DEMOGRAPHIC STUDY: SANDRINGHAM COLLEGE

Final Report

Developed for the Department of Education and Early Childhood Development

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About this Document

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Demographic Study: Sandringham College

Executive Summary

This demographic study has revealed that:

- Sandringham College draws students from a wide area, with approximately, 54% of its students living outside its catchment.
- The primary school age population resident in the School's catchment is forecast to grow at a comparatively low rate of 0.10% per annum compound over the next 15 years (compared to 1.40% pa for the Metropolitan Melbourne).
- The secondary school age population resident in the School's catchment is forecast to grow at a comparatively low rate of 0.20% per annum compound over the next 15 years (compared to 1.18% pa for the Metropolitan Melbourne).
- Government secondary school education attendance rates (or yields) were found to have decreased from 34.35% in 2006 to 31% in 2011 (i.e. a 3.35% drop).

Assuming attendance rates (or yields) remain at 2011 levels (i.e. they do not deteriorate further), demand for government education institutions is therefore likely to experience only modest growth (1.50 - 4%) for primary and secondary school programs to 2026.

Enrolments at Sandringham College will expand at or below the school age population growth presented, unless one or both of the following occurs:

1. The deterioration in attendance rates for government education across the study area is reversed. This may occur through initiatives unique to Sandringham College or in collaboration with other government schools (primary and secondary) throughout the local network.
2. The share of government education demand satisfied by Sandringham College increases relative to other government schools in the network: Sandringham College has been chosen by approximately 45% of government secondary school students who live within its catchment. An increase in this figure of, say, 10% would result in approximately 130 additional enrolments.

Section 4 presents an analysis of several yield rate scenarios and their impact on demand forecasts. For example, one scenario identified that if the government school yield within the Sandringham College catchment increased by 5%, and the College maintained its share of enrolments within the catchment, this would result in approximately 120 additional enrolments at 2021.

Building on the above scenario, in combination with an increase in the share of government school attendance satisfied by Sandringham College (as described in point 2 above), an increase of 5% in government education yield would result in approximately 260 additional enrolments at 2021. This increase would be on top of the general secondary school aged population increases (i.e. 3.0% within the catchment)

1. Introduction

1.1 Objectives

Spatial Vision has been commissioned to produce a demographic profile for the Sandringham College local area using the most up-to-date data available (i.e. the 2011 ABS Census, and most recent DPCD population forecasts).

This demographic profile will support the master planning process; in particular, facilities planning and education provision assessments, and consultation with the community.

The demographic profile incorporates 2001, 2006 and 2011 ABS Census Data, DEECD enrolment information (address data and enrolment counts) and the most up-to-date population and dwelling forecasts available (Id Consulting and/or the State Government's *Victoria in the Future* forecasts).

Spatial Vision's understanding is that the core objective is to produce a comprehensive demographic profile of the Study Area as defined in Section 1.2. This profile will also include population projections and Long Term Enrolment (LTE) forecasts for the Sandringham College catchment.

This profile consists of a series of tables, charts and maps and will be designed to support a broad range of decision making processes. The profile contains limited interpretation and discussion of these tables/charts/maps as it is designed to provide a range of information that supports decision making processes.

1.2 Study Area

The proposed detailed study area is defined by the LTE catchment of the Sandringham College. This study area is divided into "small areas" defined by the ABS Suburbs contained within the extent of the Sandringham College catchment.

Additional demographic analysis will be presented for the Melbourne - Inner South Statistical Area, where approximately 85% of students attending the four schools included in this study live (see Section 0 for graphical representation). For this reason, it is important to consider this broader study area in the master planning process.

The detailed study area is shown in Figure 1 and the broad study area is shown in Figure 2.

Figure 1: Detailed Study Area – Sandringham College Catchment

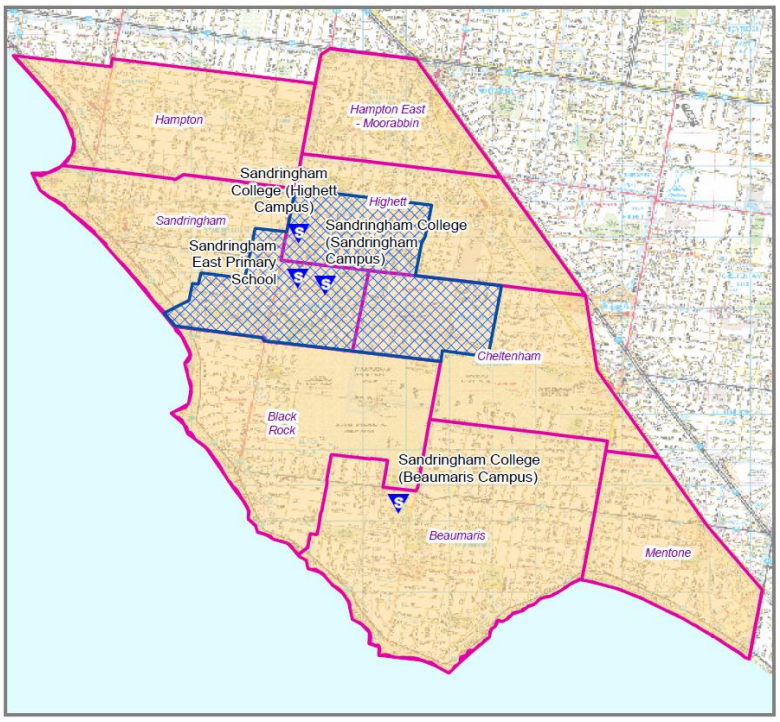
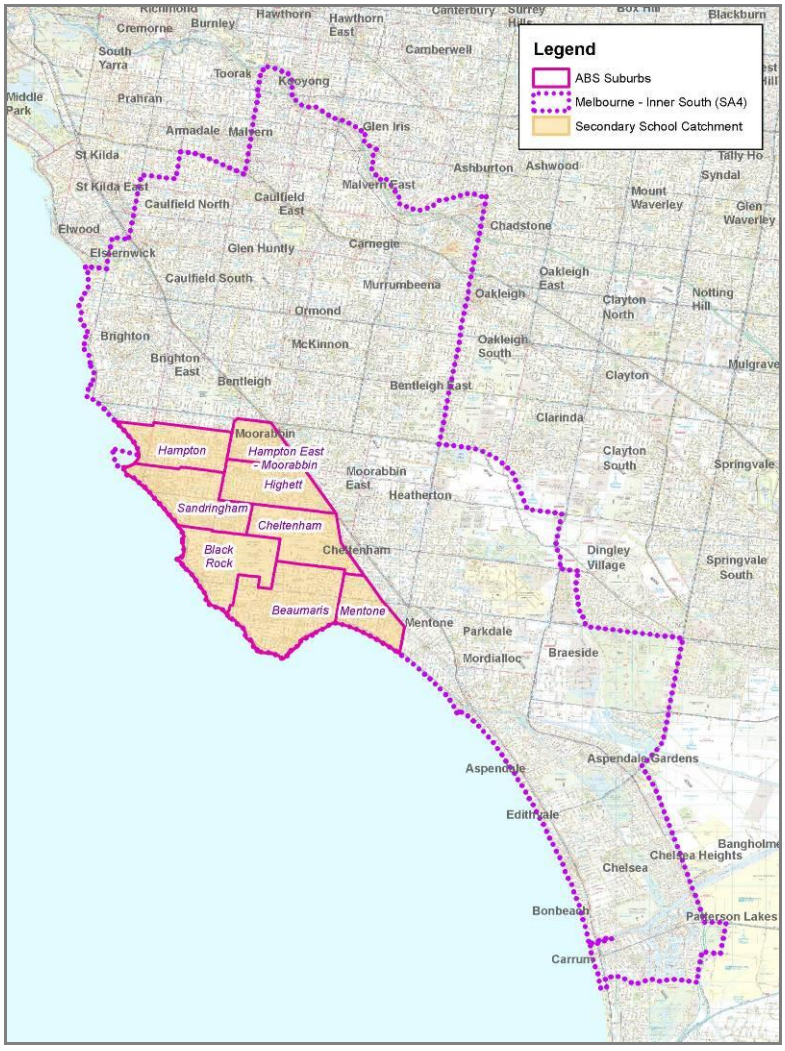


Figure 2: Broad Study Area



1.3 Schools Included in Study

The Sandringham Demographic Profile includes Sandringham College, a co-educational multi-campus Year 7-12 College, and Sandringham East Primary School, a single campus government primary school. The location of these schools is presented in Figure 1 on page 8.

The Beaumaris and Sandringham campuses of Sandringham College only offer year 7-10 programs and the Senior campus year levels 11-12.

1.4 Methodology

The following data has been used for this project:

- From the Australian Bureau of Statistics (ABS):
    - Time Series Data Tables for the years 2001,2006 and 2011:
        - Age by Sex
        - Dwelling Structure by Household Composition and Family Composition
        - Selected Medians and Averages
        - Dwelling Structure and Number of Bedrooms by Number of Persons Usually Resident for Family Households
        - Type of Educational Institution Attending (Full/Part-Time Student Status by Age) by Sex
        - Language Spoken at Home by Sex
    - Basic Community Profile Data for the year 2011:
        - Age by Sex
        - Dwelling Structure by Household Composition and Family Composition
        - Selected Medians and Averages
        - Dwelling Structure and Number of Bedrooms by Number of Persons Usually Resident for Family Households
        - Type of Educational Institution Attending (Full/Part-Time Student Status by Age) by Sex
        - Language Spoken at Home by Sex
        - Family Composition
        - Dwelling Structure
- From the Department of Planning and Community Development (DPCD) (formerly Department of Sustainability and Environment): population and household projections (SLA level) drawn from the Victoria in Future documents
- From local authorities: population and household forecasts by suburbs
- From the Department of Education and Early Childhood Development: historic and current enrolment data including residential address of students as at February 2011.

1.5 Geographical Classifications

A range of geographical classifications has been used in this report, including certain ABS classifications:

- Census Collector Districts (CCDs or CDs): areas of approximately 200 households. These areas are the current building block of most geographical classifications used by the ABS. Virtually all other classifications are made up of groupings of CCDs.
- Local Government Areas (LGAs): municipal boundaries.
- Statistical Local Areas (SLAs): sub-units within LGAs.
- Statistical Areas Level 1 (SA1s): the smallest region for which a wide range of Census data is released in the 2011 Census. They have an average population of about 400. They are built from whole Mesh Blocks and there are approximately 55,000 SA1s covering the whole of Australia
- Statistical Areas Level 2 (SA2s): have an average population of about 10,000, with a minimum population of 3,000 and a maximum of 25,000. The SA2s are the regions for which the majority of 2011 ABS sub-state inter censal data, for example Estimated Resident Population and Health and Vital Statistics, will be released. There are about 2,200 SA2s nationally built from whole SA1s.
- Statistical Areas Level 4 (SA4s): Region geography the size of several LGAs

It should be noted that the geographic classification system used by the ABS varies between census years (i.e. a given CCD may be split, partially divided or amalgamated by the time of the next census) and therefore geographical units from one census year may not necessarily be directly comparable with the same unit in subsequent years.

Two additional classifications have been used in the report:

- School catchments: that area deemed by the Department of Education and Early Childhood Development to be served by a local school, (for capital works planning purposes). A school's catchment will not overlap with the catchment areas of other schools (i.e. catchment areas are mutually exclusive) and all of Victoria is covered by one catchment or another (i.e. catchment areas are mutually exhaustive).
- Suburbs: defined by local authorities for the study regions population and household forecasts.

1.6 This Report

The report structure is as follows:

- Section 2: presents demographic time series data for the broad study area. This data is presented in the form of maps to give a broad overview of the change (spatially and quantitatively) of key demographics over the previous decade.
- Section 3: presents demographic time series data, and 2011 census data for the detailed study area. This data is presented in the form of charts and tables to give a more detailed presentation of the change (spatially and quantitatively) of key demographics over the previous decade, and the current day (2011 census) snapshot. Where applicable, demographics are compared to state and Melbourne- Inner South Statistical Area benchmarks.

Figures in this section are presented for the small areas defined by the ABS state suburbs within the extent of the Sandringham College Catchment (see Figure 1). Where applicable, a short narrative is made in regards to identified trends.

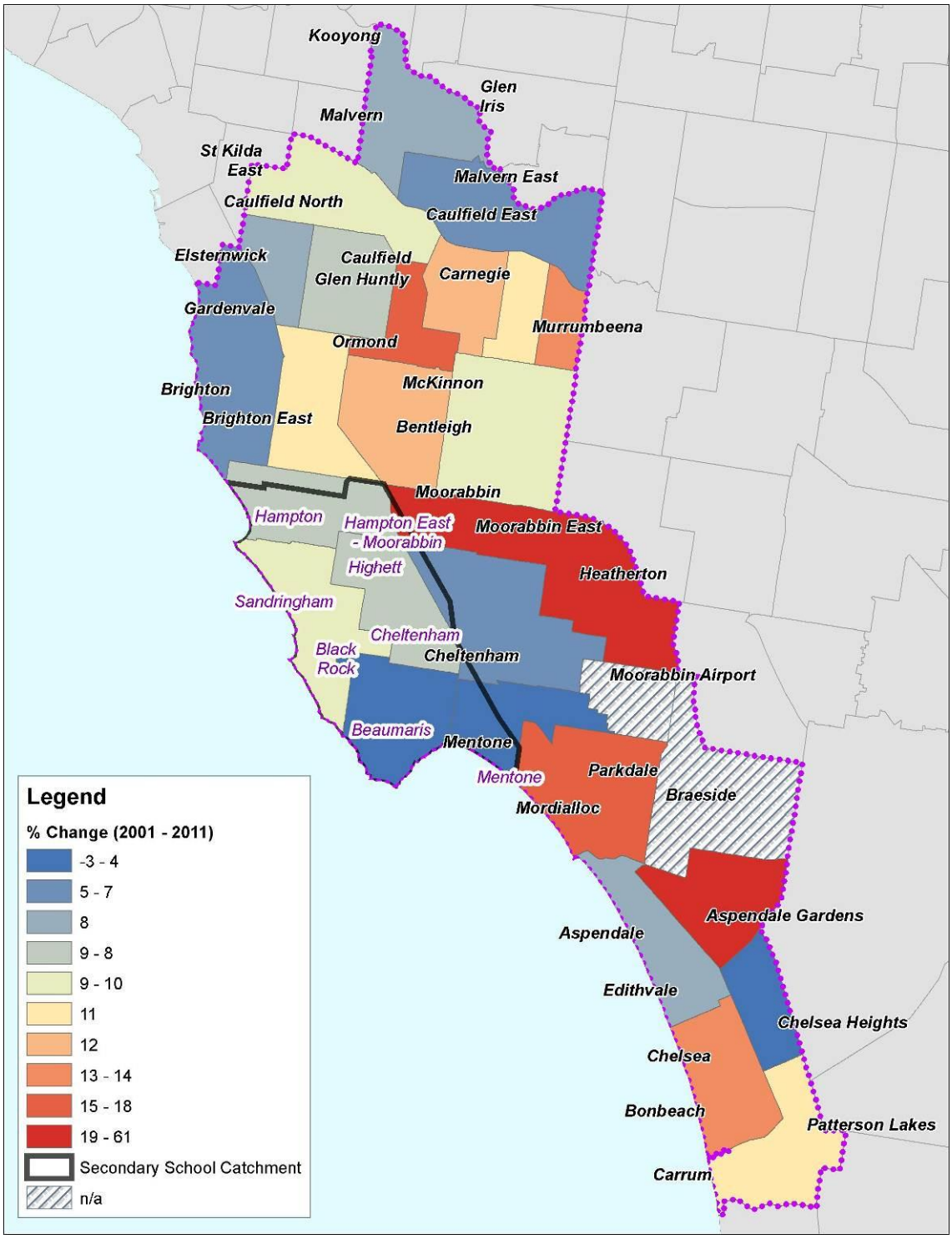
Note: Melbourne - Inner South Statistical Area statistics are exclusive of the Detailed Study Area.

- Section 4: presents yield rate scenario analysis
- Section 5: presents student address analysis

2. Demographic Overview: Melbourne – Inner South (Broad Study Area)

Total Population Change (2001-2011)

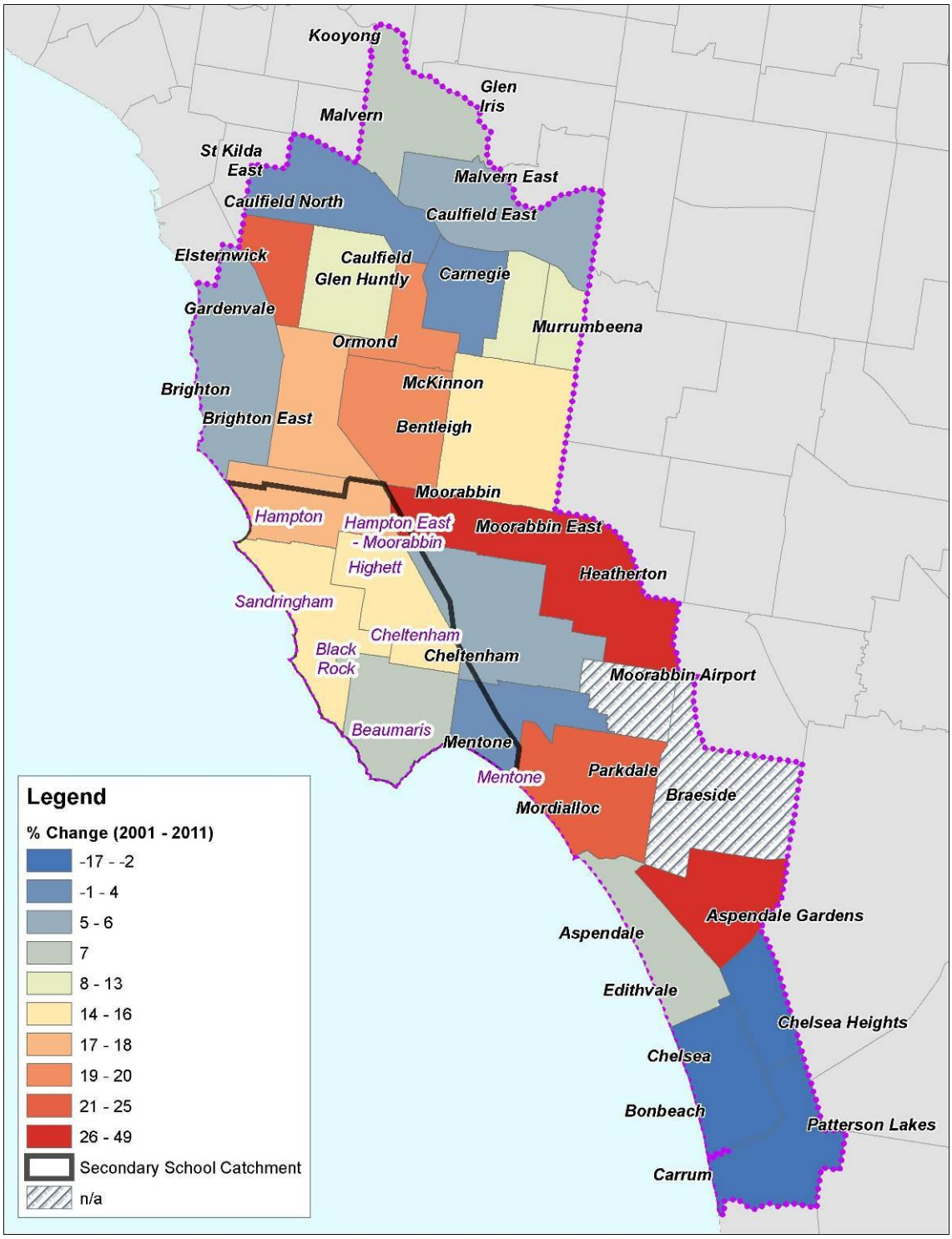
Figure 3: Total Population Change (2001-2011)



Source: 2011 ABS Census; Note: Quantile Classification Used

Population Change of Persons 5-12 years of age (2001-2011)

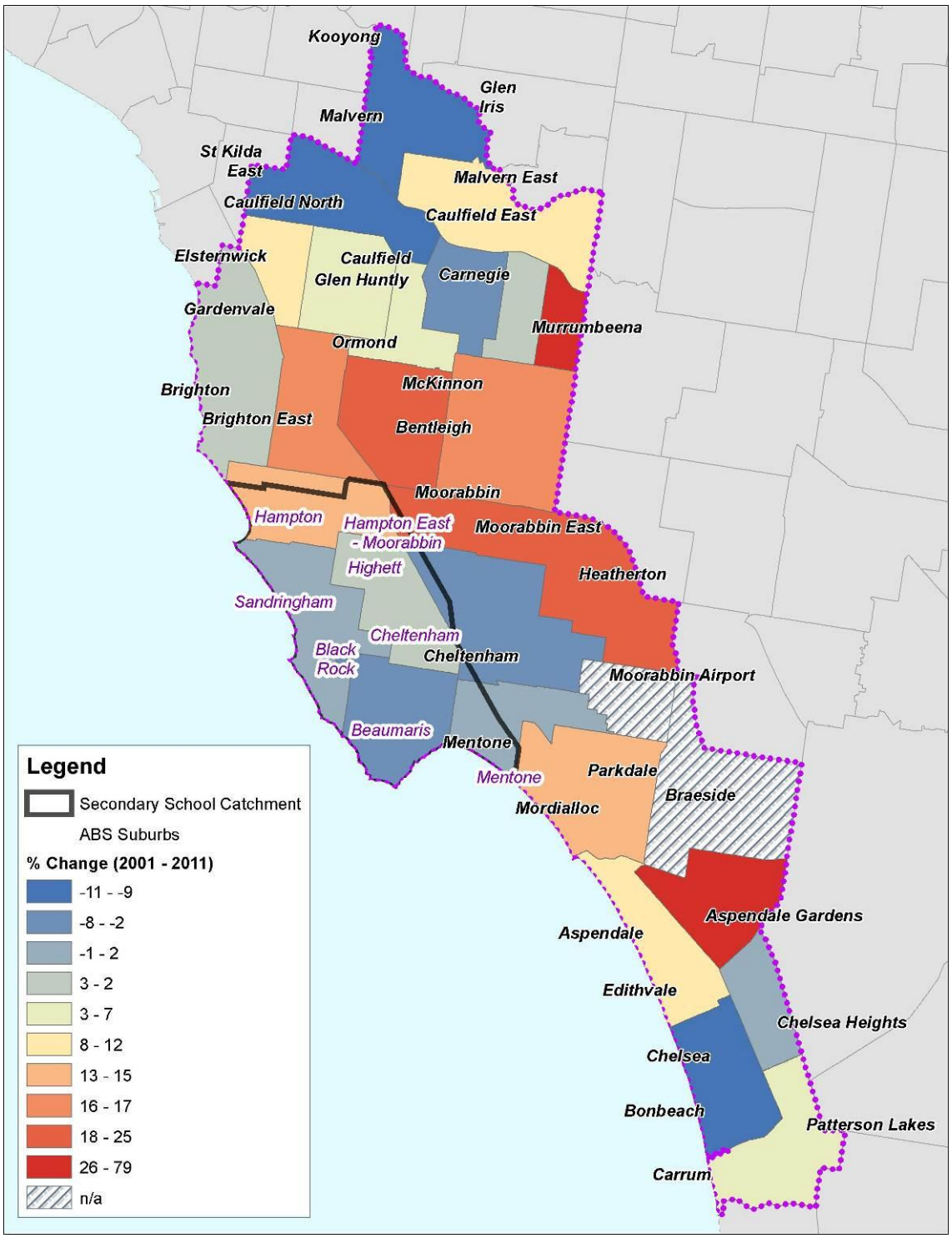
Figure 4: Population Change of Persons 5-12 years of age – (2001-2011)



Source: 2011 ABS Census; Note: Quantile Classification Used

Population Change of Persons 12-18 years of age (2001-2011)

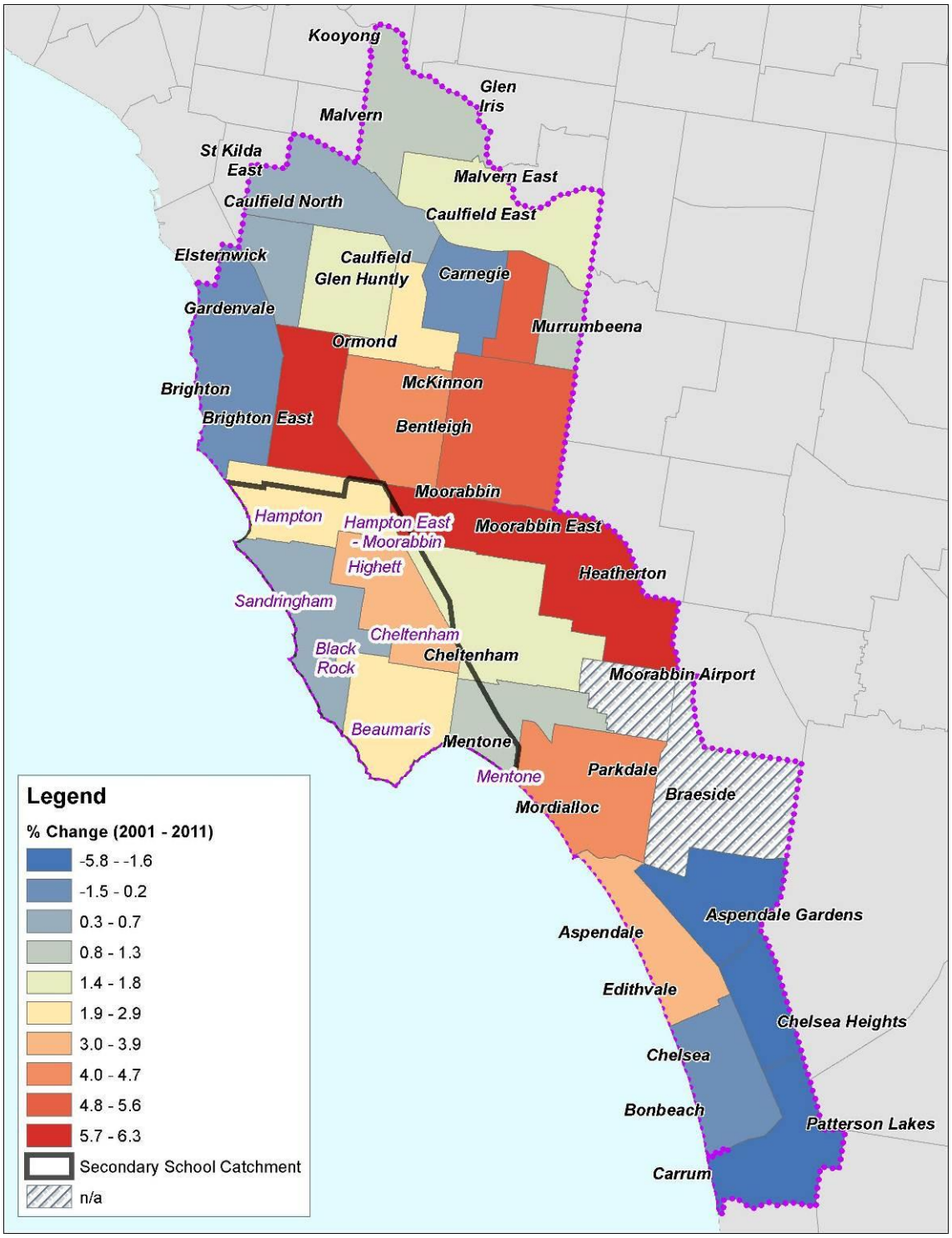
Figure 5: Population Change of Persons 12-18 years of age (2001-2011)



