28%	1003	30%

Source – Redland City Council, Land Use Planning data extract

5.1 Vacant Dwellings

There are a large number of dwellings on the Bay Islands that are vacant and not a permanent place of residence.

The 2006 Census had 905 dwellings vacant (32%), which has increased to an **estimated 1003 vacant dwellings for 2008 (30%)**. This is split across the Islands as noted in table 14 below which review the 2006 and 2008 occupied and vacant dwellings.

Table 14 – Vacant Dwellings 2006 and 2008

2006	Population	Total Dwellings	Occupied Dwellings	Vacant Dwellings	2006 Island Vacancy Rate
Karragarra	126	125	66	59	47.2%
Lamb	374	268	171	97	36.2%
Macleay/Perulpa	1,958	1,260	873	387	30.7%
Russell	1,781	1,142	780	362	31.7%
	4239	2795	1890	905	32.4%

2008	Population	Total Dwellings	Occupied Dwellings	Vacant Dwellings	2008 Island Vacancy Rate
Karragarra	207	143	94	49	34.3%
Lamb	526	323	239	84	26.0%
Macleay/Perulpa	2319	1479	1054	425	28.7%
Russell	2154	1424	979	445	31.3%
	5205	3369	2366	1003	29.8%

Source – ABS & Redland City Council, Land Use Planning data extract

The issue with vacant dwellings is that the owners and/or visitors using these dwellings will impact on the facilities and services of the Islands from time to time. Due to the non-permanent use of these dwellings, it is very difficult to quantify when and how frequently these impacts will occur. This is analysed in Sections 5.2 and 5.3.

The numbers here have been generated using a combination of Council's rating database and the electoral roll addresses. The rating database provides the location of owner occupiers based on their mailing address. In combination with this, the electoral roll provides the residential address of all other residents on the Islands. By deduction, any other dwellings on the Islands are vacant (not a permanent place of residence).

5.2 2006 Residents and Visitors Population

As part of these calculations, Table 15 shows what the potential population impact could be if all of the dwellings were occupied permanently at the one point in time in 2006. This resulted in a figure of **approximately 6150 for the 2006 Residents and Visitors population.**

Table 15 – Calculation of the 2006 Residents and Visitors Population

2006 Potential	Population	Total Dwellings	Potential Population
Karragarra	126	125	275
Lamb	374	268	590
Macleay/Perulpa	1,958	1260	2772
Russell	1,781	1142	2512
	4239	2795	6149

Source – ABS & Redland City Council, Land Use Planning data extract

5.3 2008 Residents and Visitors Population

As part of these calculations the following table shows what the potential population impact could be if all of the dwellings were occupied permanently at the one point in time. This resulted in a figure of **approximately 7400 for the 2008 Residents and Visitors population.**

Table 16 – Calculation of the 2008 Resident & Visitors Population

2008 Potential	Population	Total Dwellings	2008 Potential Population
Karragarra	207	143	315
Lamb	526	323	711
Macleay/Perulpa	2319	1479	3254
Russell	2154	1424	3133
	5205	3369	7412

Source – Redland City Council, Land Use Planning data extract

This is a highly improbable circumstance, but it does provide an 'upper' estimate for reference purposes.

5.4 2008 Residents and Visitors Population Variation

The above figures are based on all dwellings operating at 100% occupancy. As shown in Section 5.1 there is currently a 30% vacancy rate, which is a 70% occupancy rate.

Table 17 shows the variation if the occupancy rate ranged from the current 70% up to the 100%. Populations on the Islands could be experienced in this range during peak and other times such as weekends, school holidays and public holidays.

Table 17 – Varying Resident and Visitor Population

Dwelling Occupancy Rate	Dwellings	Resident and Visitor Population
70%	3369	5205
80%	3369	5948
90%	3369	6691
100%	3369	7434