Source: 2011 ABS Census; Note: Quantile Classification Used

Change in the Percentage of Families with a Dependent Child (2001-2011)

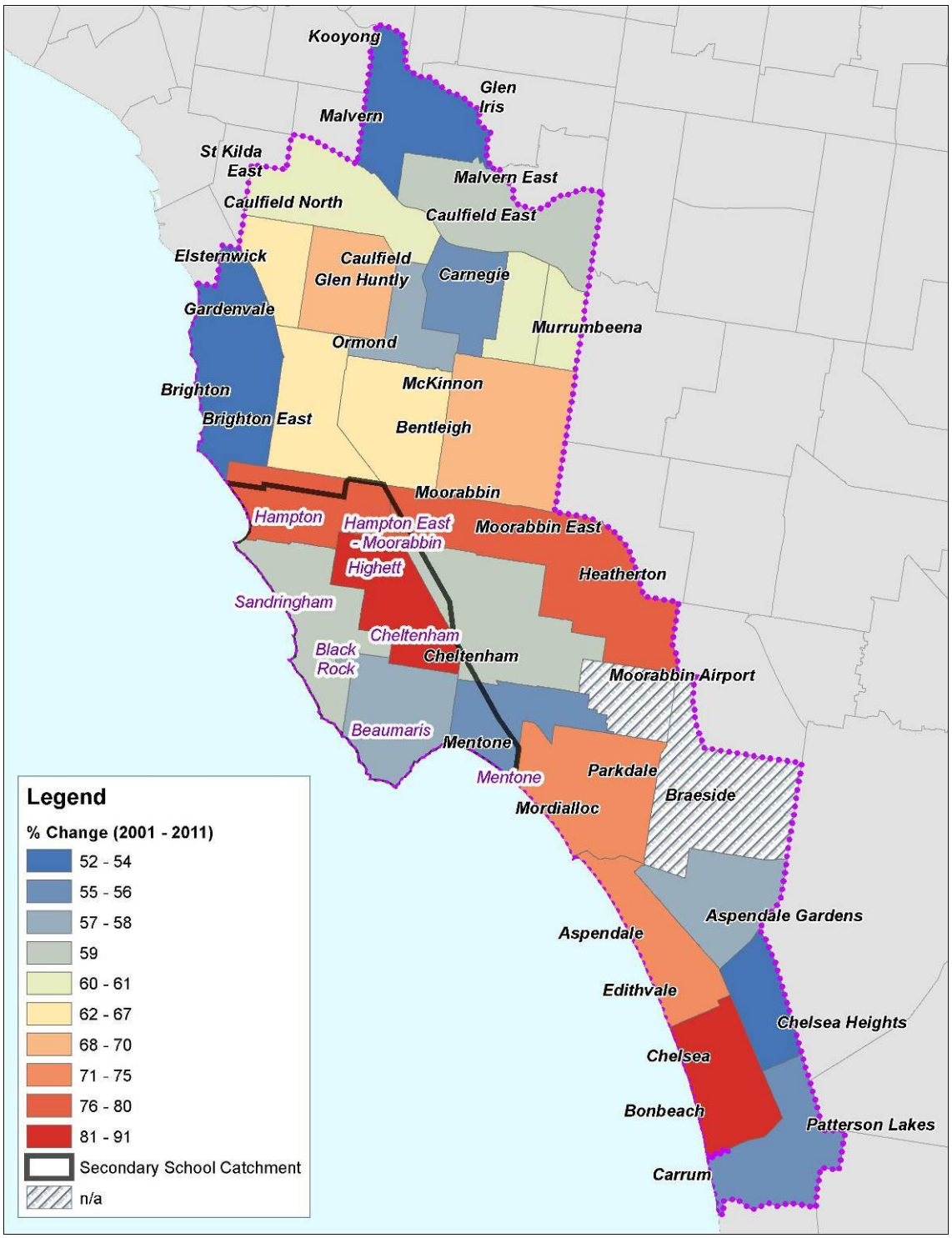
Figure 6: Change in the Percentage of Families with a Dependent Child (2001-2011)



Source: 2011 ABS Census; Note: Quantile Classification Used

Change in Median Family Income (2001-2011)

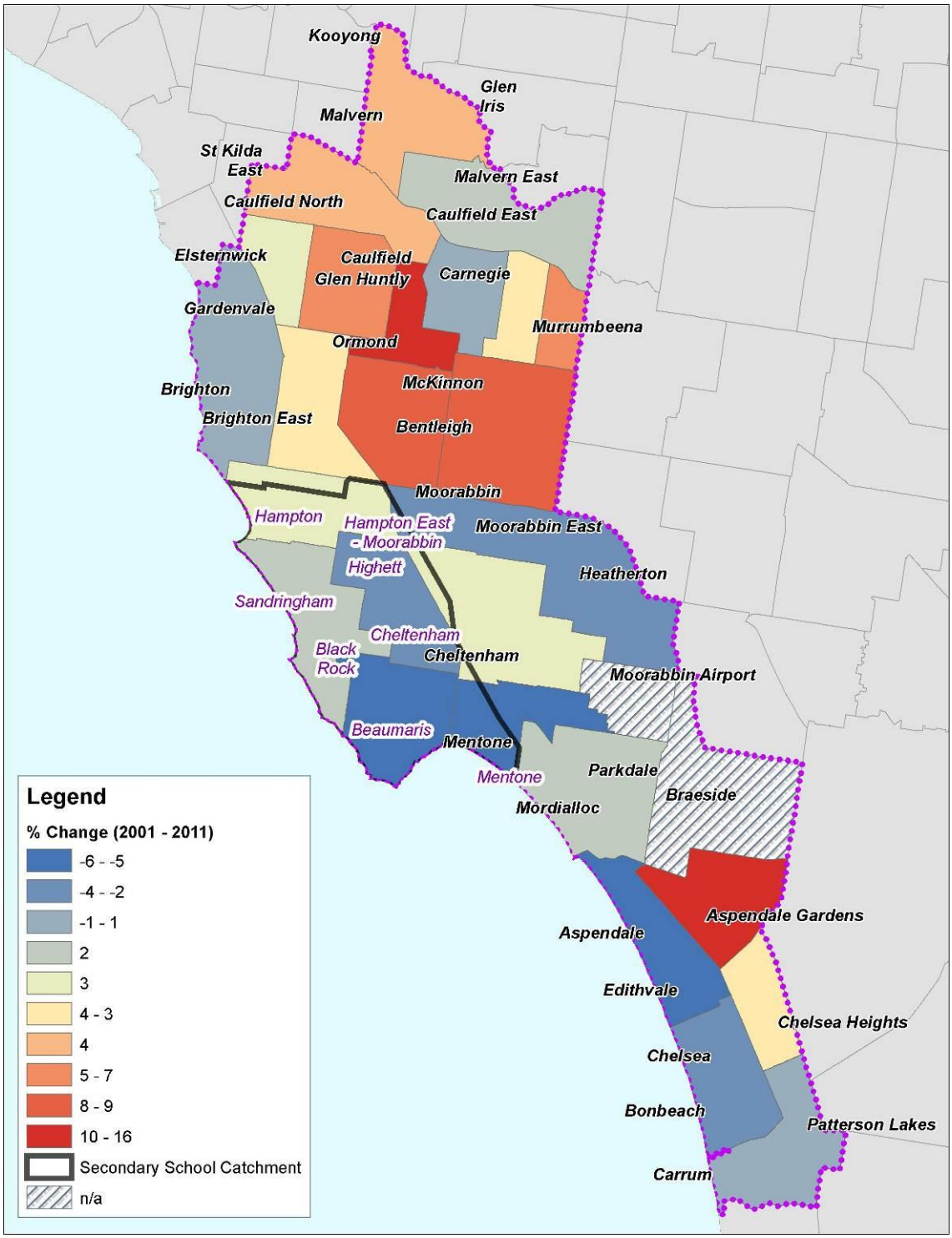
Figure 7: Change in Median Family Income (2001-2011)



Source: 2011 ABS Census; Note: Quantile Classification Used

Change in Government Share of Primary School Attendance (2001-2011)

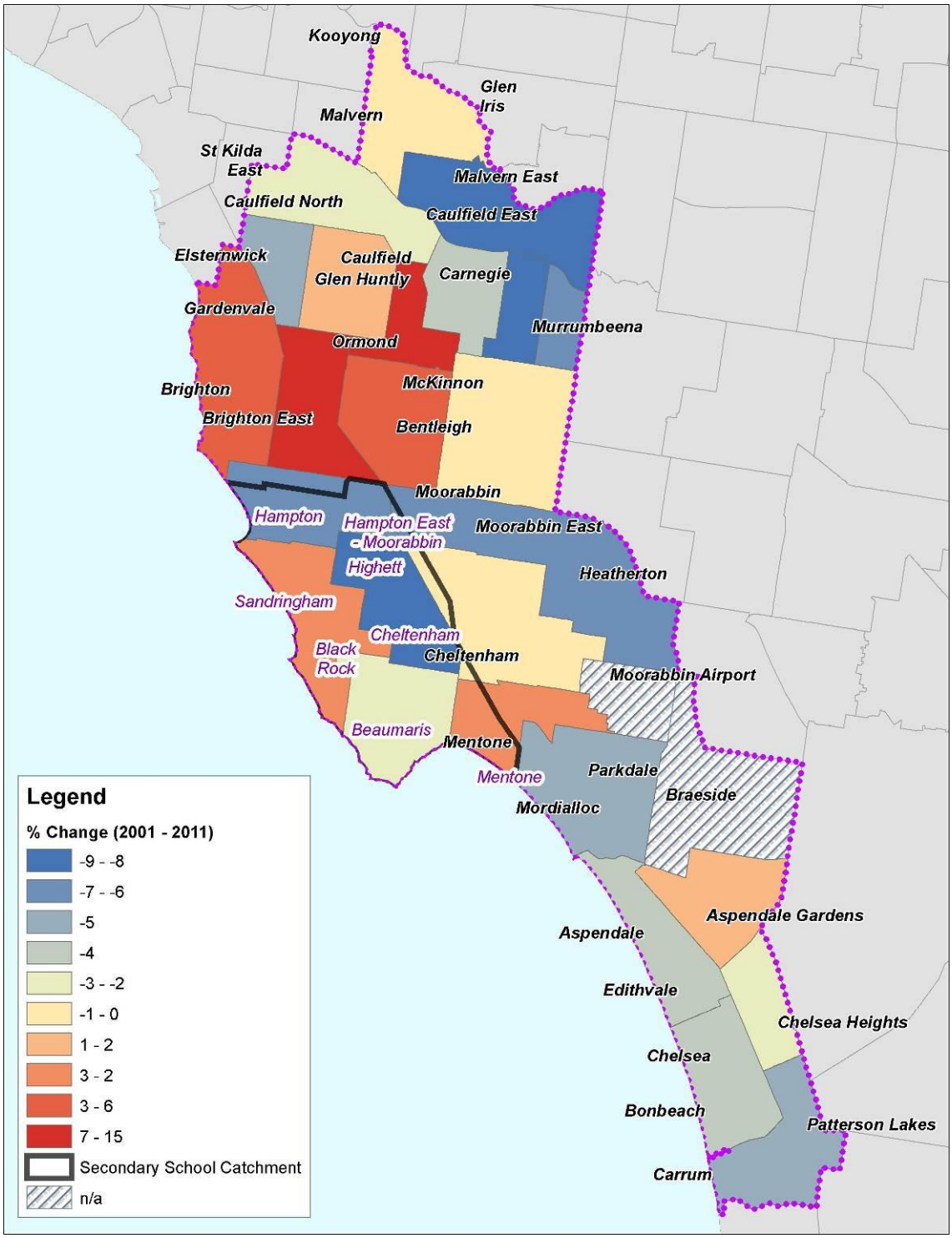
Figure 8: Change in Government Share of Primary School Attendance (2001-2011)



Source: 2011 ABS Census; Note: Quantile Classification Used

Change in Government Share of Secondary School Attendance (2001-2011)

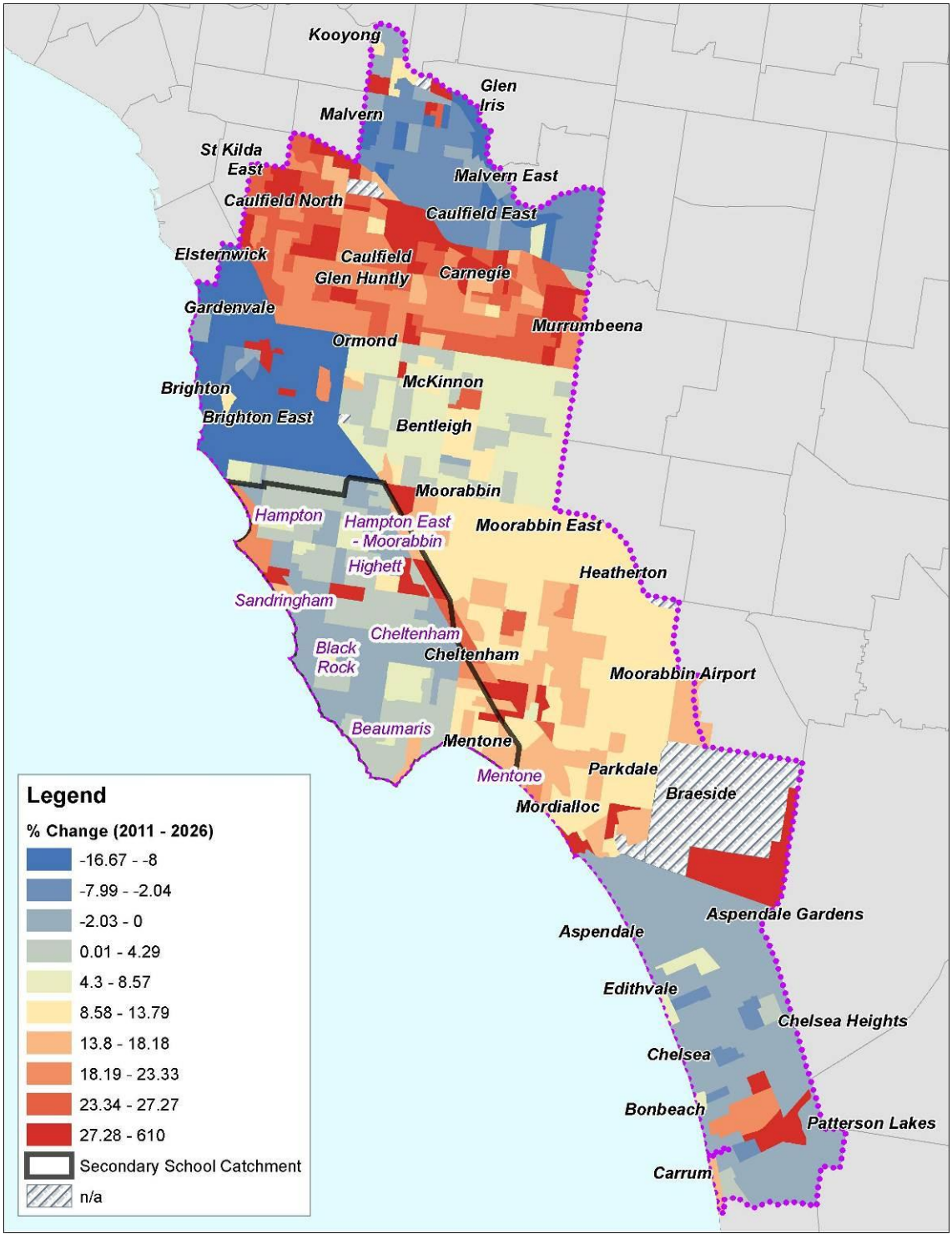
Figure 9: Change in Government Share of Secondary School Attendance (2001-2011)



Source: 2011 ABS Census; Note: Quantile Classification Used

Forecast Change in Primary School Aged Children (5-12 years of age) (2011-2026)

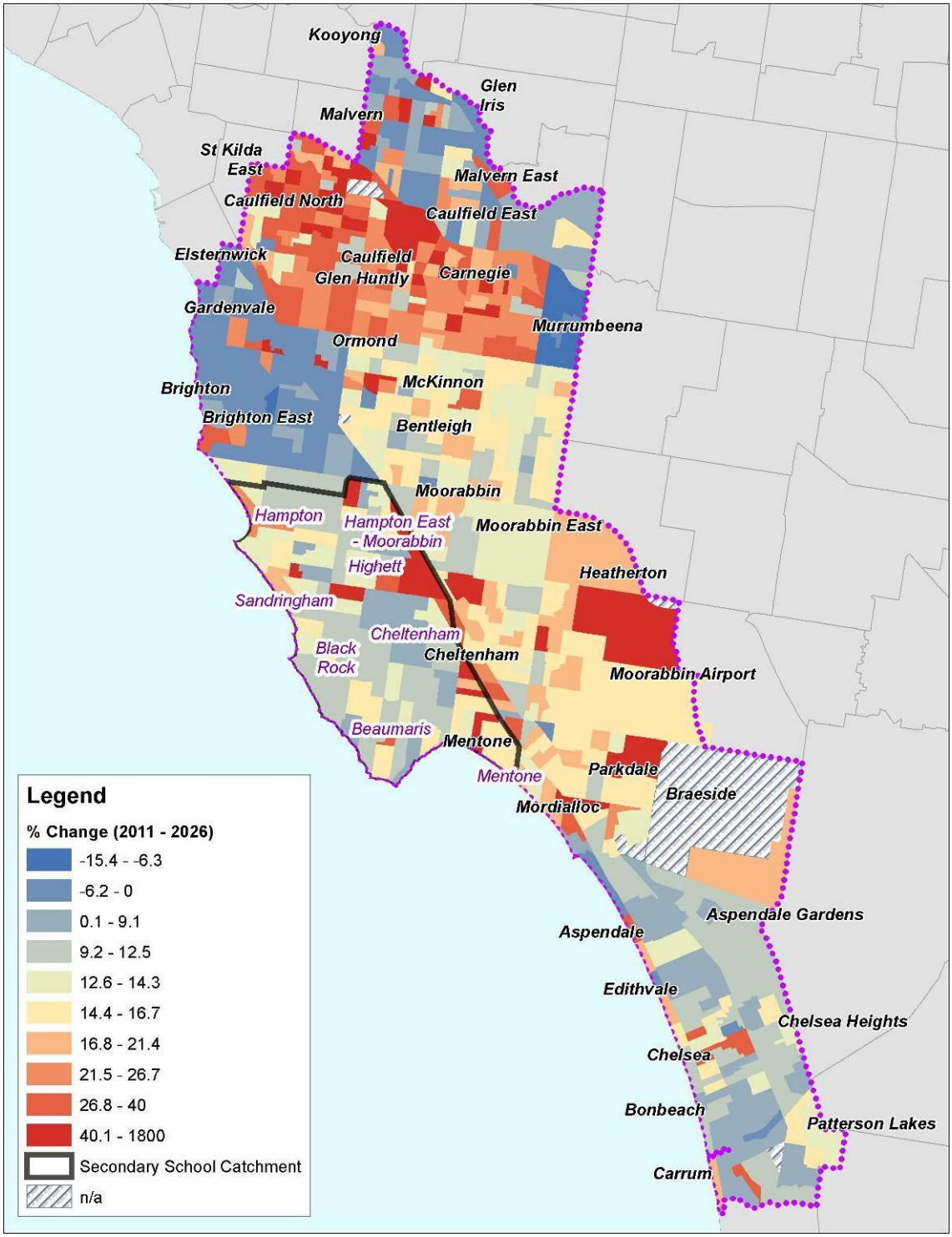
Figure 10: Forecast Change in Primary School Aged Children (5-12 years of age) (2011-2026)



Source: VIF2012 – DPCD; Note: Quantile Classification Used

Forecast Change in Secondary School Aged Children (12-18 years of age) (2011-2026)

Figure 11: Forecast Change in Secondary School Aged Children (12-18 years of age) (2011-2026)

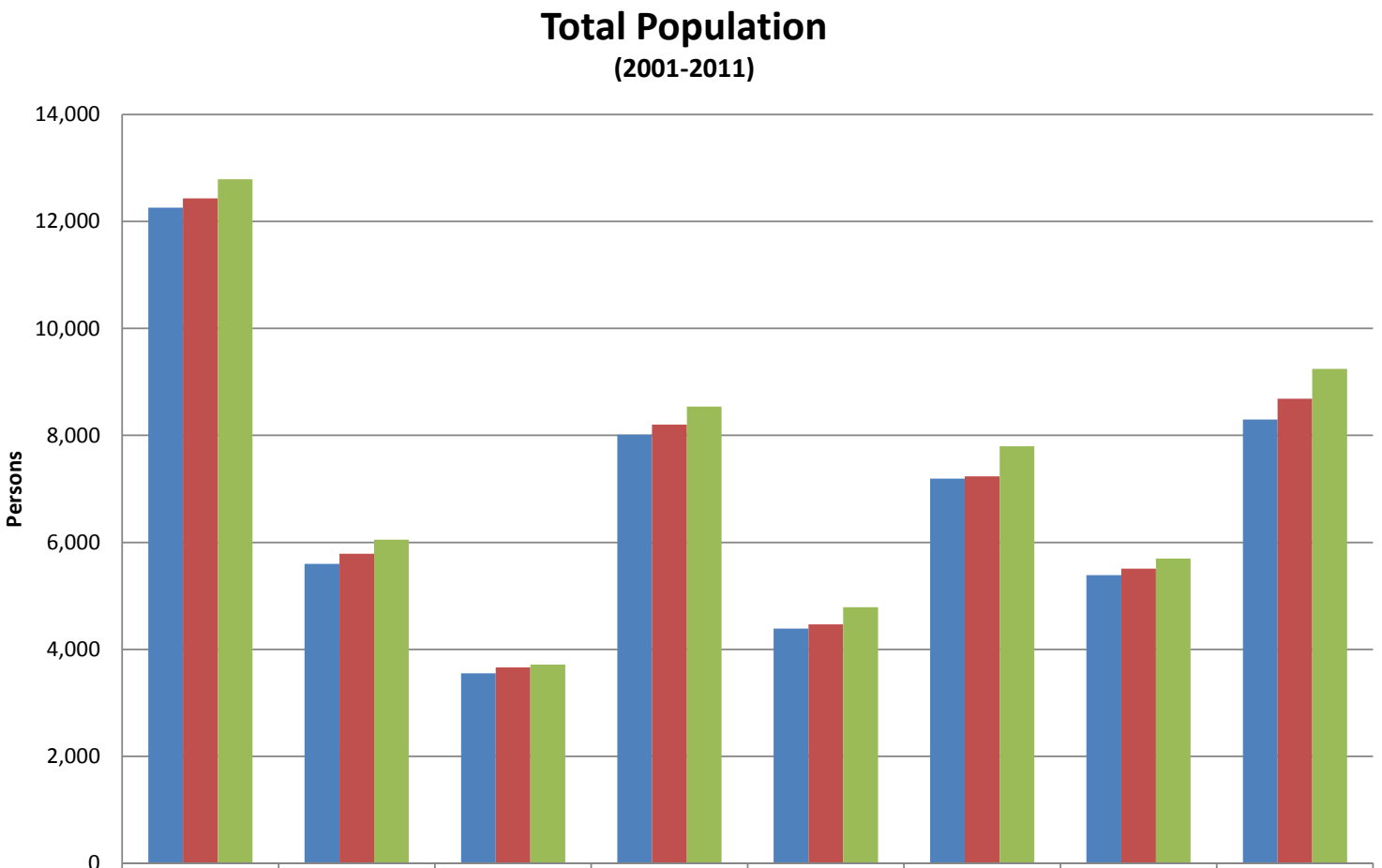


Source: VIF2012 – DPCD; Note: Quantile Classification Used

3. Demographic Overview: Sandringham College Catchment (Detailed Study Area)

3.1 Sandringham College Catchment – Population Counts

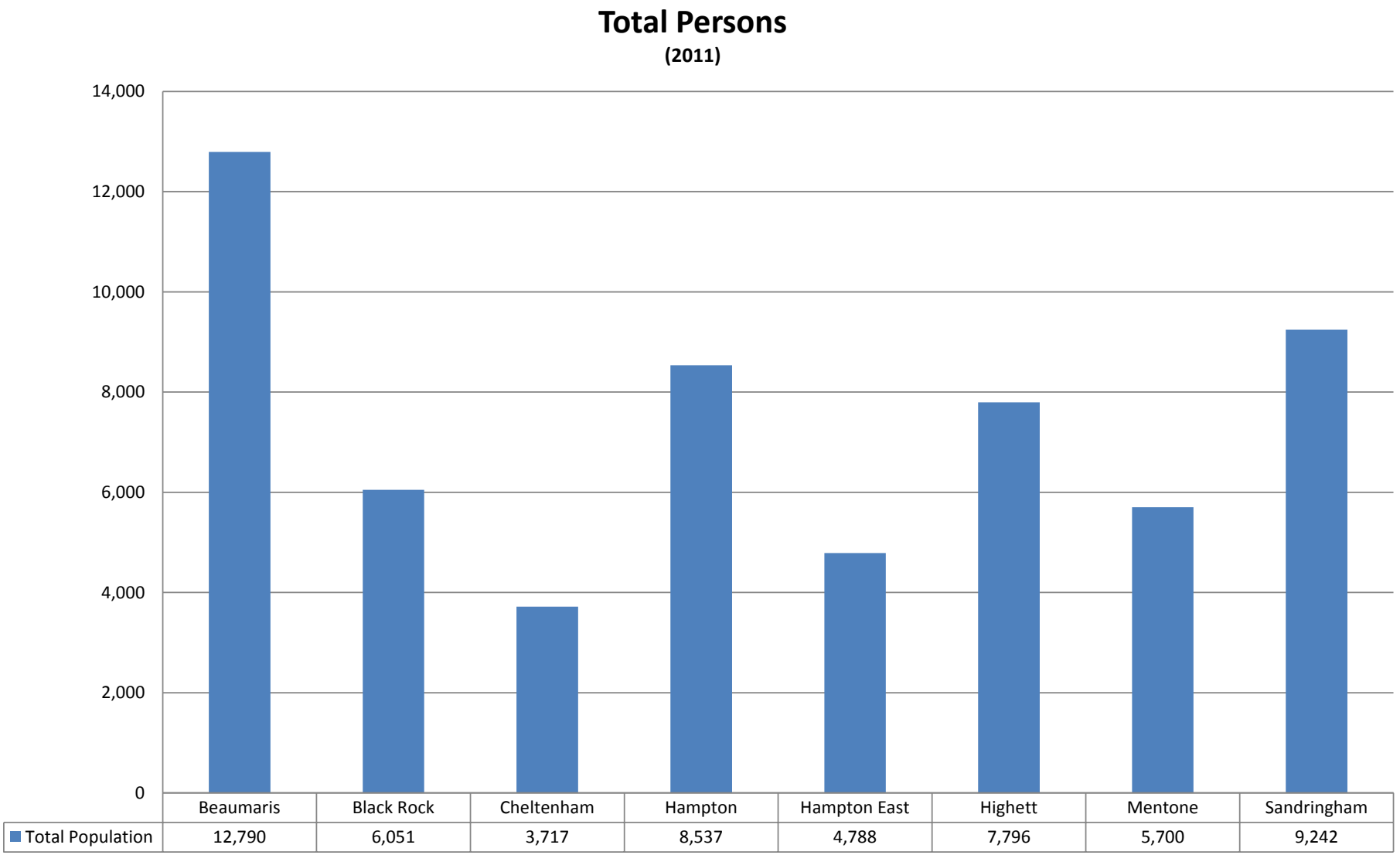
Figure 12: Historical Population - Sandringham College Catchment – (2001 - 2011)



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
2001	12,260	5,599	3,555	8,015	4,389	7,192	5,389	8,295
2006	12,432	5,786	3,662	8,203	4,466	7,235	5,512	8,687
2011	12,790	6,051	3,717	8,537	4,788	7,796	5,700	9,242

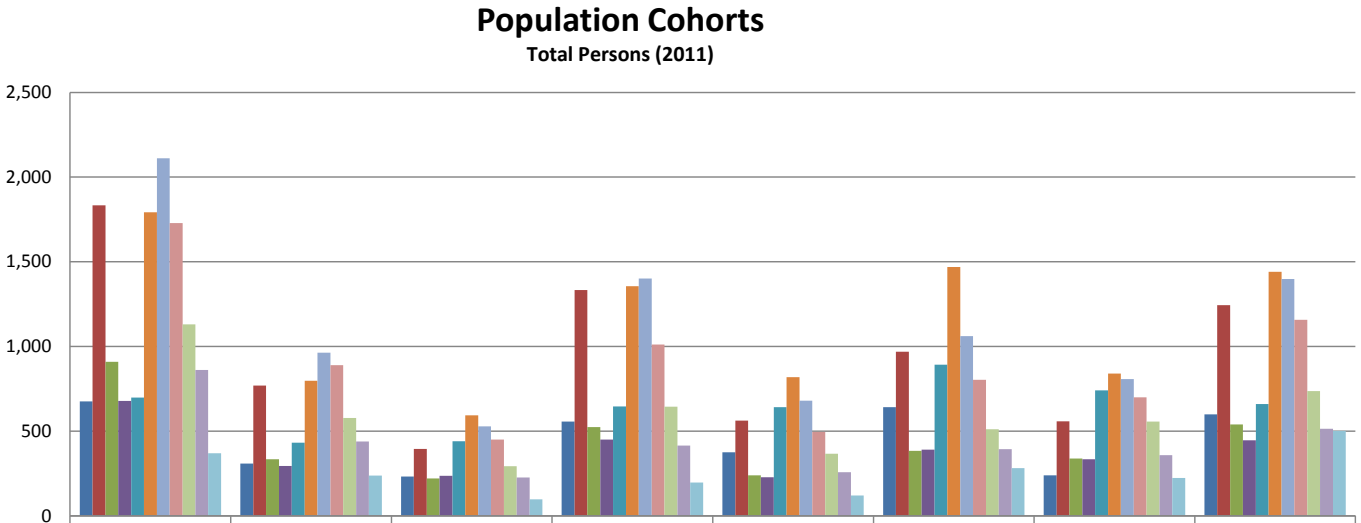
- *The total population has generally increased across all small areas in the by a relatively consistent rate.*

Figure 13: Total Population Sandringham College Catchment - 2011



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
Total Population	12,790	6,051	3,717	8,537	4,788	7,796	5,700	9,242

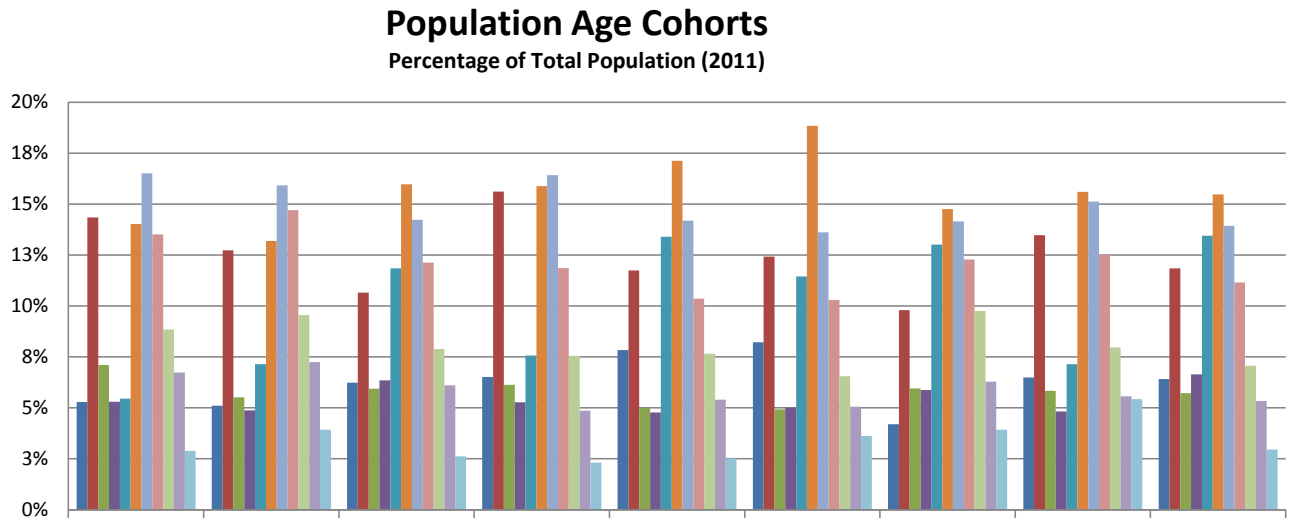
Figure 14: Population Age Cohorts - Sandringham College Catchment - 2011



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
0-4 years	676	309	232	556	375	641	239	600
5-14 years	1,834	770	396	1,333	562	969	558	1,245
15-19 years	909	334	221	524	240	384	339	539
20-24 years	678	295	236	450	228	392	335	446
25-34 years	698	432	440	646	642	892	742	660
35-44 years	1,793	798	594	1,356	820	1,469	841	1,441
45-54 years	2,111	963	529	1,401	680	1,061	807	1,398
55-64 years	1,729	890	451	1,012	496	803	700	1,157
65-74 years	1,131	578	293	645	367	511	556	737
75-84 years	862	439	227	415	258	394	358	514
85 years and over	370	238	97	197	121	283	224	502

The population age cohort distribution appears relatively consistent across each of the small areas in the detailed study area. Hence, there are no significant variations identifiable across the small areas from the general population distribution.

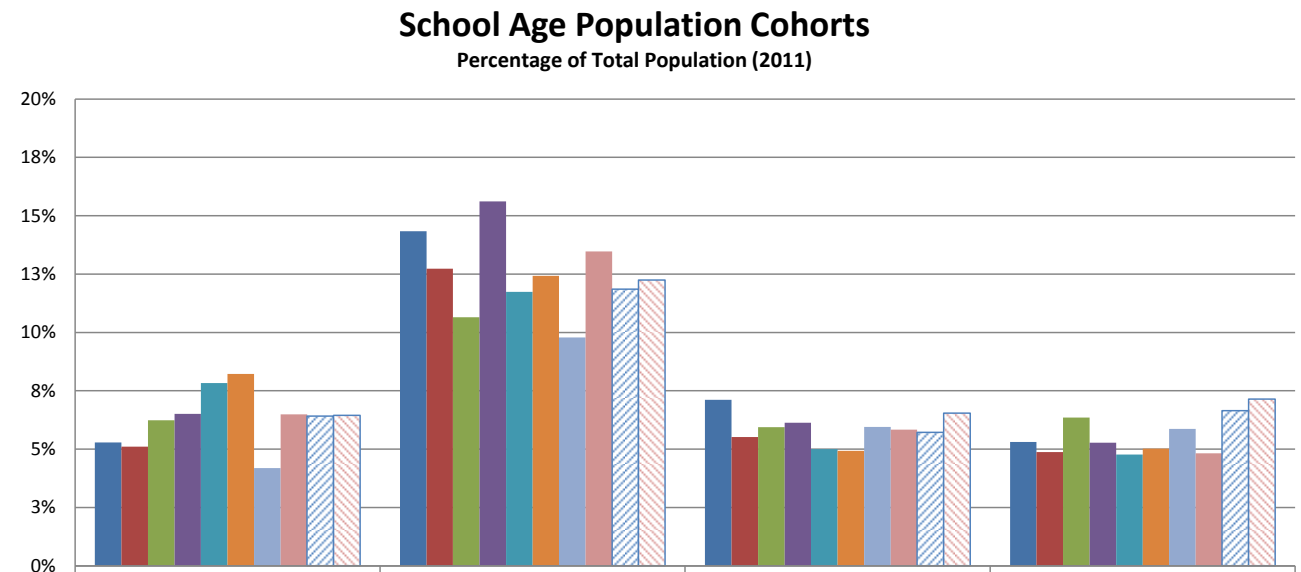
Figure 15: Population Age Cohorts- Percentage of Total Population - Sandringham College Catchment - 2011



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham	Melbourne - Inner South (SA)
0-4 years	5%	5%	6%	7%	8%	8%	4%	6%	6%
5-14 years	14%	13%	11%	16%	12%	12%	10%	13%	12%
15-19 years	7%	6%	6%	6%	5%	5%	6%	6%	6%
20-24 years	5%	5%	6%	5%	5%	5%	6%	5%	7%
25-34 years	5%	7%	12%	8%	13%	11%	13%	7%	13%
35-44 years	14%	13%	16%	16%	17%	19%	15%	16%	15%
45-54 years	17%	16%	14%	16%	14%	14%	14%	15%	14%
55-64 years	14%	15%	12%	12%	10%	10%	12%	13%	11%
65-74 years	9%	10%	8%	8%	8%	7%	10%	8%	7%
75-84 years	7%	7%	6%	5%	5%	5%	6%	6%	5%
85 years and over	3%	4%	3%	2%	3%	4%	4%	5%	3%

- *Beaumaris and Hampton have the highest percentage of 5-14 year olds when compared to the total population*
- *Conversely, Mentone and Cheltenham have the lowest proportion of 5-14 year olds*
- *Hampton East and Highett have the highest percentage of 0-4 year olds when compared to the total population*
- *Conversely, Mentone, Beaumaris and Black Rock have the lowest proportion of 0-4 year olds*

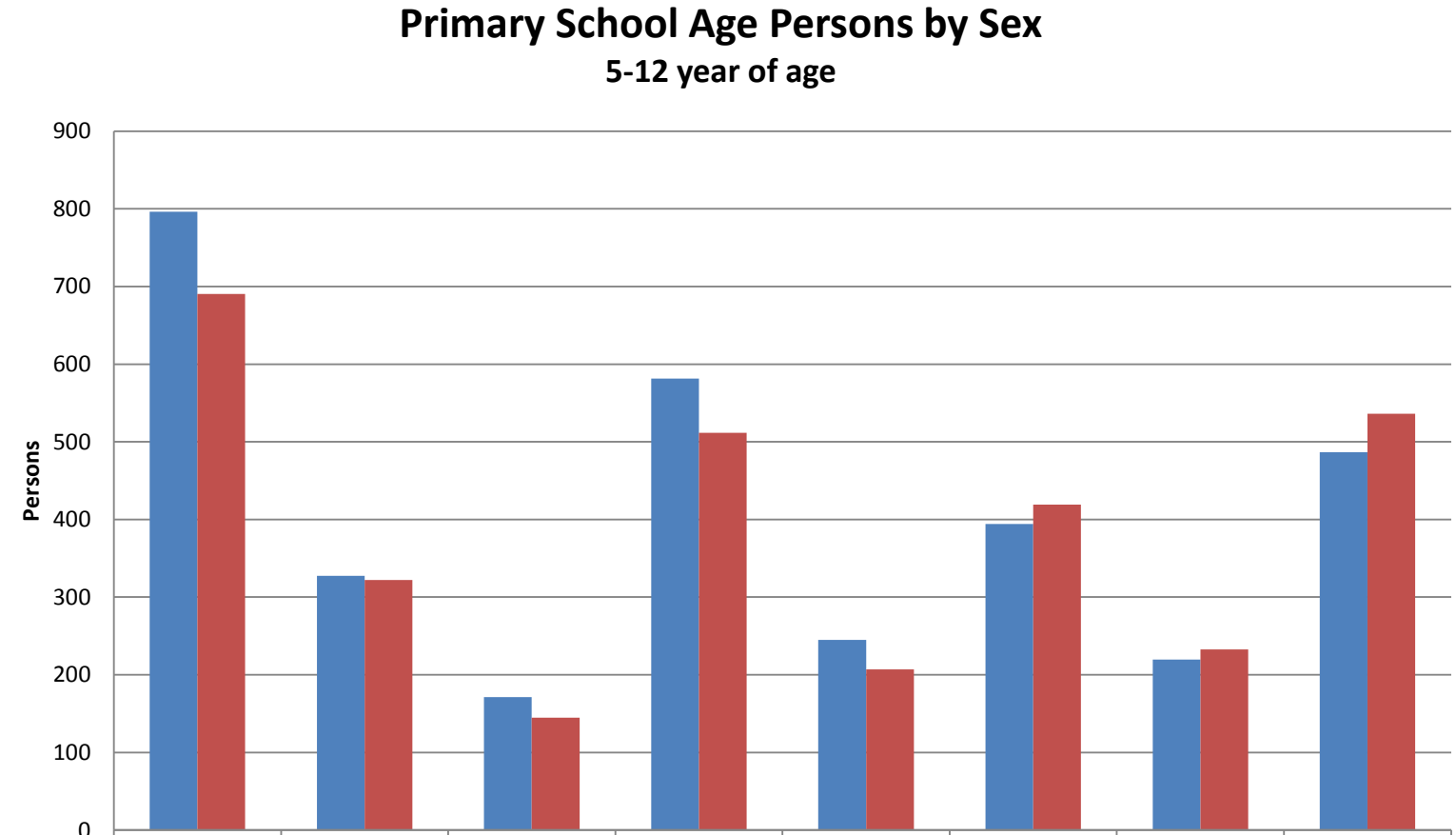
Figure 16: School Age Population Cohorts- Percentage of Total Population - Sandringham College Catchment - 2011



	0-4 years	5-14 years	15-19 years	20-24 years
Beaumaris	5%	14%	7%	5%
Black Rock	5%	13%	6%	5%
Cheltenham	6%	11%	6%	6%
Hampton	7%	16%	6%	5%
Hampton East	8%	12%	5%	5%
Highett	8%	12%	5%	5%
Mentone	4%	10%	6%	6%
Sandringham	6%	13%	6%	5%
Melbourne - Inner South (SA)	6%	12%	6%	7%
Victoria	6%	12%	7%	7%

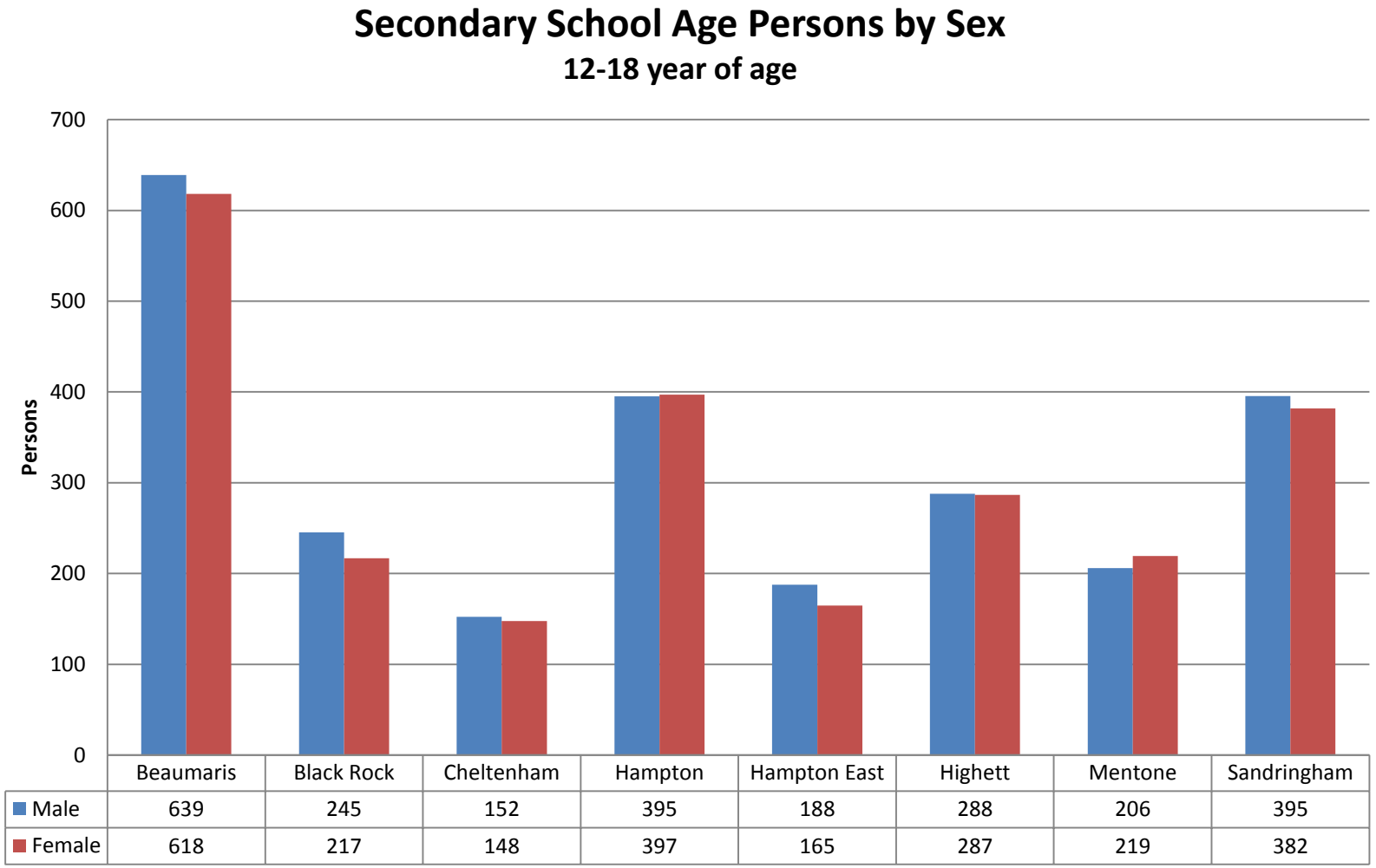
- *Compared to the Melbourne – Inner South and the State, Hampton East and Highett have a higher percentage of 0-4 year olds when compared to the total population. Conversely, Beaumaris, Black Rock and Mentone are lower.*
- *Compared to the Melbourne – Inner South and the State, Beaumaris, Hampton and Sandringham have a higher percentage of 5-14 year olds when compared to the total population. Conversely, Cheltenham and Mentone are lower.*

Figure 17: Primary School Age Population Cohort by Sex - Sandringham College Catchment – 2011



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
Male	796	327	171	581	245	394	220	487
Female	690	322	145	512	207	419	232	536

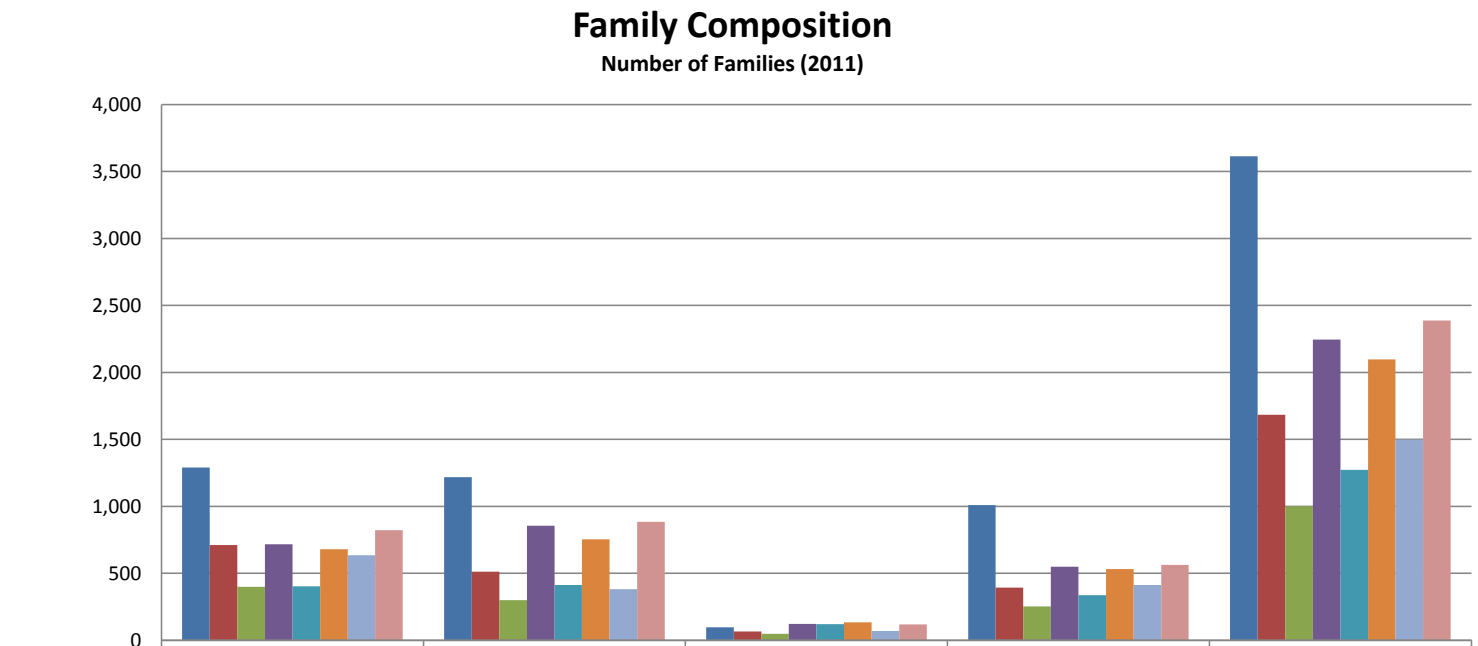
Figure 18: Secondary School Age Population Cohort by Sex - Sandringham College Catchment – 2011



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
Male	639	245	152	395	188	288	206	395
Female	618	217	148	397	165	287	219	382