Source – Redland City Council, Land Use Planning data extract

6.0 2008 Population and PIFU Projections

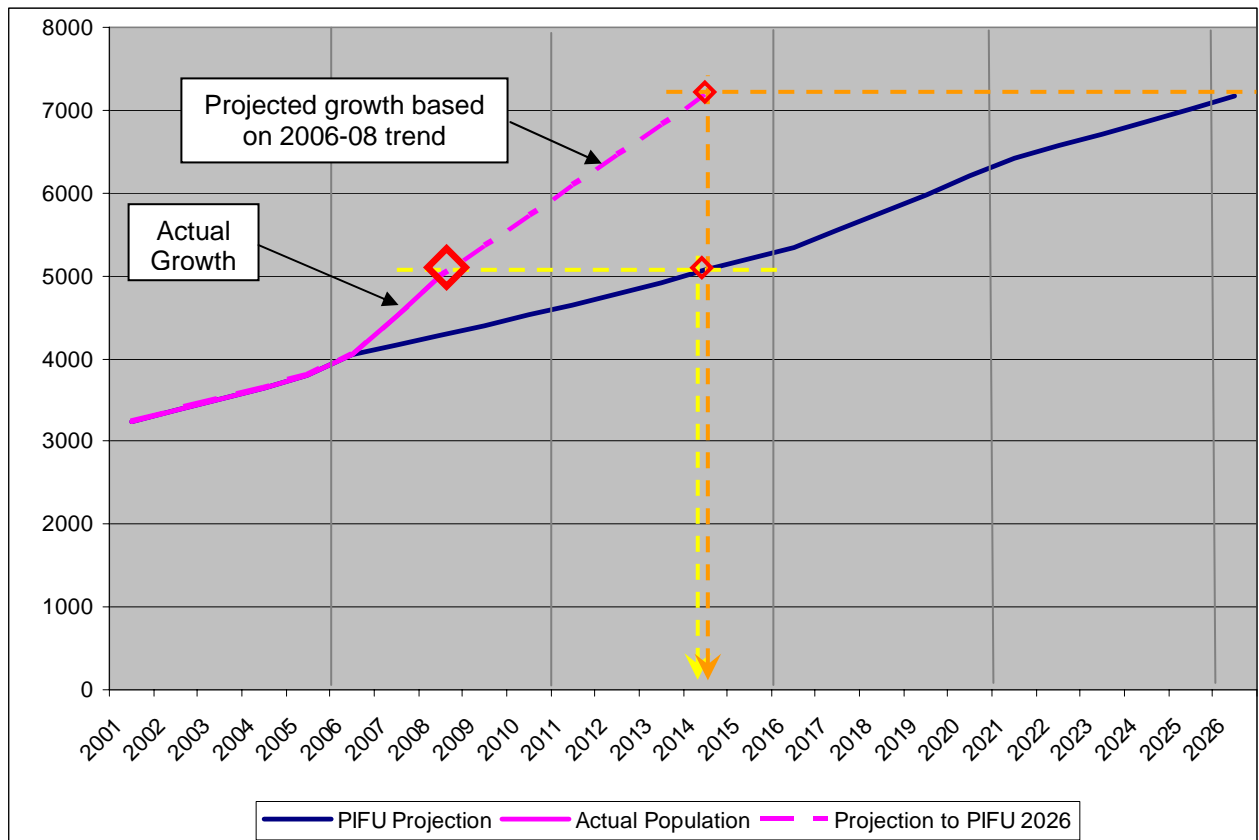
The estimated 2008 population for the Islands is approximately 5,200 people.

The State Government projections discussed in Section 2.2 are shown below.

2006	4,039
2011	4,647
2016	5,337
2021	6,415
2026	7,163

The graph below shows the current trends against the projections. As can be seen the growth has been greater than the growth projected by PIFU.

Figure 4 – Growth Projections with PIFU Projections



Source – Redland City Council based on ABS and PIFU data.

Relating the estimate of 5200 persons to the PIFU projections indicates a 6 year variance; that is this population projection for the SMBI was not expected to be reached until approximately 2013-2014 (yellow lines).

If this level of growth was to continue, it is expected that the PIFU 2026 population projection of 7,163 could be reached as soon as 2014 (orange lines). This will obviously be influenced by market conditions and the continuation of the relatively strong growth experienced over the last 2 to 3 years.

7.0 Ultimate Population Capacity - SMBI

The SMBI Planning and Landuse Study has calculated a potential population capacity for the Bay Islands of approximately 22,696 persons (11,348 dwellings). This figure is an ultimate population figure, and is not tied to a timeframe.

The current number of vacant residential lots (as at July 2008) suitable for housing on SMBI is 8125, which could in effect result in a maximum of 8125 new dwellings.