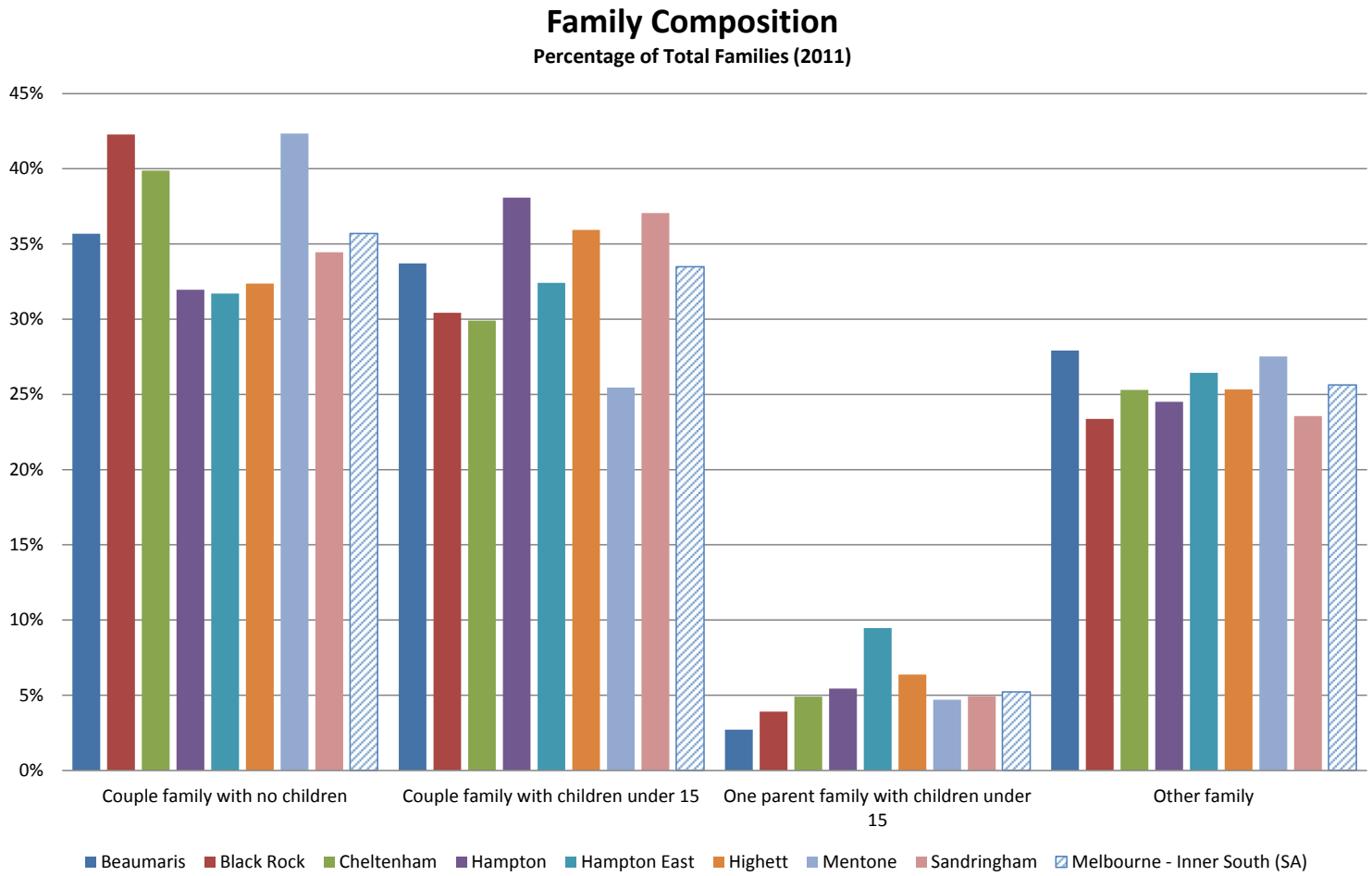
3.2 Sandringham College Catchment – Household Demographics

Figure 19: Family Composition - Sandringham College Catchment - 2011



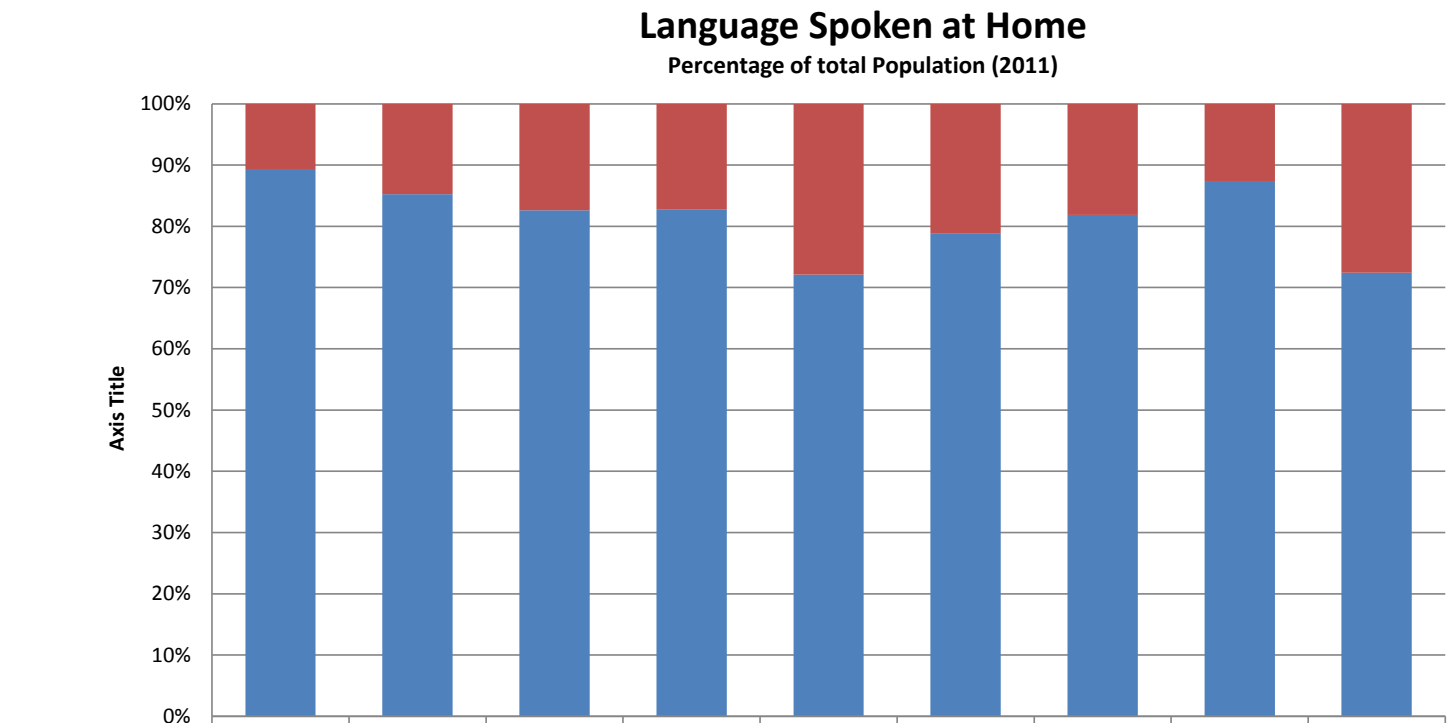
	Couple family with no children	Couple family with children under 15	One parent family with children under 15	Other family	Total Families
Beaumaris	1,289	1,218	98	1,008	3,613
Black Rock	712	512	66	394	1,683
Cheltenham	399	299	49	253	1,000
Hampton	717	855	122	550	2,244
Hampton East	403	413	120	336	1,273
Highett	679	754	134	531	2,098
Mentone	634	381	70	412	1,498
Sandringham	823	885	118	562	2,388

Figure 20: Family Composition by Percentage of Total Families - Sandringham College Catchment - 2011



- *Black Rock, Cheltenham and Mentone have the highest percentage of couple families with no children under 15. Conversely, they have the lowest percentage of couple families with children under 15.*
- *The percentage on single parent families with a child under 15 is significantly higher in Hampton East than the remaining small areas in the detailed study area.*

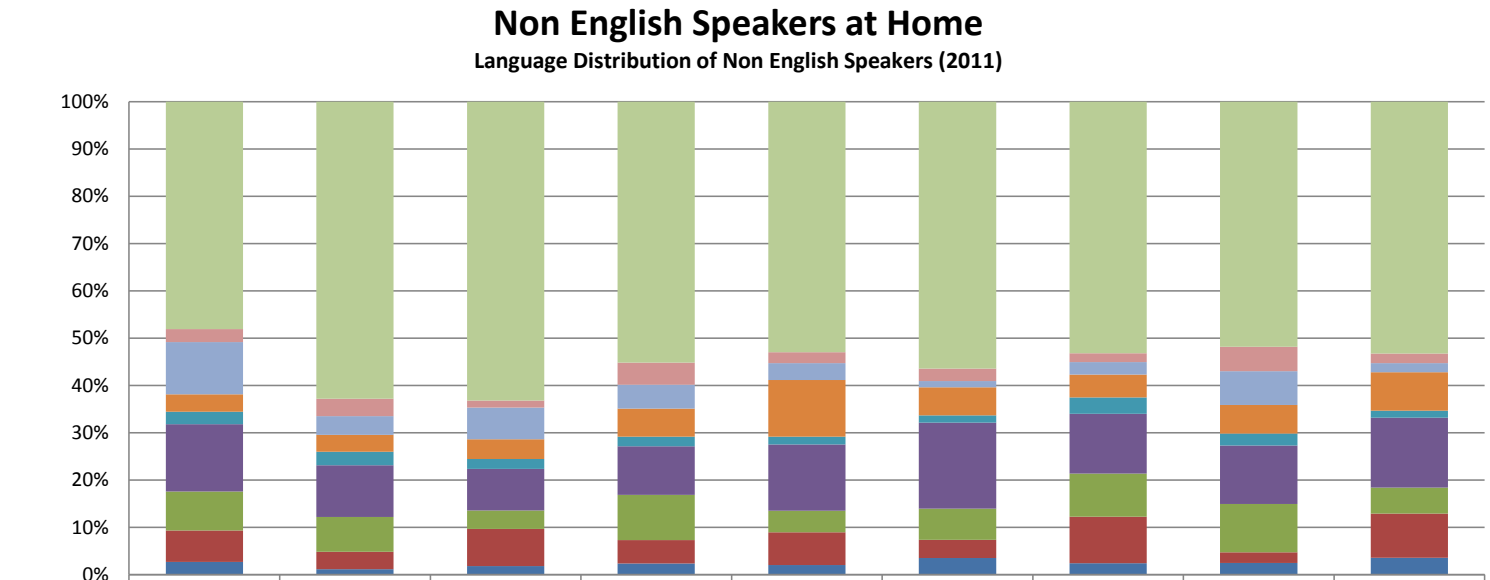
Figure 21: Language Spoken at Home – English and Non English Speaking - Sandringham College Catchment - 2011



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham	Melbourne - Inner South (SA)
Also speaks language other than English	1,378	894	645	1,478	1,334	1,646	1,034	1,180	88,206
Speaks English only	11,415	5,162	3,070	7,062	3,449	6,146	4,675	8,058	231,433

- *Hampton East has the highest percentage of person who speaks another language other than English at home.*
- *Significantly, with the exception of Hampton East, all small areas have a lower percentage of persons who also speak a language other than English at home than Melbourne Inner South Statistical Area.*

Figure 22: Language Spoken at Home - Language Distribution of Non English Speakers - Sandringham College Catchment - 2011

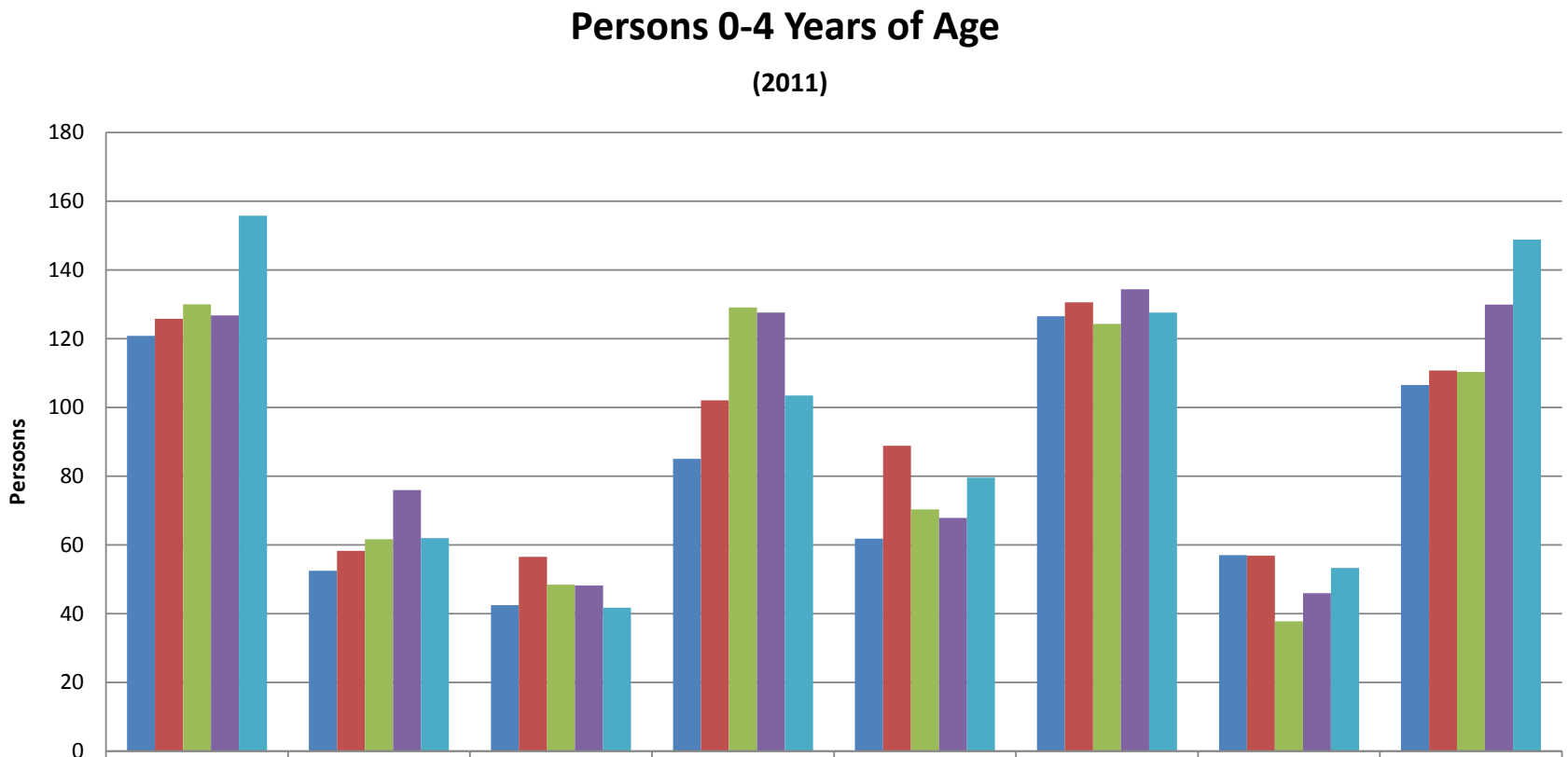


	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham	Melbourne - Inner South (SA)
Other	48%	63%	63%	55%	53%	56%	53%	52%	53%
French	3%	4%	2%	5%	2%	3%	2%	5%	2%
German	11%	4%	7%	5%	4%	1%	3%	7%	2%
Russian	4%	4%	4%	6%	12%	6%	5%	6%	8%
Japanese	3%	3%	2%	2%	2%	2%	3%	3%	1%
Greek	14%	11%	9%	10%	14%	18%	13%	12%	15%
Italian	8%	7%	4%	10%	5%	7%	9%	10%	6%
Mandarin	7%	4%	8%	5%	7%	4%	10%	2%	9%
Cantonese	3%	1%	2%	2%	2%	4%	2%	2%	4%

- *Greek is the most widely spoken language at home other than English across all small areas.*
- *Hampton East has a high percentage of Russian language speakers when compared to the other small areas.*
- *Beaumaris has a high percentage of German language speakers when compared to the other small areas.*
- *Mandarin is more widely spoken at home in Mentone compared to the other small areas.*
- *With the exception of Mentone, all small areas have a lower percentage of Mandarin speakers when compared to the Melbourne Inner South Statistical Area*

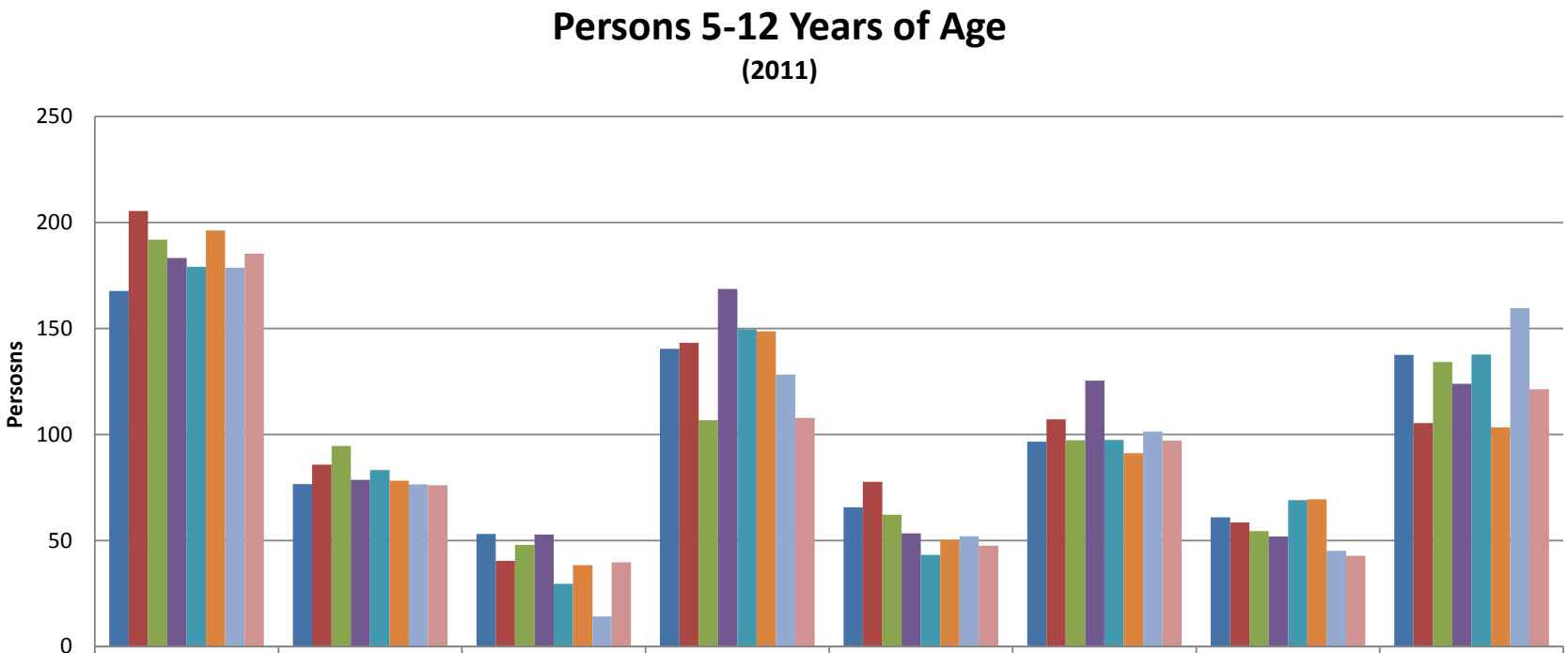
3.3 Sandringham College Catchment – School Age Population

Figure 23: Pre-school Age Population (0-4) - Sandringham College Catchment - 2011



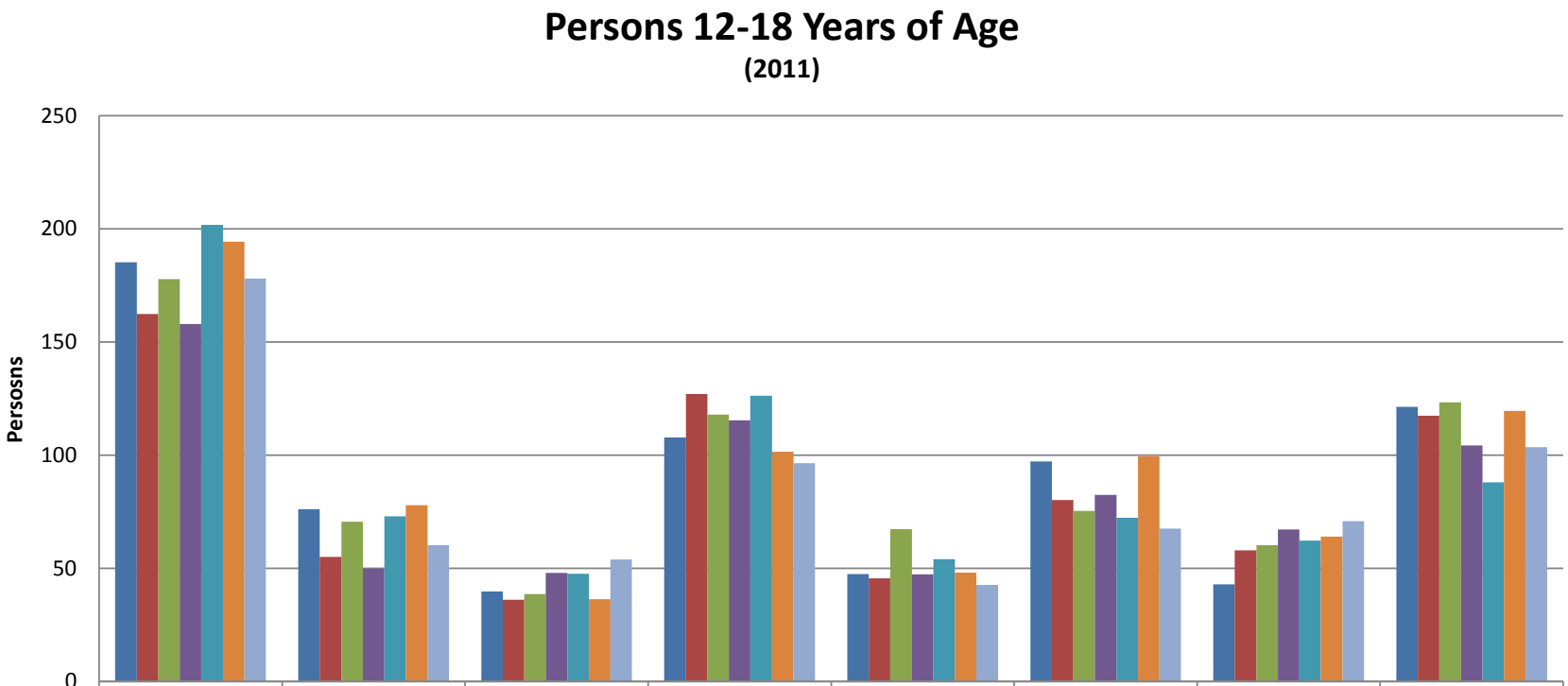
	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
0	121	53	42	85	62	127	57	106
1	126	58	57	102	89	131	57	111
2	130	62	48	129	70	124	38	110
3	127	76	48	128	68	134	46	130
4	156	62	42	103	80	128	53	149

Figure 24: Primary School Age Population (5-12) - Sandringham College Catchment - 2011



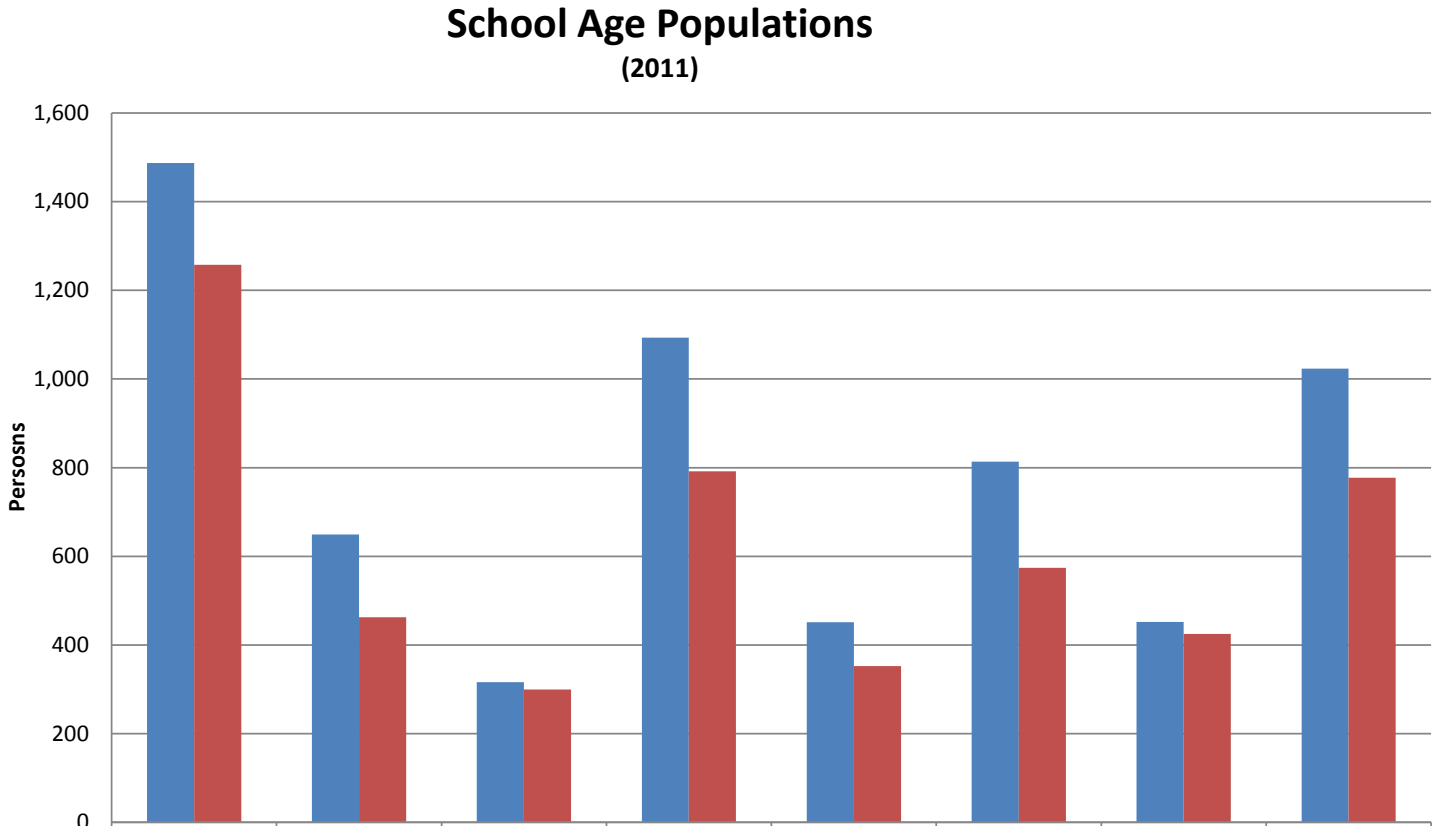
	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
5	168	77	53	140	66	97	61	137
6	205	86	40	143	78	107	58	105
7	192	95	48	107	62	97	54	134
8	183	79	53	169	53	125	52	124
9	179	83	30	150	43	97	69	138
10	196	78	38	149	50	91	69	103
11	179	76	14	128	52	101	45	160
12	185	76	40	108	47	97	43	121

Figure 25: Secondary School Age Population (12-18) - Sandringham College Catchment - 2011



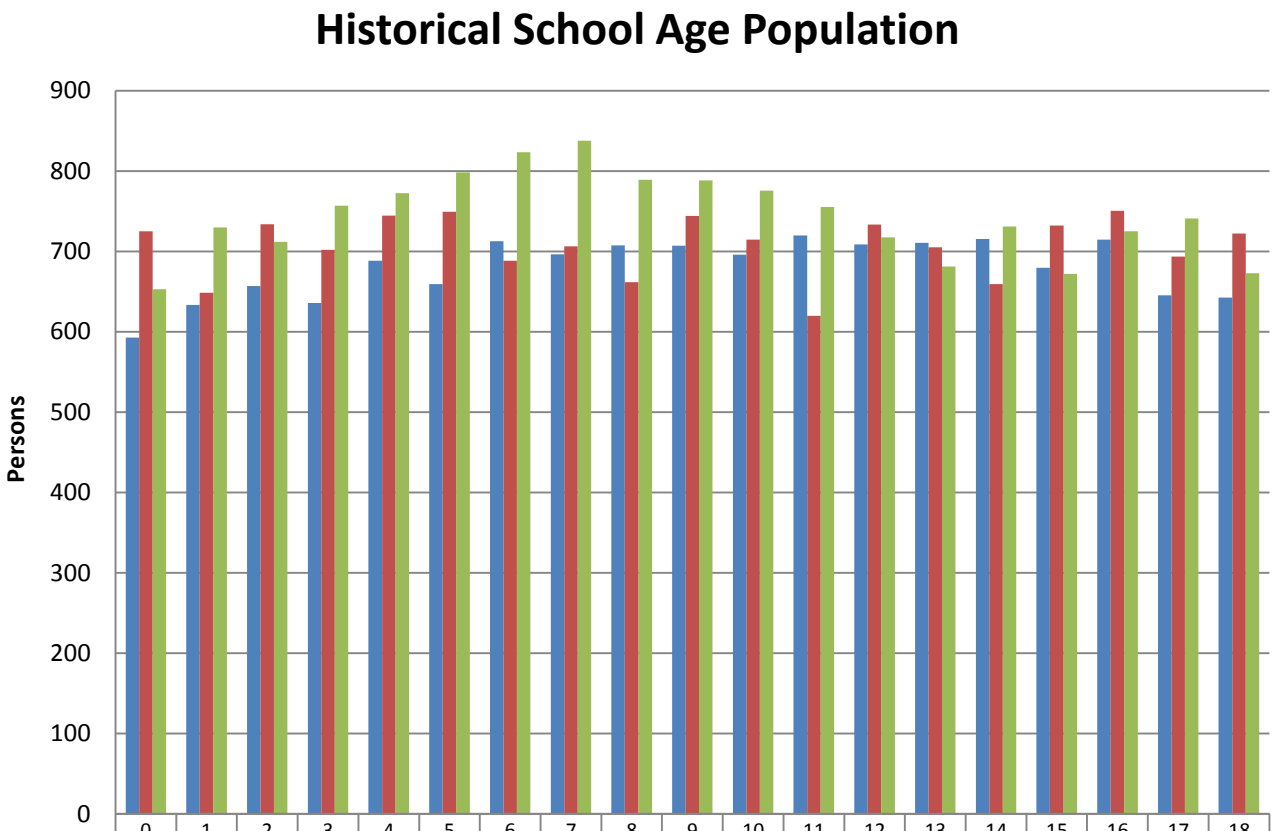
	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
12	185	76	40	108	47	97	43	121
13	162	55	36	127	46	80	58	117
14	178	71	39	118	67	75	60	123
15	158	50	48	115	47	82	67	104
16	202	73	48	126	54	72	62	88
17	194	78	36	101	48	99	64	120
18	178	60	54	96	43	67	71	104

Figure 26: Primary and Secondary School Age Population (5-12 & 12-18) - Sandringham College Catchment - 2011



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
Primary School Aged Population (5-12)	1,487	649	316	1,093	452	813	452	1,023
Secondary School Aged Population (12-18)	1,257	462	300	792	352	574	425	777

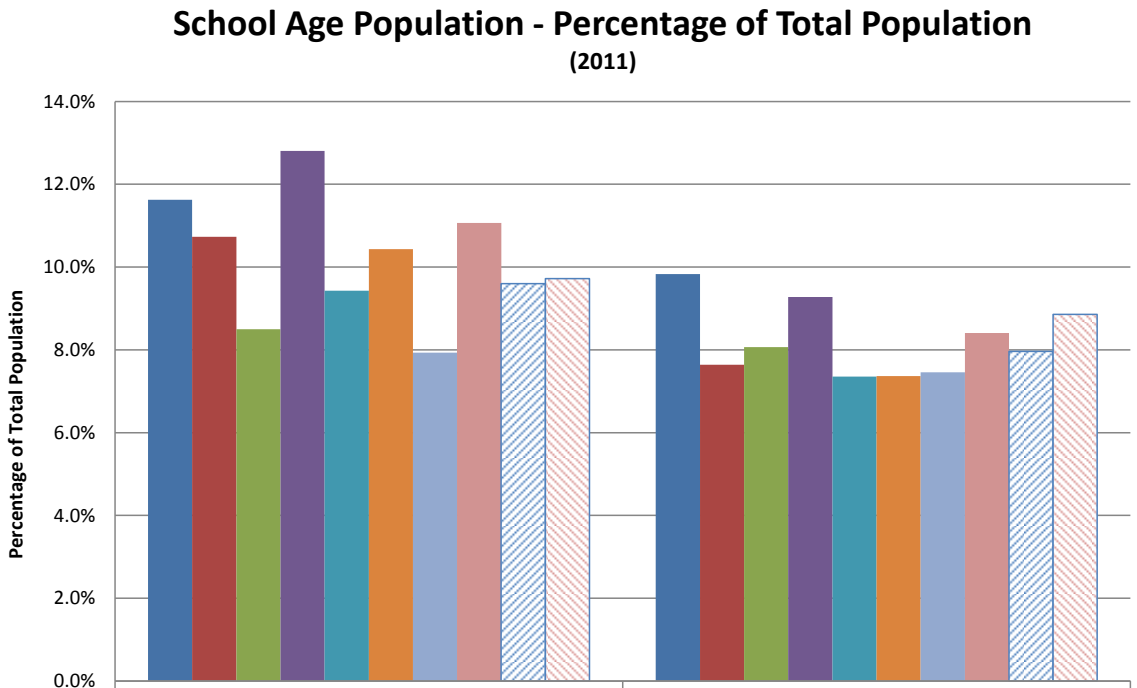
Figure 27: Historical School Age Population Change - Sandringham College Catchment – (2001-2011)



	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2001	593	633	657	636	688	659	712	696	707	707	696	720	709	711	715	680	714	645	643
2006	725	648	734	702	744	749	688	706	662	744	714	620	733	705	659	732	750	693	722
2011	653	730	712	757	772	798	824	838	789	788	776	755	718	681	731	672	725	741	673

- *The School Age population has increased across the majority of ages since 2001, with the most significant increases occurring below the age of 11*

Figure 28: Primary and Secondary School Age Population – Percentage of Total Population- Sandringham College Catchment - 2011



	Primary School Aged Population (5-12)	Secondary School Aged Population (12-18)
Beaumaris	11.6%	9.8%
Black Rock	10.7%	7.6%
Cheltenham	8.5%	8.1%
Hampton	12.8%	9.3%
Hampton East	9.4%	7.4%
Highett	10.4%	7.4%
Mentone	7.9%	7.5%
Sandringham	11.1%	8.4%
Melbourne - Inner South (SA)	9.6%	8.0%
Victoria	9.7%	8.9%

- *The percentage of the total population 5-12 years of age is more variable than that of the 12-18 year age cohort across the small areas in the detailed study area.*
- *Hampton has the highest percentage of 5-12 year olds when compared to the total population and Mentone the lowest.*
- *Only Beaumaris and Hampton have a higher percentage of 12-18 year olds when to the State figure.*
- *Cheltenham and Mentone are consistently lower when compared to the State figure.*

3.4 Sandringham College Catchment – Education Attendance and Student Yield Rates

ABS Census - Education Attendance and Student Yield Rates

In this study, the term *student yield rate* is presented. Student yield rates represent the number of school aged persons that attend an education institution type, as a proportion of the total number of school aged attendees. Institution attendance data, for the study area of interest, is sourced from historic Census data sets published by the ABS (e.g. 2001, 2006 and 2011). The student yield rates derived from this data are used to determine the forecast number of school aged persons that attend an education institution type.

Prior research has revealed that the published ABS Census education attendance data for primary and secondary schools include a significant "not stated" response. This leads to an equally significant understatement of the numbers attending primary and secondary schools.

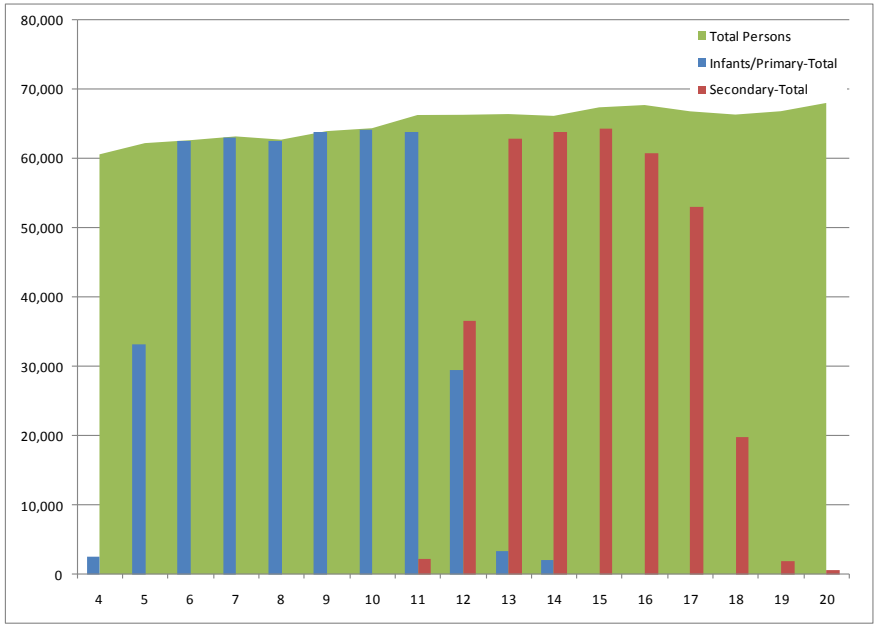
To overcome this issue (and allow further analysis of school attendance), it is necessary to reallocate the "non-stated" components of this data. This has been achieved via a pro rata apportionment process. In other words, the "non-stated" persons have been reclassified in accordance with the share of each type of educational institution.

An analysis of the results of this apportionment process against actual 2006[1] DEECD recorded enrolments reveals a very close alignment. This process is therefore considered an approximate solution to the "not-stated" issue.

The results for the State of Victoria, following this adjustment, are presented in Figure 29. The following observations have been made regarding ABS Census school attendance data:

- Not all 5 to 12 year olds attend a primary school
- At the time of the census, some 5 year olds have yet to enrol at a school
- A small number of children commence secondary school before they turn 12 years of age.
- Many children remain in primary school during the year they turn 12 years of age.
- A small number of children transition to a secondary school well after they turn 12 years of age.
- Students begin leaving secondary school from about 16 years of age.
- A small number of students remain in secondary school well after they turn 18 years of age.
- A small percentage either does not attend school at all or attends another form of institution, particularly during secondary school years. This is reflected in the gap between those attending primary/secondary schools and the total school age population shown in Figure 29

Figure 29: Victoria - Victorian and Primary and Secondary School Attendance by Age (2006)



[1] Due to 2011 data not being available, 2006 adjustment factors are used in this study

From the above graph, the practical definition of school aged persons can be seen to be 5 to 12 years for primary schools and 12 to 18 years of age for secondary schools.

The definition of a yield rate based on these populations however needs to recognise that part of the 5 year old cohort is yet to attend primary school, the 12 year old cohort is distributed across both primary and secondary schools, and completion of high school drops below 100% from age 16 on.

The yield rate for government primary schools can therefore be seen to be the following.

$$\left[\frac{\text{Number of Persons Attending Secondary Schools}}{\text{Number of Persons 12 – 18 Years of Age}}\right] \cdot \left[\frac{\text{Number of Persons Attending Government Secondary Schools}}{\text{Number of Persons Attending Secondary Schools}}\right]$$

$$(Part\ A) \qquad\qquad (Part\ B)$$

Part A of the formula adjusts the base data (secondary school aged population) to reflect the true number of 12-18 year olds that attend a secondary school. Part B of the formula determines the government secondary share of all secondary school attendance. By multiplying Part A and Part B a yield rate is derived, representing the number of 12-18 year olds that attend a government secondary school.

The yield rate for Victorian government secondary schools at the time of the 2006 ABS Census is as follows;

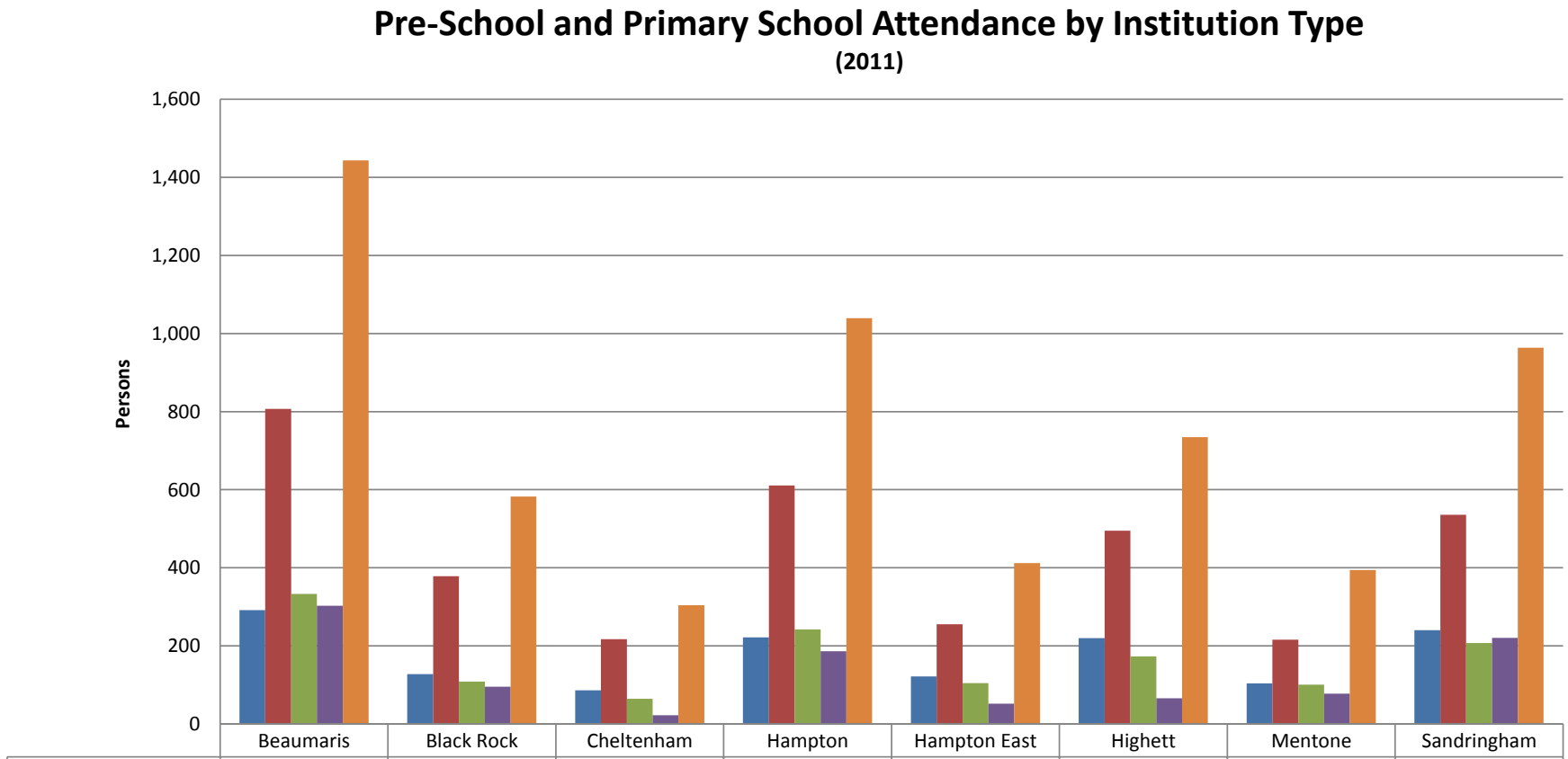
$$\left[\frac{375{,}293}{466{,}905}\right] \cdot \left[\frac{219{,}295}{375{,}293}\right] = 46.97\%$$

In other words, in 2006, 46.97% of persons aged between 12 and 18 years, attended a government secondary school. Yield rates are applied to forecast numbers of 12-18 year olds to determine future demand for government secondary schools.

NB: yield rates are calculated from CCD and SA1 data for each school catchment or geographic area in the study area of interest. The yield rate for the State, cited above, is for illustrative purposes only.

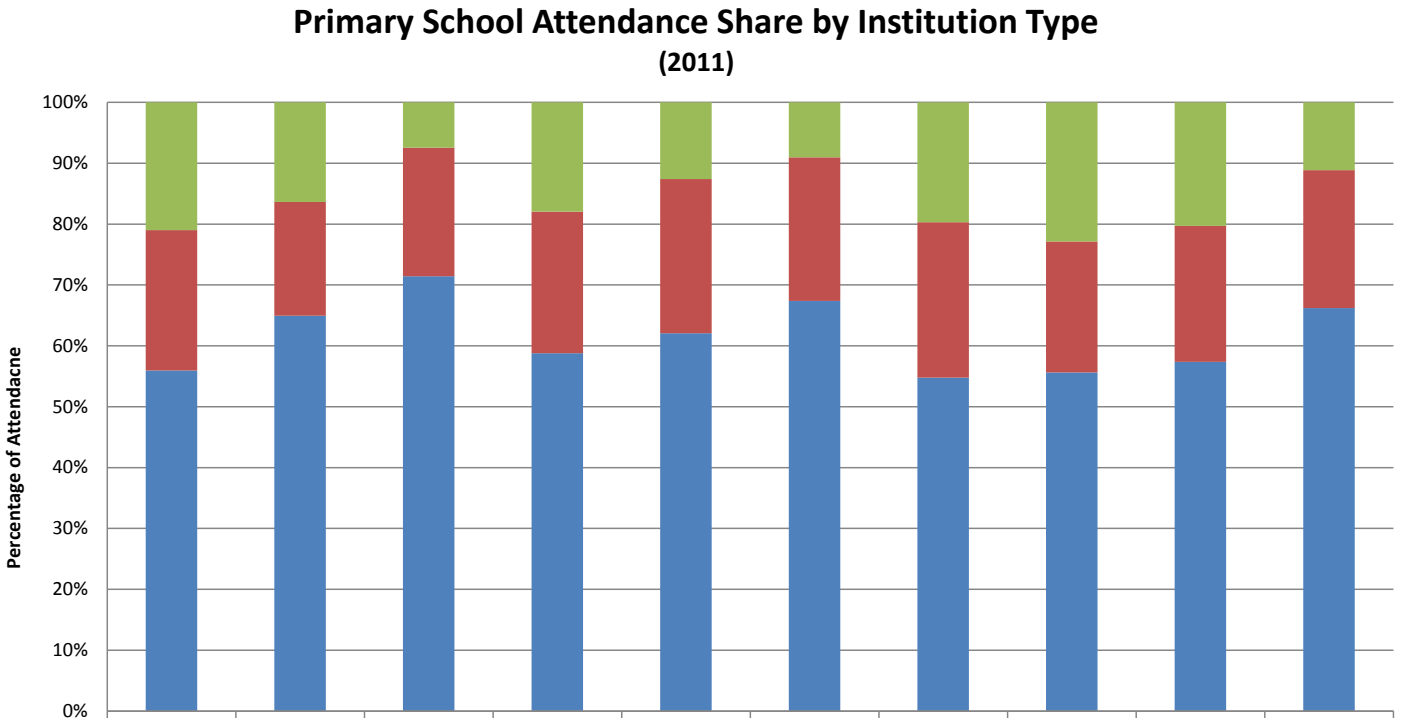
The above method can be replicated for other institution types. For primary schools the school aged population are persons from 5-12 years of age.

Figure 30: Pre School and Primary School Attendance - Sandringham College Catchment – 2011



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
Pre-school	291	128	86	222	122	220	104	240
Primary Government	807	378	217	611	256	495	216	536
Primary Catholic	333	109	64	242	105	173	101	207
Primary Other Non Government	303	95	23	186	52	66	78	220
Primary Total	1,443	583	304	1,039	412	735	394	964

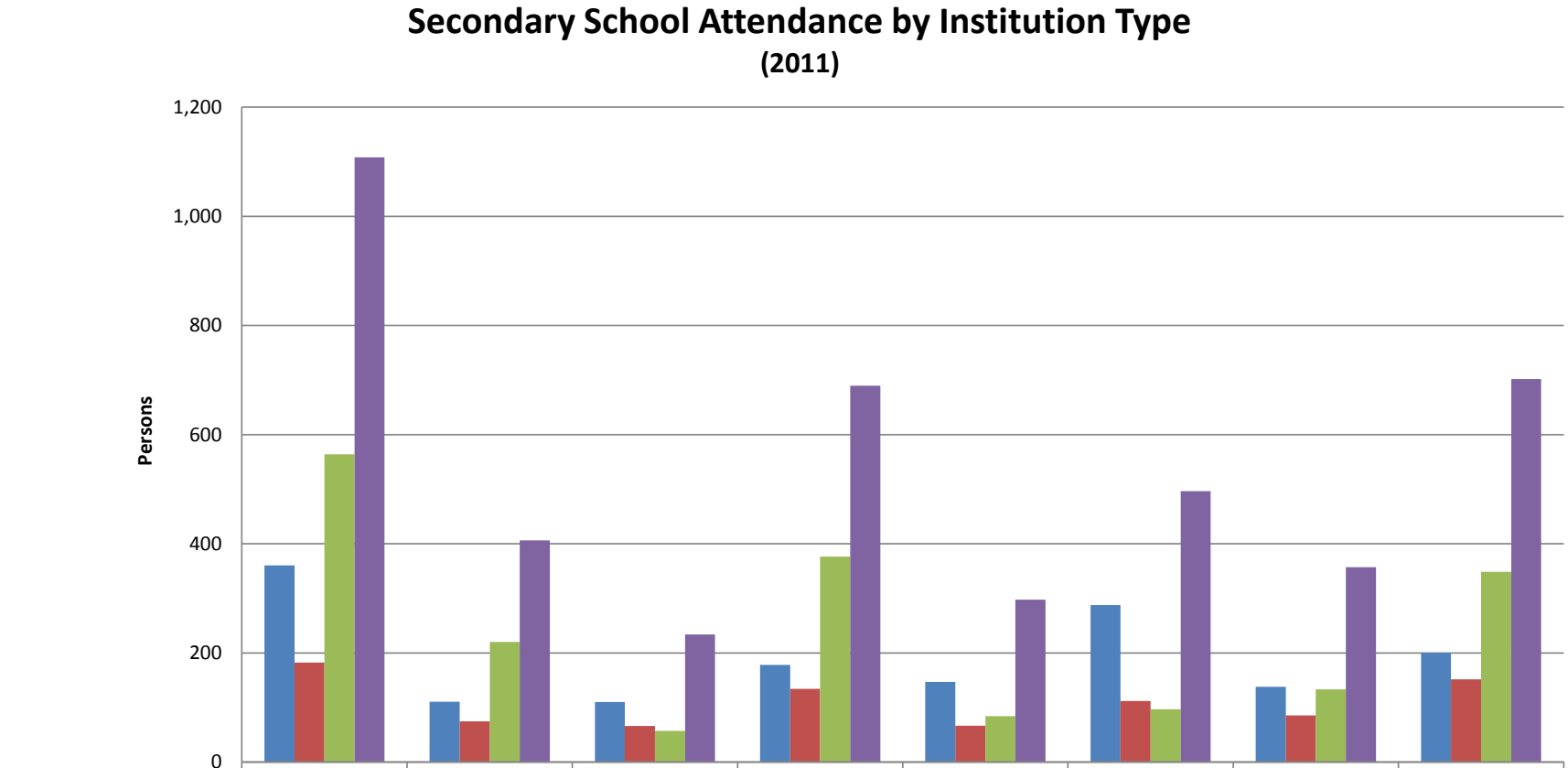
Figure 31: Primary School Attendance - Share of Total Attendance - Sandringham College Catchment – 2011



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham	Melbourne - Inner South (SA)	Victoria
Primary Other Non Government	21%	16%	7%	18%	13%	9%	20%	23%	20%	11%
Primary Catholic	23%	19%	21%	23%	25%	24%	26%	22%	22%	23%
Primary Government	56%	65%	71%	59%	62%	67%	55%	56%	57%	66%