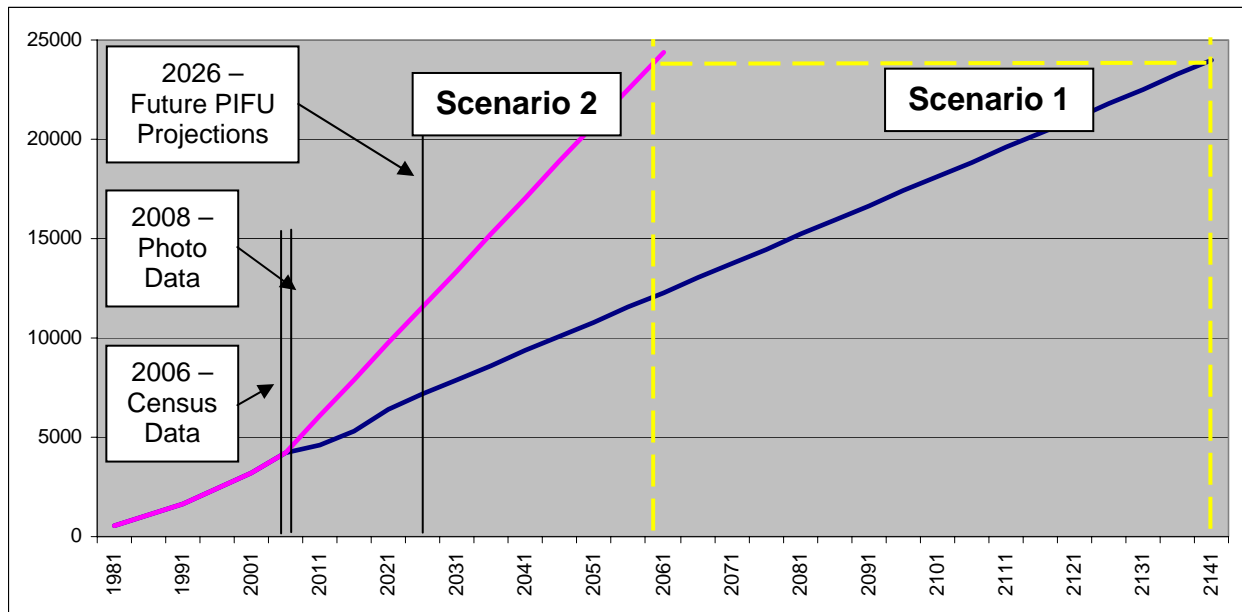
A detailed dwelling count from the 2008 (July 2008) aerial photography revealed a total of 3369 dwellings that are currently constructed on the islands. If the current 3369 dwellings are combined with the vacant 8125 lots, this would result in an **Ultimate Capacity of 11,494 dwellings.**

It is also expected that in line with a decrease in the mainland occupancy rate over the next 20 years, the SMBI occupancy rate will similarly decrease to between **2.0 and 2.1 persons per dwelling by 2026** (2.2 persons/dwelling from the 2006 Census).

Based on the occupancy rate of 2.0 – 2.1 persons per dwelling, this could translate into an **Ultimate Population Capacity for SMBI of 23,000 to 24,000 people**, if all land is built on and all dwellings were permanently occupied. This figure generally confirms the 1998 SMBI Plus Study findings.

There are two ways to determine when the Ultimate Population could occur. The first is based on an extrapolation of the PIFU Projections, and the second is based on the last 2-3 years of growth and extrapolate the annual figures out until the Ultimate Population Capacity is reached. These scenarios are calculated in Sections 7.1 and 7.2.

Figure 5 – Ultimate Growth Scenarios



Source – Redland City Council, Land Use Planning data extract

7.1 Ultimate Growth Scenario 1 – PIFU growth extrapolation

For the 20 year period from 2006 to 2026, PIFU has an average annual growth rate of 146 persons. Based on an extrapolation of this growth to the Ultimate Growth figure of 23,000 to 24,000 persons, it is expected that the population could be reached in **2140**, which equates to more than **130 years of growth**.

7.2 Ultimate Growth Scenario 2 – High growth extrapolation

The growth that occurred from July 2006 to July 2008 (aerial photos captured) was a total of 474 dwellings, which equates to approximately 332 occupied dwellings and 730 permanent residents. This provides an approximate annual growth figure of 365 persons per year.

This shows that the Ultimate Growth Scenario of 23,000 to 24,000 persons based on the spike in growth from 2006 to 2008 could occur from **2060**. This equates to approximately **55 years of growth** on the Bay Islands until the Ultimate Capacity may be reached.