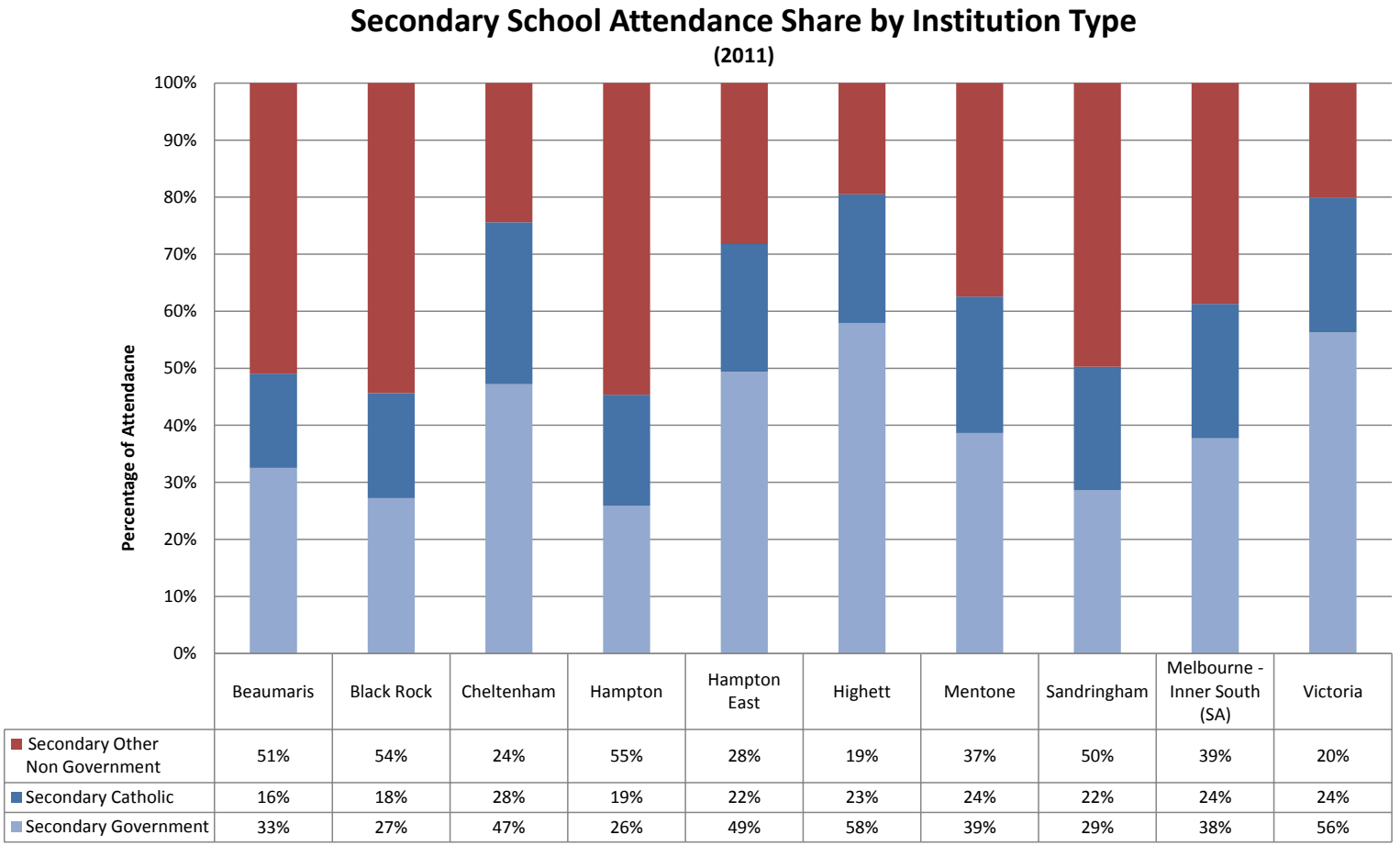
- *With the exception of Cheltenham and Highett, the "Other Non-Government" share of primary school attendance is higher than that of the State across all small areas.*
- *The Catholic primary school attendance share is relatively consistent across all small areas and comparable to that of the State*
- *The Government share of primary school attendance is highly variable across the small areas in the detailed study area, with Cheltenham having the highest share and Mentone the lowest.*

Figure 32: Secondary School Attendance - Sandringham College Catchment – 2011



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
Secondary Government	360	110	110	178	147	288	138	200
Secondary Catholic	183	75	66	134	67	112	85	152
Secondary Other Non Government	564	220	57	376	84	97	133	349
Secondary Total	1,108	406	234	690	297	497	357	702

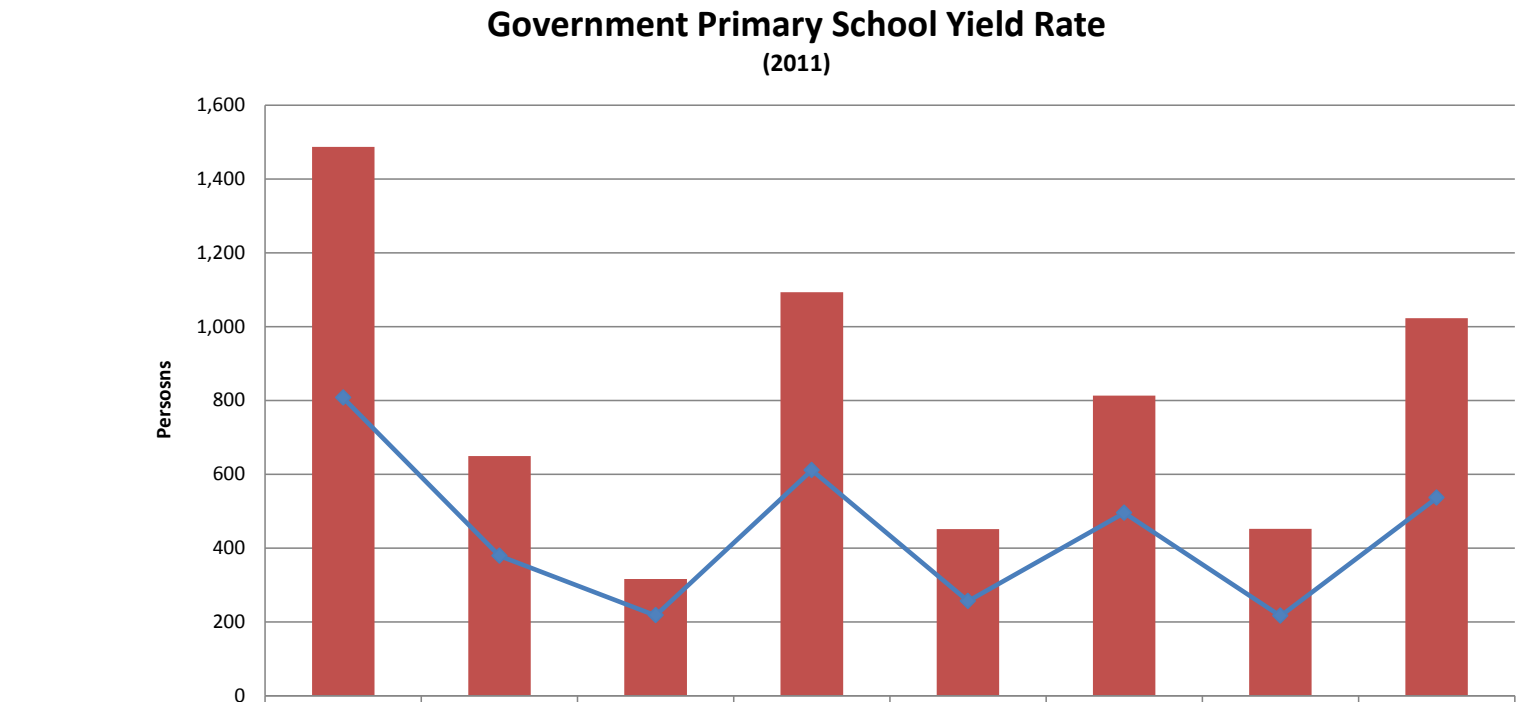
Figure 33: Secondary School Attendance – Share of Total Attendance - Sandringham College Catchment – 2011



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham	Melbourne - Inner South (SA)	Victoria
Secondary Other Non Government	51%	54%	24%	55%	28%	19%	37%	50%	39%	20%
Secondary Catholic	16%	18%	28%	19%	22%	23%	24%	22%	24%	24%
Secondary Government	33%	27%	47%	26%	49%	58%	39%	29%	38%	56%

- *With the exception of Cheltenham and Highett, the "Other Non-Government" share of secondary school attendance is significantly higher than that of the State across all small areas.*
- *The Catholic secondary school attendance share is relatively consistent across all small areas and generally lower when compared to the State*
- *The Government share of secondary school attendance is highly variable and general lower than that of the State across the small areas in the detailed study area, with Highett the only region with a share higher than the State.*

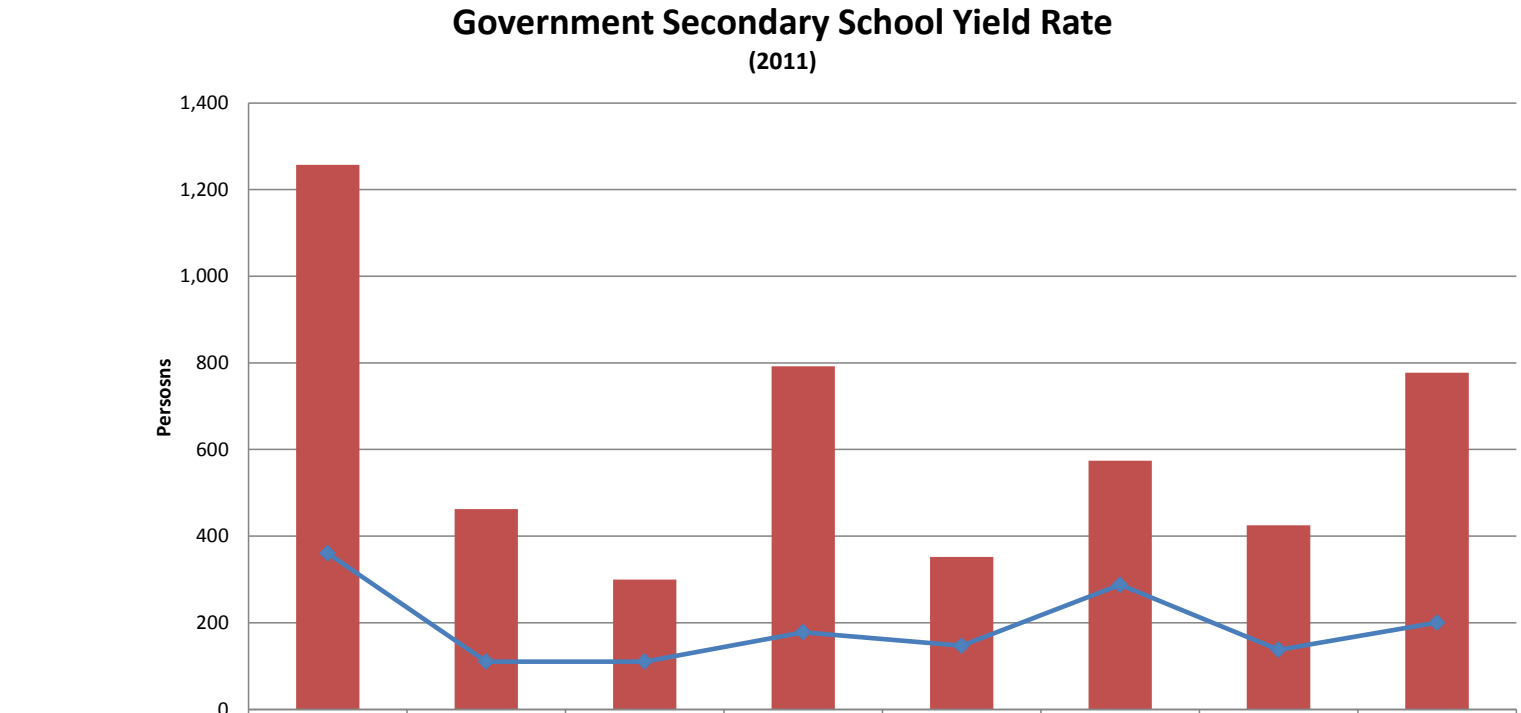
Figure 34: Government Primary School Yield Rate - Sandringham College Catchment – 2011



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
Primary School Aged Population (5-12)	1,487	649	316	1,093	452	813	452	1,023
Government Primary Attendance	807	378	217	611	256	495	216	536
Government Yield Rate	54.27%	58.27%	68.80%	55.88%	56.64%	60.85%	47.77%	52.37%

- *Cheltenham and Highett have the highest percentage (yield rate) of 5-12 year olds attending government primary school with Mentone having the lowest percentage.*
- *When compared to the yield rate of the State (i.e. 58.62%), only Cheltenham and Highett have a higher yield.*

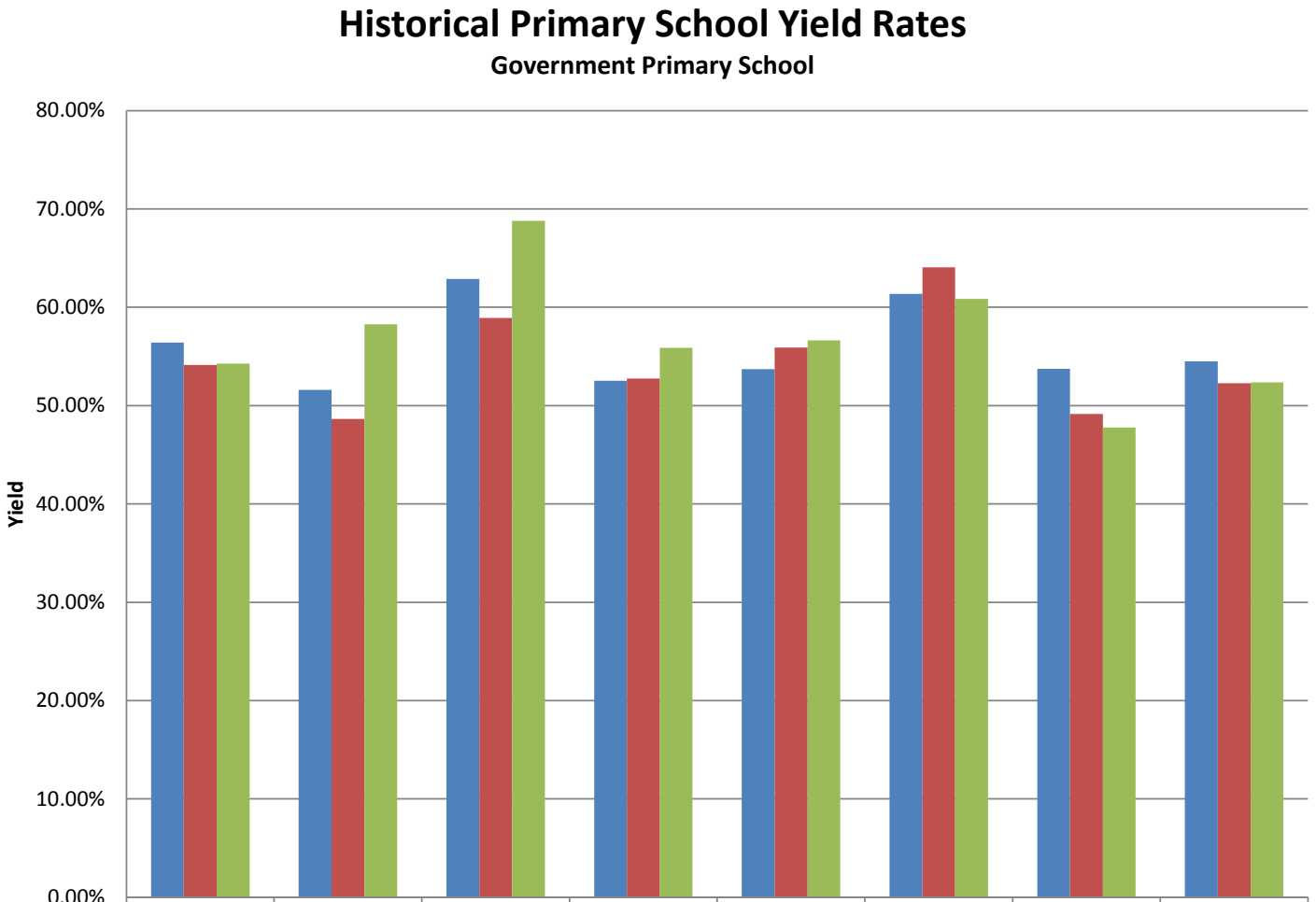
Figure 35: Government Secondary School Yield Rate - Sandringham College Catchment – 2011



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
Secondary School Aged Population (12-18)	1,257	462	300	792	352	574	425	777
Government Secondary Attendance	360	110	110	178	147	288	138	200
Government Yield Rate	28.67%	23.89%	36.76%	22.49%	41.69%	50.08%	32.41%	25.77%

- *Cheltenham and Highett and Hampton East have the highest percentage (yield rate) of 12-18 year olds attending Government secondary schools with Hampton having the lowest percentage.*
- *When compared to the yield rate of the State (i.e. 46.19%), only Highett has a higher yield.*
- *With the exception of Highett, all small areas generally have a significantly lower yield than the State.*

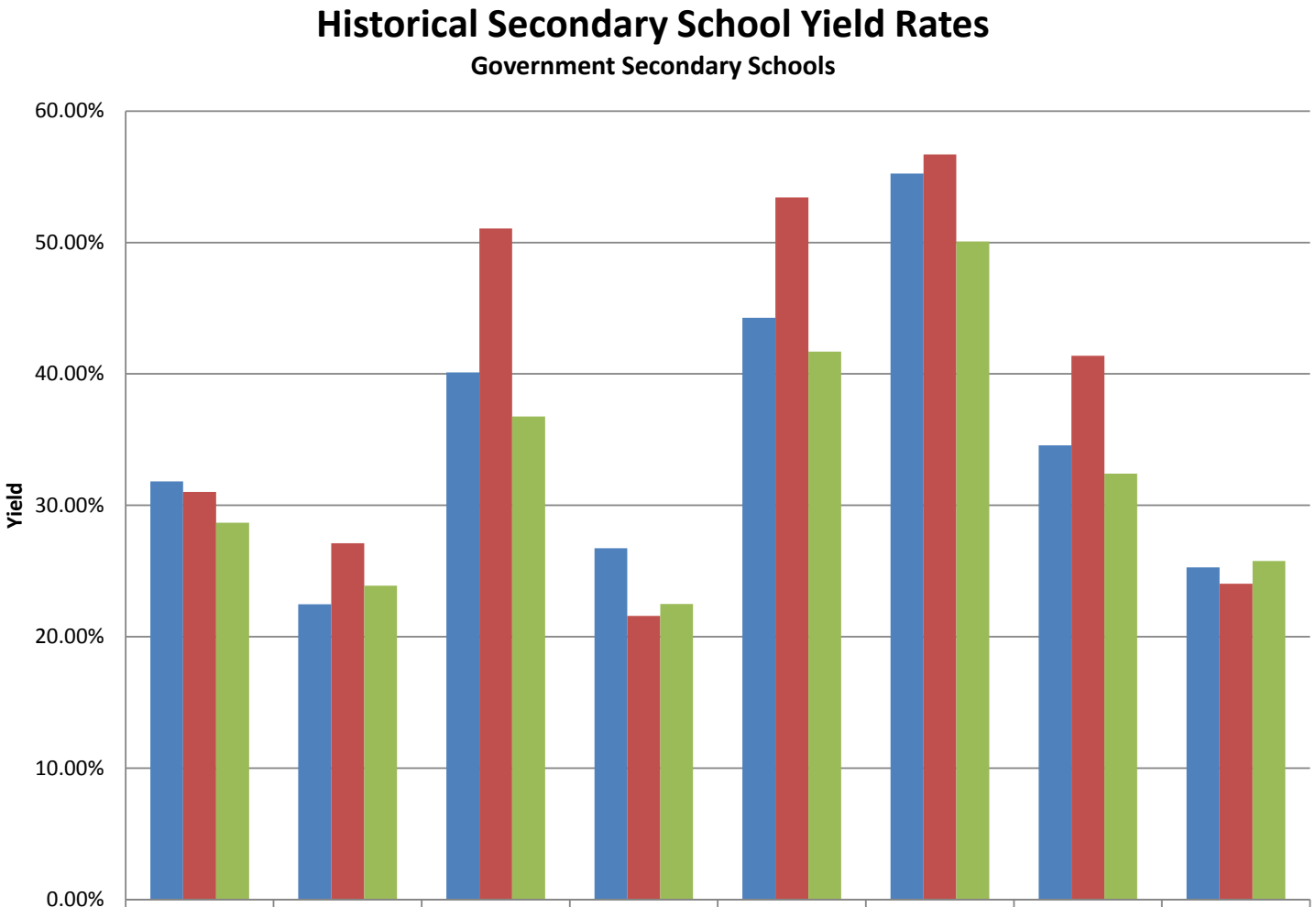
Figure 36: Historical Primary School Yield Rate s- Sandringham College Catchment – 2001 - 2011



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
2001	56.42%	51.61%	62.89%	52.52%	53.72%	61.35%	53.74%	54.51%
2006	54.15%	48.64%	58.92%	52.75%	55.89%	64.07%	49.16%	52.28%
2011	54.27%	58.27%	68.80%	55.88%	56.64%	60.85%	47.77%	52.37%

- *With the exception of Mentone and Highett, the student yield rate has increased across all small areas from 2006-2011*

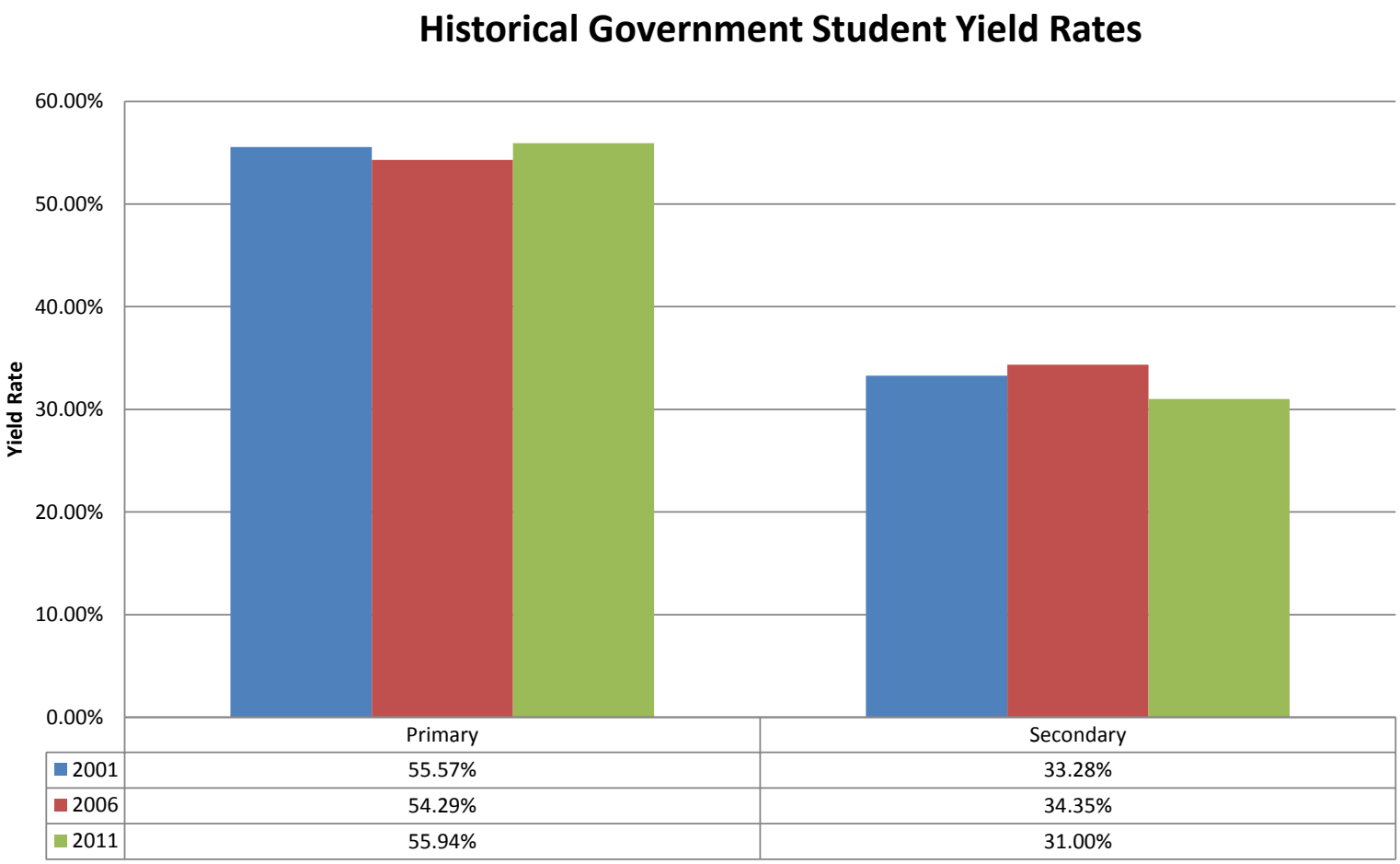
Figure 37: Historical Secondary School Yield Rates - Sandringham College Catchment – 2001 - 2011



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
2001	31.82%	22.46%	40.12%	26.74%	44.28%	55.24%	34.56%	25.29%
2006	31.02%	27.11%	51.07%	21.59%	53.42%	56.70%	41.38%	24.03%
2011	28.67%	23.89%	36.76%	22.49%	41.69%	50.08%	32.41%	25.77%

- *Significant variations are evident in the historical student yield rate for Government secondary schools*

Figure 38: Historical School Yield Rate - Sandringham College Catchment – 2011

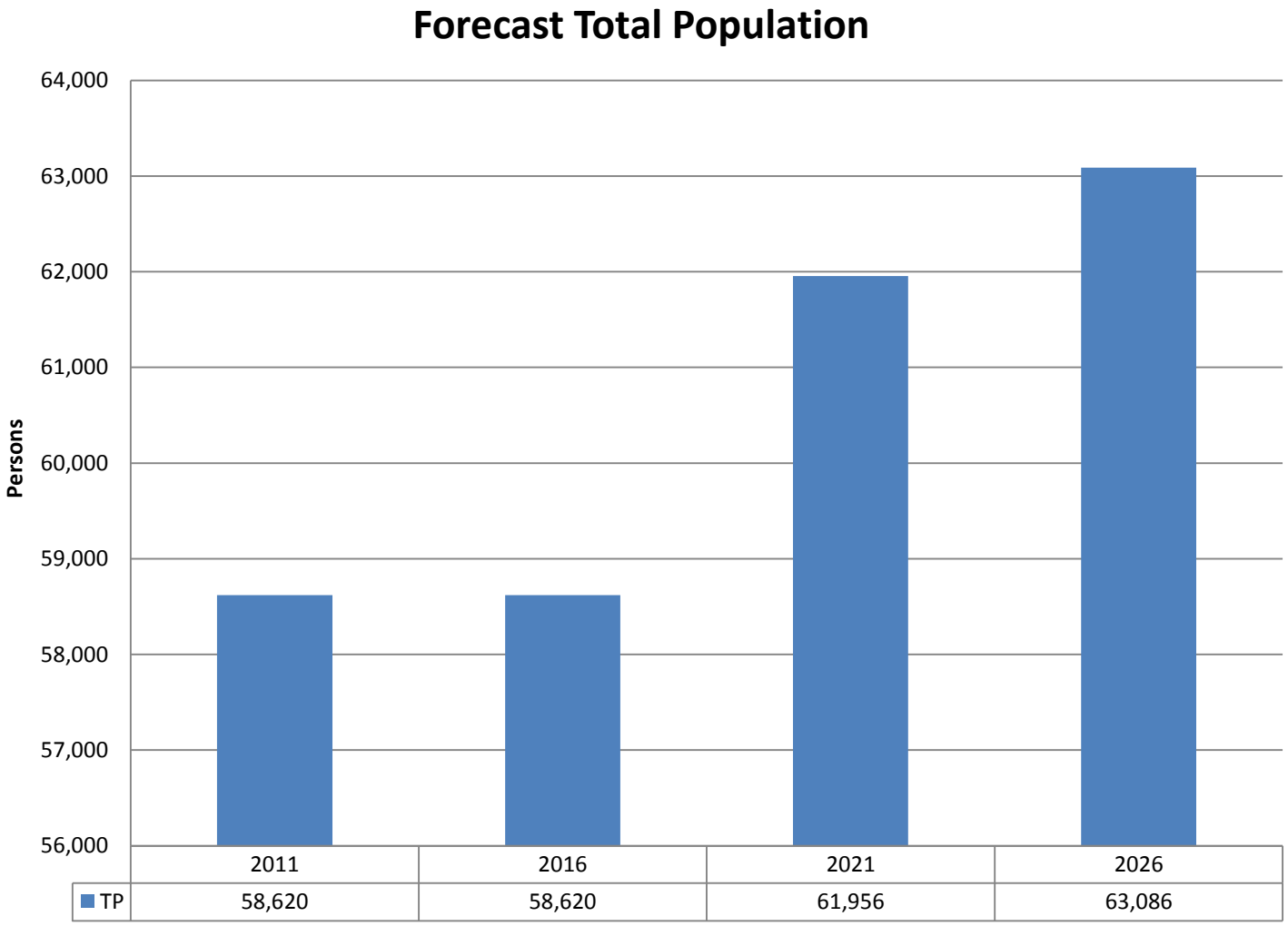


	Primary	Secondary
2001	55.57%	33.28%
2006	54.29%	34.35%
2011	55.94%	31.00%

- *The Government primary school yield rate slightly increased from 2001-2011*
- *The Government secondary school yield rate decreased from 2001-2011*
- *The Government secondary school yield rate decreased by 3.35% from 2006-2011*

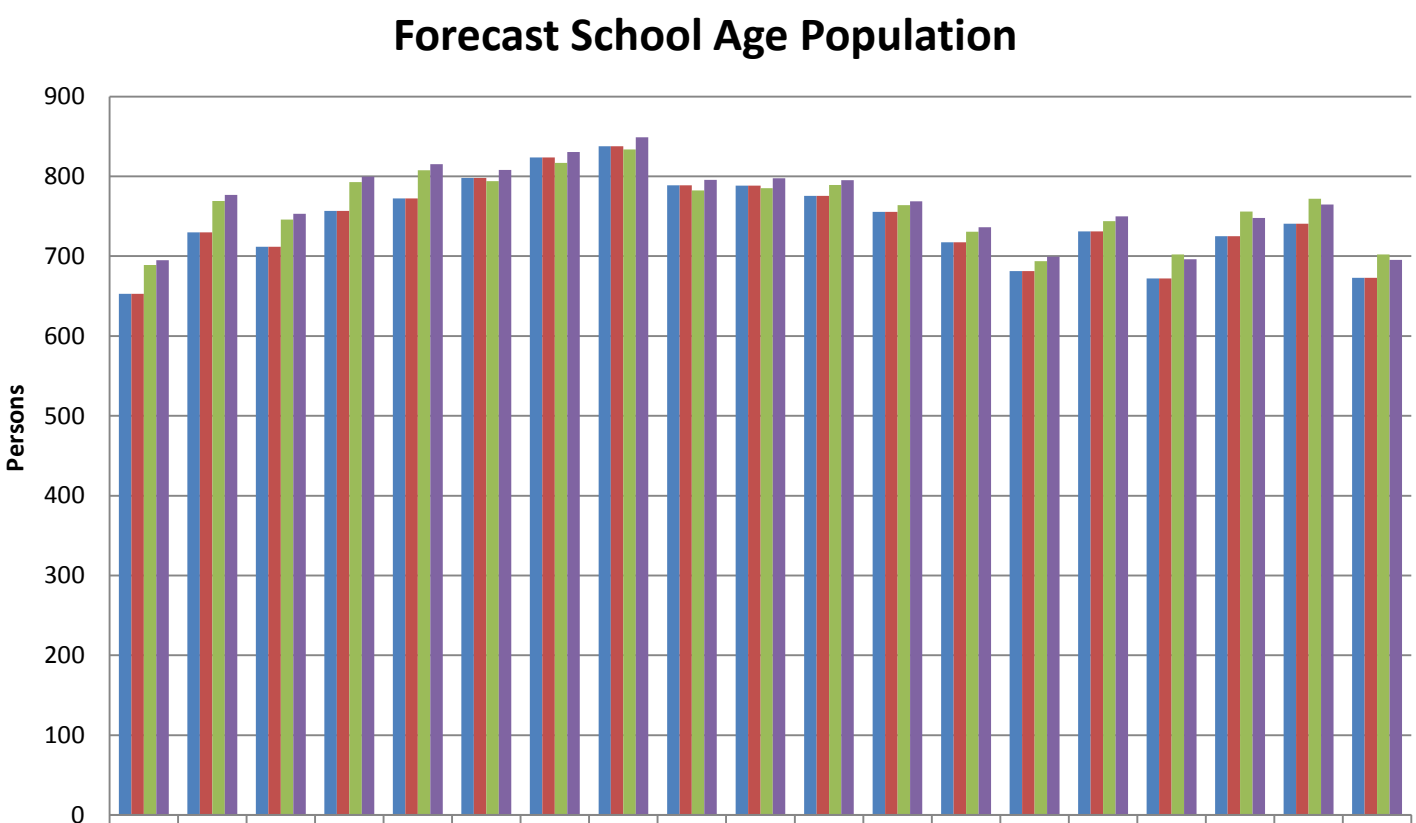
3.1 Sandringham College Catchment – Projections 2011-2026

Figure 39: Total Population Forecasts - Sandringham College Catchment – 2011-2026



- *From 2011 to 2026 the total population is projected to increase by 7.60% (i.e. 4,467 persons)*

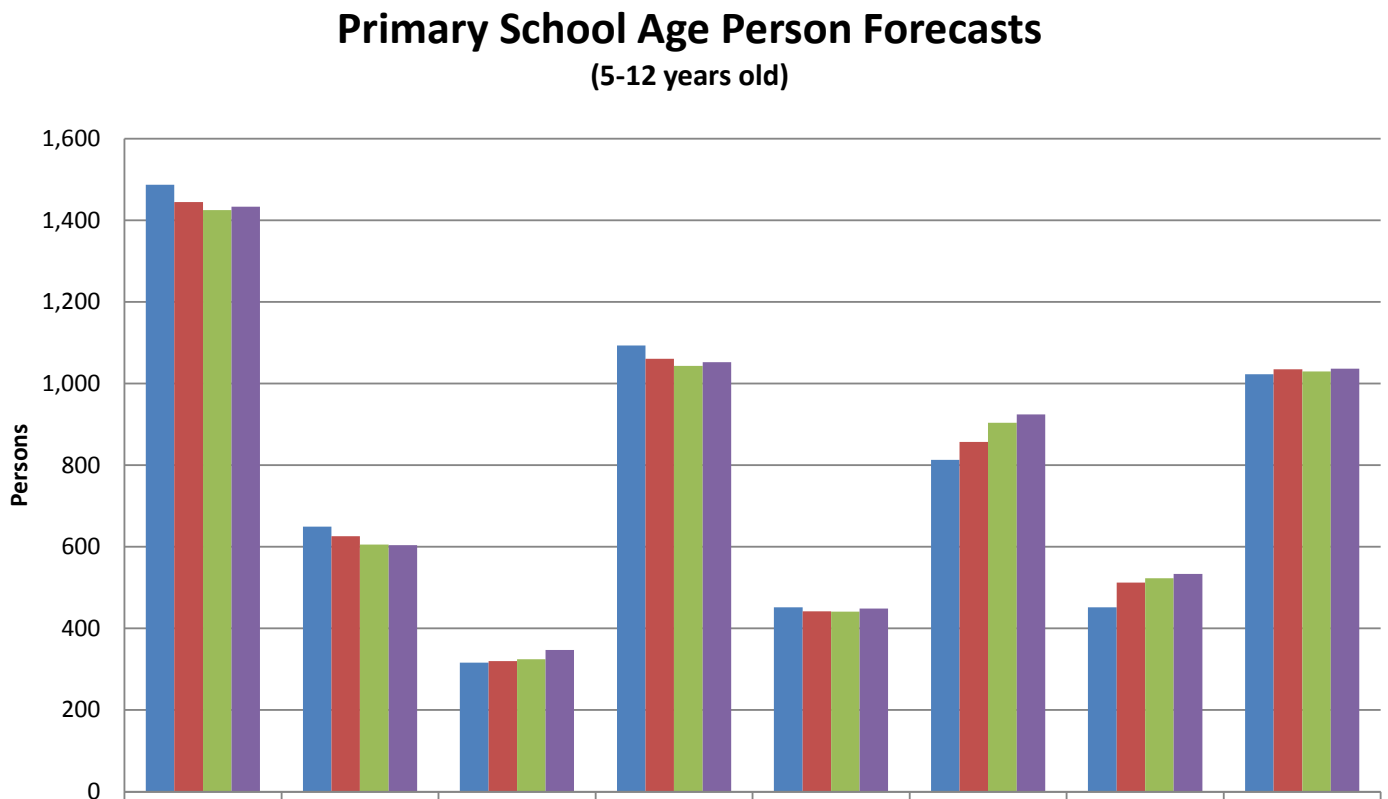
Figure 40: School Age Population Forecasts - Sandringham College Catchment – 2011-2026



	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2011	653	730	712	757	772	798	824	838	789	788	776	755	718	681	731	672	725	741	673
2016	653	730	712	757	772	798	824	838	789	788	776	755	718	681	731	672	725	741	673
2021	689	769	746	793	808	794	817	834	782	785	789	764	730	694	744	702	756	772	702
2026	695	777	753	800	815	808	830	849	795	798	795	769	736	699	750	696	748	765	695

- *From 2011 to 2026 the number of persons aged 0-18 years is projected to increase by 3.10% (i.e. 440 persons)*

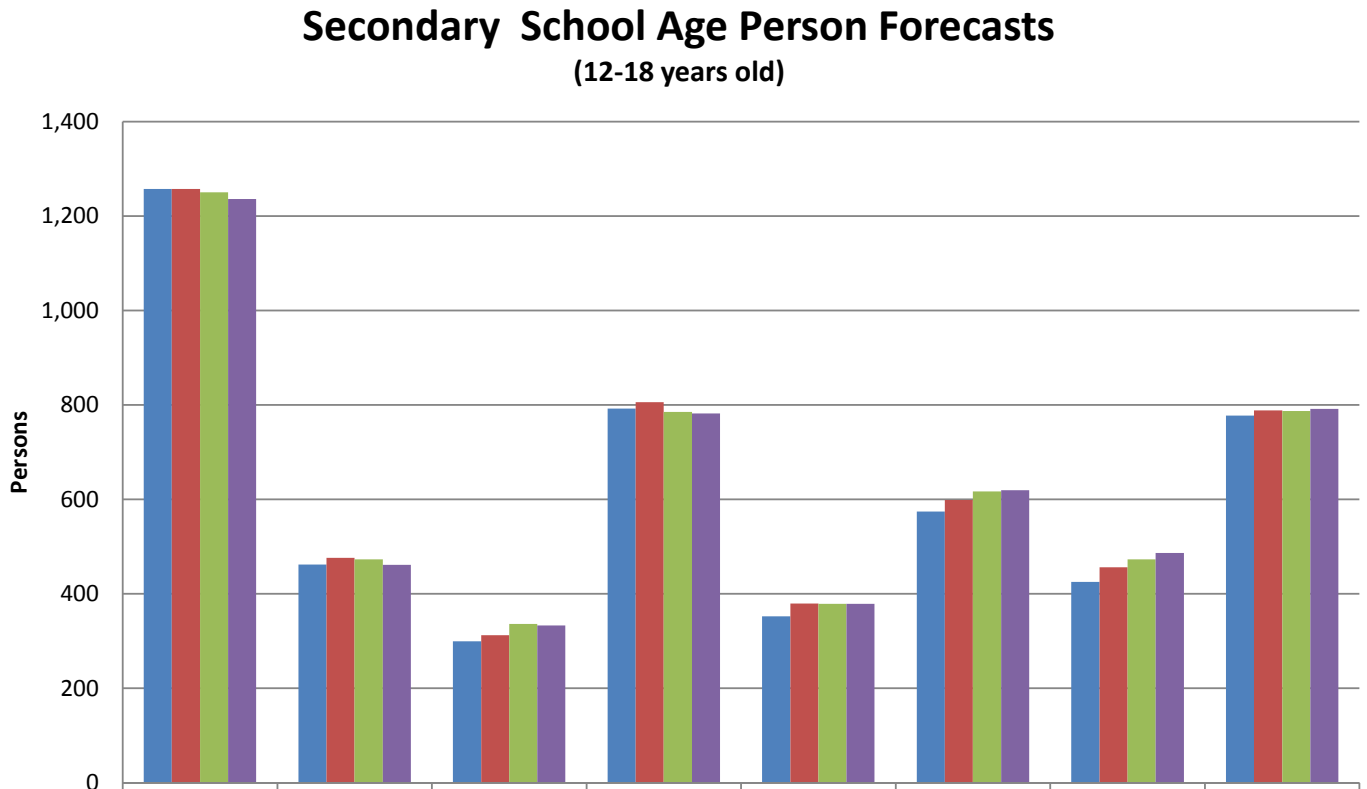
Figure 41: Primary School Age Population Forecasts - Sandringham College Catchment – 2011-2026



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
2011	1,487	649	316	1,093	452	813	452	1,023
2016	1,445	626	320	1,060	442	857	513	1,035
2021	1,425	605	325	1,043	441	904	523	1,030
2026	1,434	604	347	1,052	448	925	534	1,037

- *From 2011 to 2026 the number of persons aged 5-12 years is projected to increase by 1.5% (i.e. 95 persons) within the detailed study area*

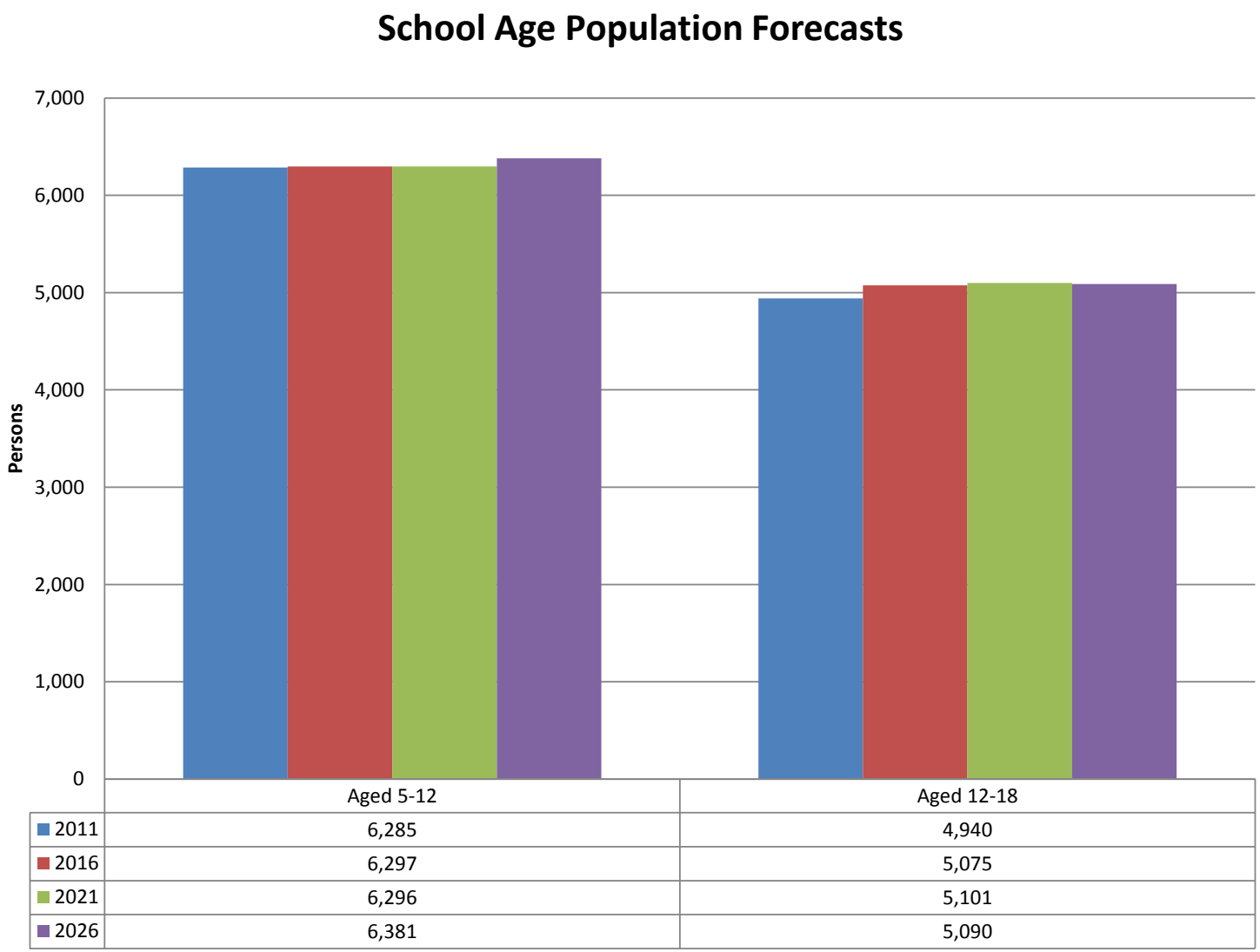
Figure 42: Secondary School Age Population Forecasts - Sandringham College Catchment – 2011-2026



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
2011	1,257	462	300	792	352	574	425	777
2016	1,257	476	312	806	380	599	456	789
2021	1,250	473	336	785	379	617	473	787
2026	1,236	461	333	782	379	619	487	792

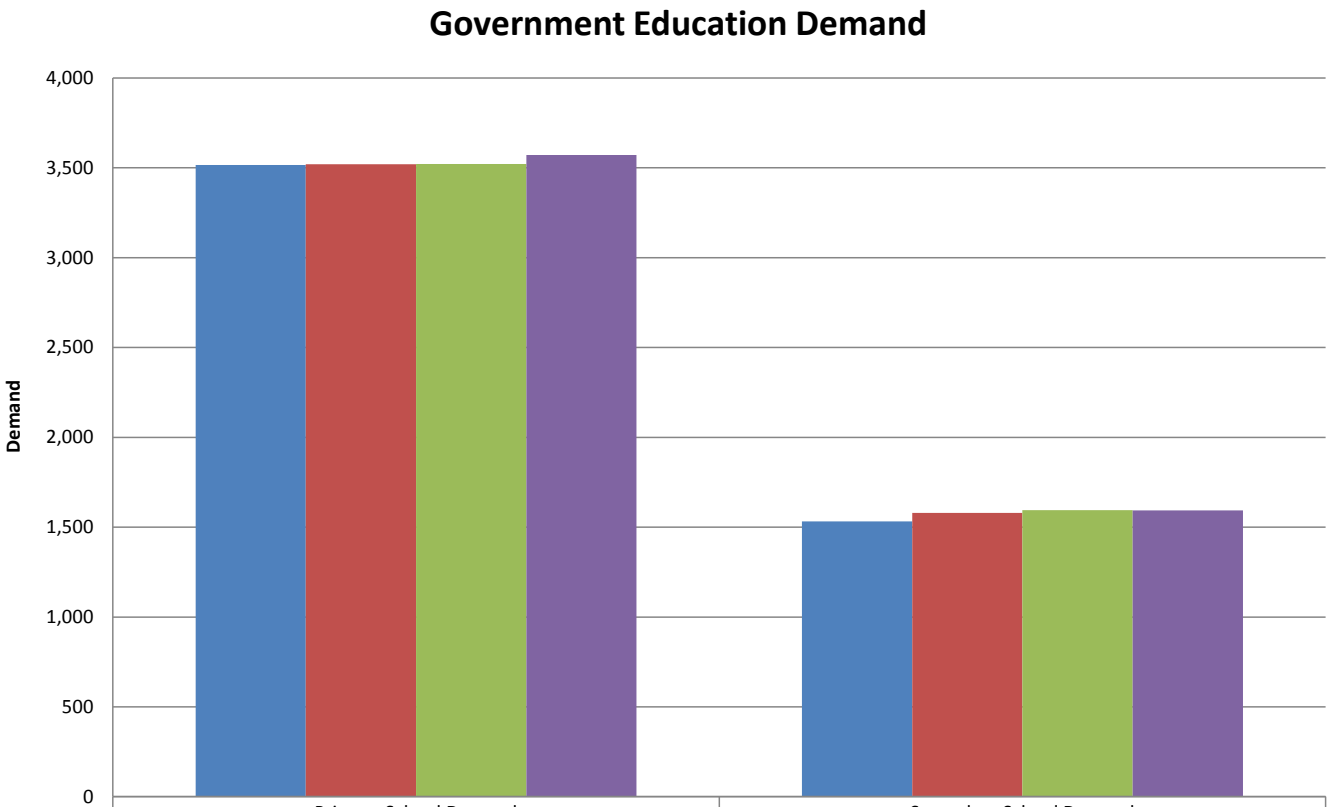
- *From 2011 to 2026 the number of persons aged 12-18 years is projected to increase by 3.0% (i.e. 149 persons) within the detailed study area*

Figure 43: School Age Population Forecasts - Sandringham College Catchment – 2011-2026



	Aged 5-12	Aged 12-18
2011	6,285	4,940
2016	6,297	5,075
2021	6,296	5,101
2026	6,381	5,090

Figure 44: Forecast Government School Demand - Sandringham College Catchment – 2011-2026

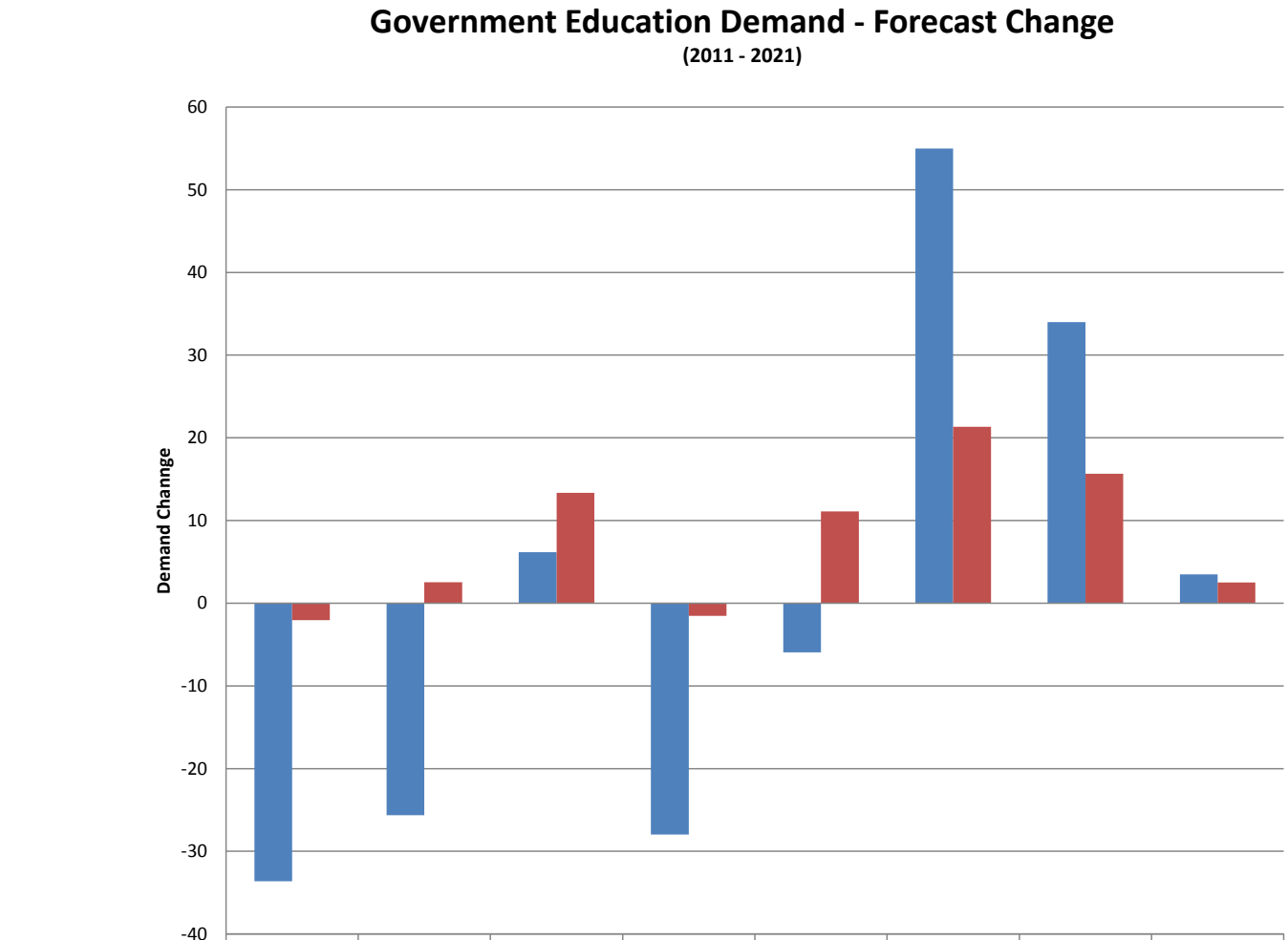


	Primary School Demand	Secondary School Demand
2011	3,516	1,532
2016	3,520	1,579
2021	3,521	1,595
2026	3,571	1,593

- *From 2011 to 2026 student demand for government primary schools is projected to increase by 55 persons (1.5%)*
- *From 2011 to 2026 student demand for government secondary schools is projected to increase by 61 persons (3.9%)*

Note: Demand is based on the 2011 student yield rates presented in Figure 34 and Figure 35

Figure 45: Forecast Change in Government School Demand - Sandringham College Catchment – 2011- 2021



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
Primary School Demand	-34	-26	6	-28	-6	55	34	3
Secondary School Demand	-2	3	13	-2	11	21	16	2

Note: Demand is based on the 2011 student yield rates presented in Figure 34 and Figure 35

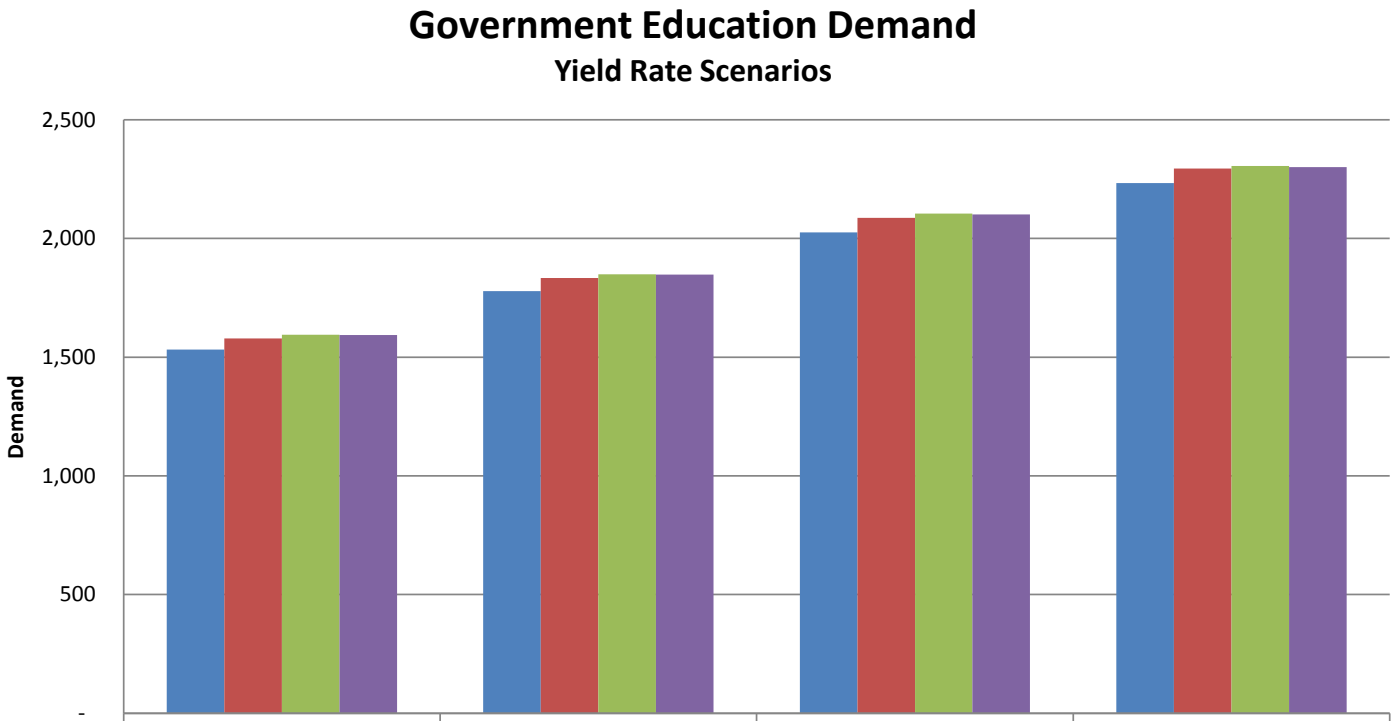
4. Yield Rate Scenario Analysis

Section 3.1 presented forecast student demand for the Sandringham College catchment. This forecast demand was based on yield rates derived from the 2011 ABS Census and are presented in Section 3.4. This section presents forecast secondary school demand derived using the following three different yield scenarios:

- In the future, student yield rates are 5% higher than that observed at the 2011 ABS Census
- In the future, student yield rates are 10% higher than that observed at the 2011 ABS Census
- In the future, student yield rates will be consistent with the Melbourne Greater Capital City Statistical Areas[2] (e.g. Melbourne Metropolitan Area) as at the 2011 ABS Census (i.e. 45.21%).

[2] As defined by the Australian Bureau of Statistics - Australian Statistical Geography Standard (ASGS)

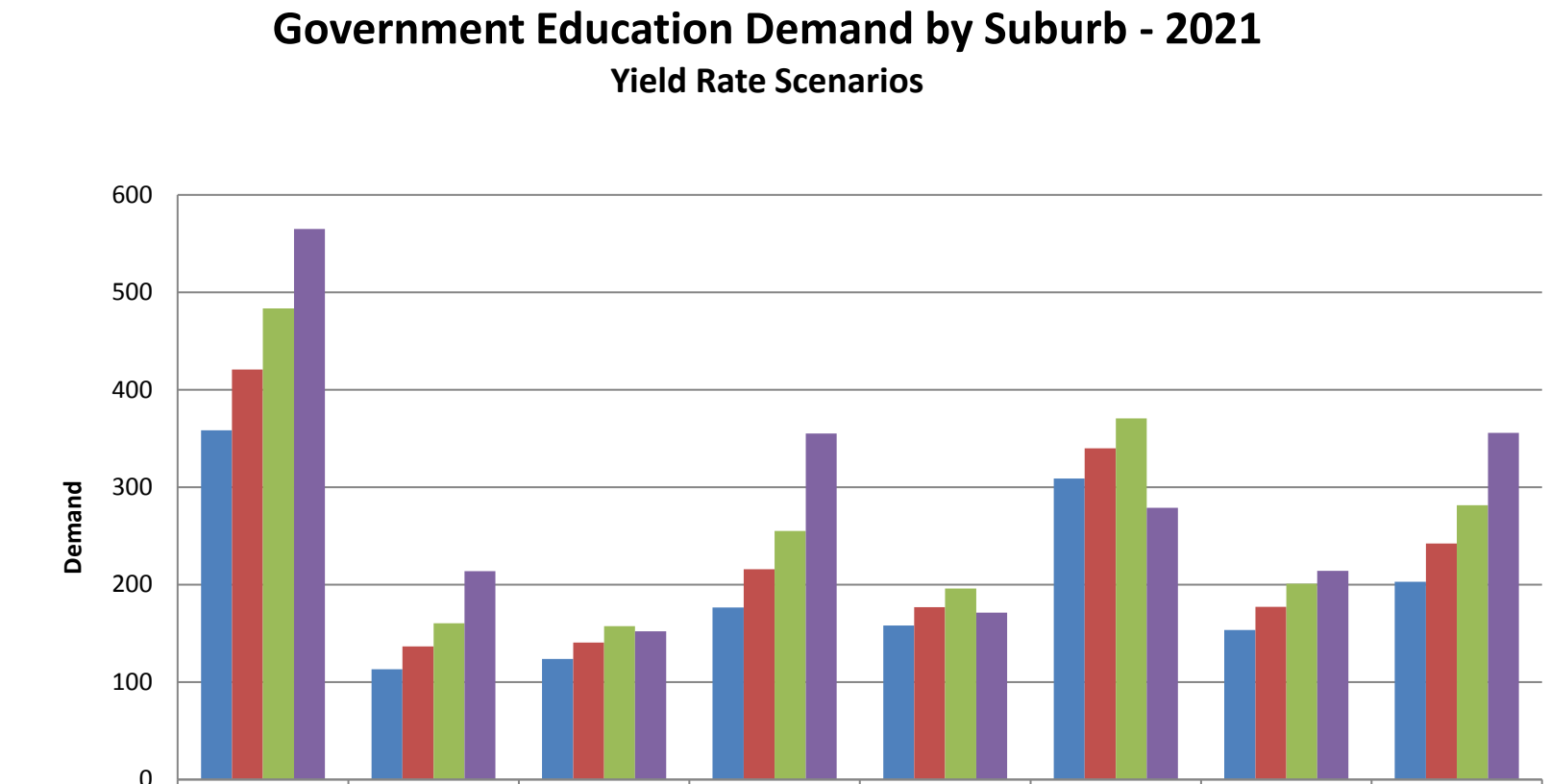
Figure 46: Forecast Government School Demand – Yield Scenarios - Sandringham College Catchment – 2011-2026



	Yield Remains Unchanged	Yield 5% higher	Yield 10% higher	Melbourne Metro Yield (i.e 45.21%)
2011	1,532	1,779	2,026	2,234
2016	1,579	1,833	2,087	2,294
2021	1,595	1,850	2,105	2,306
2026	1,593	1,847	2,102	2,301

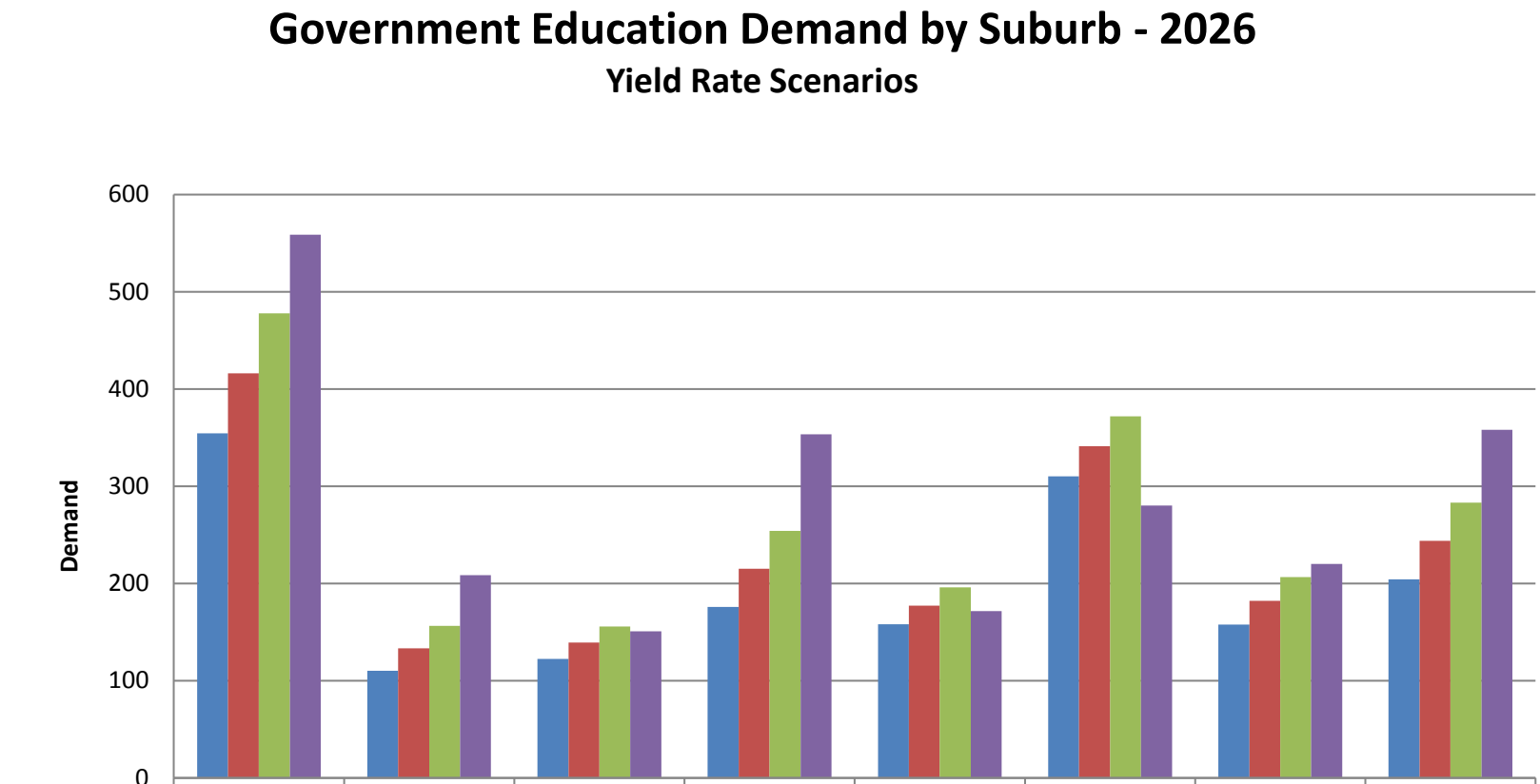
- *If the government education yield increases by 5% (e.g. 35% to 40%) in the Sandringham College catchment forecast government education demand will be 16% higher in 2021.*
- *If the government education yield increases by 10% (e.g. 35% to 45%) in the Sandringham College catchment forecast government education demand will be 27.5% higher in 2021.*
- *If the forecast government education yield is consistent with the yield of the Melbourne Metropolitan area in 2011, demand for the Sandringham College catchment will be significantly higher. It should be noted that the yield for the Melbourne Inner South Statistical Area (see Figure 2, pg.8) in 2011 was 32.63%, slightly higher than the Sandringham College yield of 31.00%. This indicates that although slightly lower, the yield for the Sandringham College catchment is consistent with that of the broader study area.*

Figure 47: Forecast Government School Demand by Suburb for 2021 – Yield Scenarios - Sandringham College Catchment



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
Unchanged	358	113	124	177	158	309	153	203
5% higher	421	137	140	216	177	340	177	242
10% higher	483	160	157	255	196	371	201	281
Melb Metro (45.21%)	565	214	152	355	171	279	214	356

Figure 48: Forecast Government School Demand by Suburb for 2026 – Yield Scenarios - Sandringham College Catchment



	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham
Unchanged	354	110	122	176	158	310	158	204
5% higher	416	133	139	215	177	341	182	244
10% higher	478	156	156	254	196	372	206	283
Melb Metro (45.21%)	559	209	151	354	171	280	220	358

5. Student Address Analysis

Figure 49: 2012 student address mapping

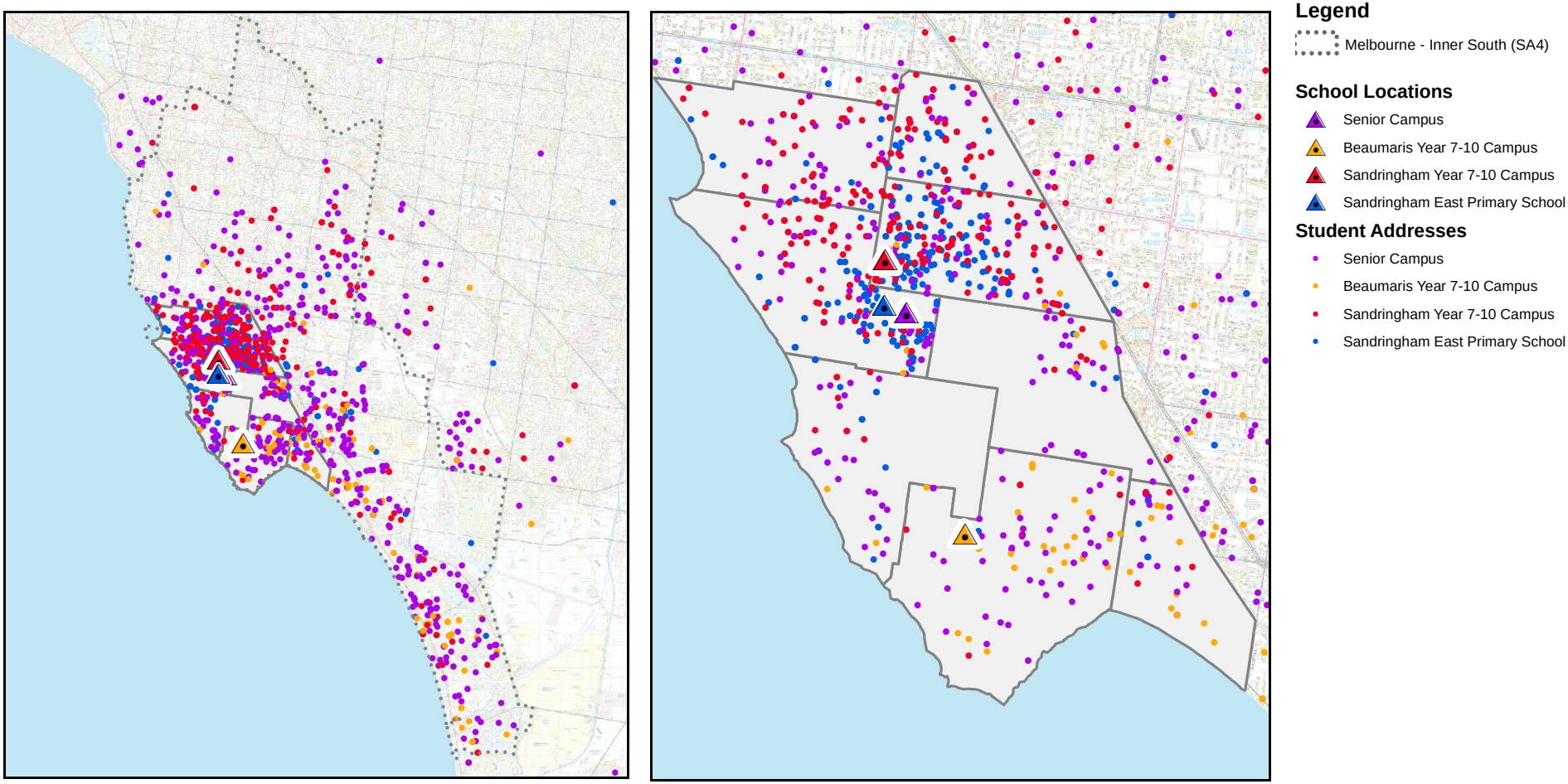


Figure 50: Historical student address comparison

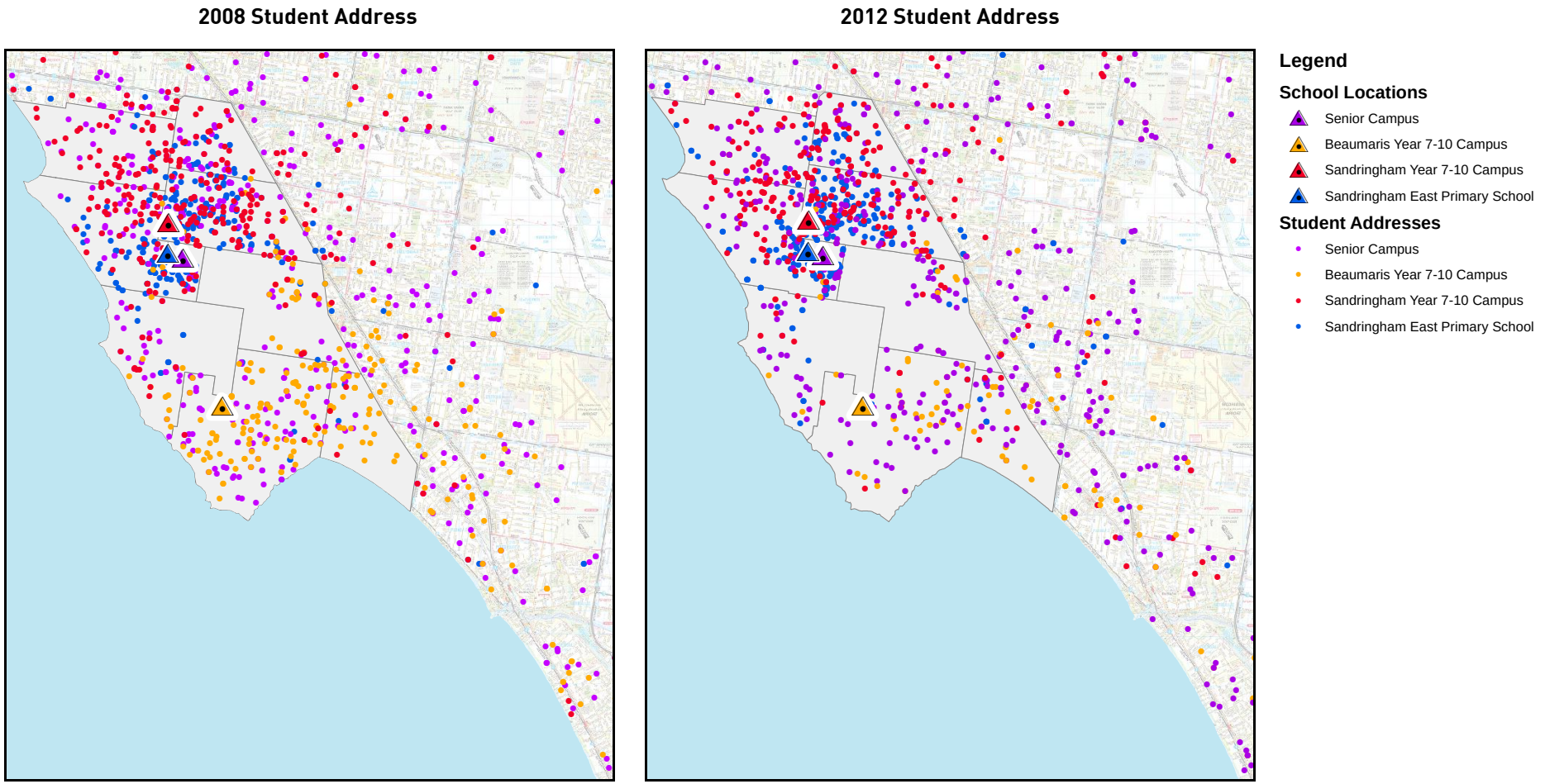


Figure 51: Student Address Analysis: Location of Student Residences for Study Area Schools vs Defined Regions

	Suburb															
School	Beaumaris	Black Rock	Cheltenham	Hampton	Hampton East	Highett	Mentone	Sandringham	Melbourne - Inner South#	Outside Study Area	Grand Total	Percentage of Students Living in Detailed Study Area	Percentage of Students Living in Broad Study Area	Percentage of Students Living Outside Study Area	Enrolments	Percentage of Enrolments Geocoded*
Sandringham College	**84**	**30**	**34**	**82**	**57**	**167**	**32**	**114**	**445**	**269**	**1,314**	**46%**	**80%**	**20%**	**1,263**	**104%**
Beaumaris Year 7-10 Campus	*29*	*3*	*5*			*4*	*11*	*2*	*69*	*34*	*157*	*34%*	*78%*	*22%*	*158*	*99%*
Sandringham Year 7-10 Campus	*8*	*6*	*5*	*49*	*41*	*101*	*4*	*69*	*98*	*71*	*452*	*63%*	*84%*	*16%*	*454*	*100%*
Senior Campus	*47*	*21*	*24*	*33*	*16*	*62*	*17*	*43*	*278*	*164*	*705*	*37%*	*77%*	*23%*	*651*	*108%*
Sandringham East Primary School	**3**	**14**	**5**	**15**	**30**	**168**	**6**	**116**	**32**	**389**	**454**	**79%**	**86%**	**14%**	**457**	**99%**
Grand Total	***87***	***44***	***39***	***97***	***87***	***335***	***38***	***230***	***477***	***658***	***1,768***	***54%***	***81%***	***19%***	***1,720***	***103%***

* In some circumstances the number of student addresses for a school is higher than the total enrolment. Factors contributing to this difference are the time stamp for the data collection, and duplicate addresses recorded for individual students.

#Excluding region that intersects Sandringham College Catchment (i.e. the detailed study area)

Note: Analysis for successfully geocoded addresses

Figure 52: Student Address Analysis: Student Residences within Sandringham College Catchment for all Government Schools vs Defined Regions

	Suburb								
School	**Beaumaris**	**Black Rock**	**Cheltenham**	**Hampton**	**Hampton East**	**Highett**	**Mentone**	**Sandringham**	**Total**
Sandringham College	84	30	34	82	57	167	32	114	600
Sandringham Year 7-10 Campus	*8*	*6*	*5*	*49*	*41*	*101*	*4*	*69*	*283*
Senior Campus	*47*	*21*	*24*	*33*	*16*	*62*	*17*	*43*	*263*
Beaumaris Year 7-10 Campus	*29*	*3*	*5*			*4*	*11*	*2*	*54*
Sandringham East Primary School	3	14	5	15	30	168	6	116	357
Sub Total - Study Area Schools	*87*	*44*	*39*	*97*	*87*	*335*	*38*	*230*	*957*
Other Secondary Schools	*210*	*43*	*54*	*62*	*82*	*101*	*84*	*61*	*697*
Other Primary Schools	*753*	*329*	*202*	*526*	*197*	*278*	*220*	*357*	*2,862*
Total	***1,050***	***416***	***295***	***685***	***366***	***714***	***342***	***648***	***4,516***

Note: Analysis for successfully geocoded addresses