



HOUSING AFFORDABILITY IN GREATER WESTERN SYDNEY: SALE PRICE, MEDIAN RENT, MORTGAGE PAYMENTS AND INCOME CHANGES FROM 2000 TO 2006

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Introduction

In December 2006, WSROC commissioned WESTIR to analyse available data on house and home prices and rent levels, interest rates and incomes in each of the Local Government Areas (LGAs) in the Greater Western Sydney (GWS) Region¹. This report updates a previous report prepared in 2004.

Anecdotally, and as evidenced by recent media reports and data for the metropolitan area, costs for housing for the city dramatically increased over the period 2000 to 2006. This report was prepared to provide some detail of the trends in the GWS region, tracking changes to housing affordability for purchasers, particularly first home buyers, and renters. It is hoped that the information below will assist Councils in the region, and other interested agencies, in their planning and advocacy on this issue.

Summary of Findings

This analysis shows that housing affordability in the Greater Western Sydney region sharply declined over the period 2000 – 2006. This is evident in a range of measures including overall housing price rises (despite a fall in prices at the end of the period) and accompanying interest rate increases, which were not matched by income increases. Most particularly, house price rises were very much greater than income increases for the age group most likely to be buying, or seeking to buy, their first home (i.e. those 25 – 34 years old²).

Rents have also risen, despite the property boom producing an increase in rental properties, though these were generally matched by income increases. However rent levels remained high for the age group most likely to be seeking to save a deposit for their first home (i.e. those 20 – 24 years old³).

In detail the changes across the region were:

- ~ **sale prices for all dwelling types in all LGAs increased**, on average by **59%**, with the 2 extreme LGAs reporting rises of 37% (Baulkham Hills) to 77% (Wollondilly);
- ~ increases in **individual incomes for the 25 – 34 age group averaged 34.5%**, with the range being 27% (Campbelltown) to 41% (Wollondilly);
- ~ **average mortgage levels increased by 55%**, with the lowest being 44% (Baulkham Hills) and the highest 74% (Wollondilly). If the period 2001 to 2006 is considered,

¹ Greater Western Sydney has been defined as comprising the Local Government areas within the WSROC Region (i.e. Auburn, Bankstown, Baulkham Hills, Blacktown, Blue Mountains, Fairfield, Liverpool, Paramatta and Penrith) and within the MACROC region (Camden, Campbelltown and Wollondilly).

² See the methodology section of this report for the rationale for the selection of this age group in the analysis of housing affordability for first home purchase.

³ As point 2. above.

2001 being the year when interest rates reduced to their lowest level for the period, average mortgage levels increased by 62%;

- ~ **the traditionally more affordable LGAs further from Sydney city** (Blacktown, Blue Mountains, Campbelltown, Fairfield, Hawkesbury, Liverpool, Penrith and Wollondilly) recorded **higher proportional mortgage increases, averaging 64%**, than the LGAs closer to the city which averaged 45%. These six LGAs represent most of the LGAs with the largest populations in the Region. Hence the decline in affordability is affecting a large proportion of the population;
- ~ **median sale prices** for all dwellings in the region increased by **\$138,000** over the 6 year period, from **\$234,286 to \$372,500**;
- ~ **LGAs in the south west and far west of the Region experienced the greatest widening in the gap between incomes and mortgages**, with income increases for Campbelltown of 27% and mortgage increases of 73% and for Penrith of 34% and 69% respectively.
- ~ **however between 2004 and 2006**, GWS appears to have suffered a **decline in average property values in the order of between 4.0% and 6.9%**, whereas for the rest of Sydney and NSW, property values appear to have generally retained their values over this period;
- ~ **rent levels for 2 bedroom dwellings increased** between **11.9% to 37.8%** with the average being **19.7%**;
- ~ **individual incomes for 20-24 year olds increased** by between **22.4% to 31.4%**, with the **average being 27.1%**; and,
- ~ **overall levels of rent** (2 bedroom dwellings) **were high or very high**, on average at **40%** of the average individual income for 20 – 24 year olds. In view of the likely desire of many in this age group to save in preparation for later home purchase, consistently high rent levels reduce the disposable income available for saving a home mortgage deposit.

Other researchers and analysts have identified these affordability issues over this period for Australia as a whole and/or for Sydney⁴. However, what is perhaps most significant in this analysis is that declining affordability is most marked in the traditionally more affordable areas in the south west and far west of the region. This trend puts into perspective the assumption that buyers priced out of areas close to the city centre can simply move to areas further out. While this is to some extent still the case, as prices are generally lower further from the city centre, the difference is decreasing. In 2000 Sydney wide median dwelling prices were 21.0% higher than in GWS. By 2006 this differential was reduced to 14.5%.

The housing affordability crisis is clearly impacting most strongly on a large proportion of the GWS population who are lower income earners of the region. Over this period dwelling prices in the more affordable LGAs jumped from commonly under \$200,000 to over \$300,000. A number of LGAs in the region have average sale prices in the vicinity of \$400,000 when the average in 2000 was just \$234,000.

Although average rent levels, relative to income increases generally slightly decreased, (with the notable exception of Auburn), rents are still high in some of the LGAs with lower average income levels, particularly Auburn, Parramatta and Holroyd, where rent levels for 2 bedroom dwellings are between 40% and 50% of average individual incomes of the age groups relevant to this report (20 – 24 year olds) in these LGAs.

At the time of preparation of this report (March 2007), media and anecdotal reports are suggesting that a significant rise in rents is beginning to occur, ascribed to the downturn in

⁴ Sydney Morning Herald, 3 Jan 2007

rental property construction and changes in investment patterns of investors in property. However no clear data on this trend has emerged as yet. This report will be updated when information is available.

Detailed Findings

In preparing this report, data on sale price changes for all dwellings, and rent levels for two bedroom houses, from 2000 to 2006, was compared to projected income levels for individuals in the age groups 20 – 24 and 25 – 34 in each LGA in the Greater Western Sydney (GWS) Region. These age groups and housing types were chosen in order to assess housing affordability changes for people looking to buy, or trying to save the deposit for, their first home. Justification for the choice of these age groups, based upon data collected by the Australian Bureau of Statistics, is provided in the Methodology section in the Appendix of this report.

Incomes for people in these age ranges had to be projected from 1996 and 2001 Census data, because of the lack of delineation of incomes of these age groups in more recent data, as also outlined in the Methodology Section of this report.

The data on house price increases, rent levels and income changes, demonstrates some clear trends in declining housing affordability in Greater Western Sydney, particularly in some of the region’s traditionally more affordable LGAs.

- i. **Sale Prices and Incomes of population in the First Home Owner Market.** The overall figures for sale price, and income (age group 25 – 34) for the GWS Region is shown in Table 1. below.

Year	Estimated average income	Average Sale Price#	No of years salary = to Sale price
2000	\$29,275	\$234,286	8.00
2001	\$30,757	\$261,929	8.52
2002	\$32,315	\$320,786	9.93
2003	\$33,953	\$376,357	11.08
2004	\$35,673	\$400,000	11.21
2005	\$37,482	\$386,429	10.31
2006	\$39,383	\$372,500	9.46
% increase 2000 - 2006	34.5%	59.0%	18.2%

Source: Salary estimated base on figures from ABS Census 1996 & 2001, Table B13, Dept of Housing Rent & Sales reports, 2000-2006. # 2006 are based on March 2006 quarter only
Data Prepared by WESTIR Inc.

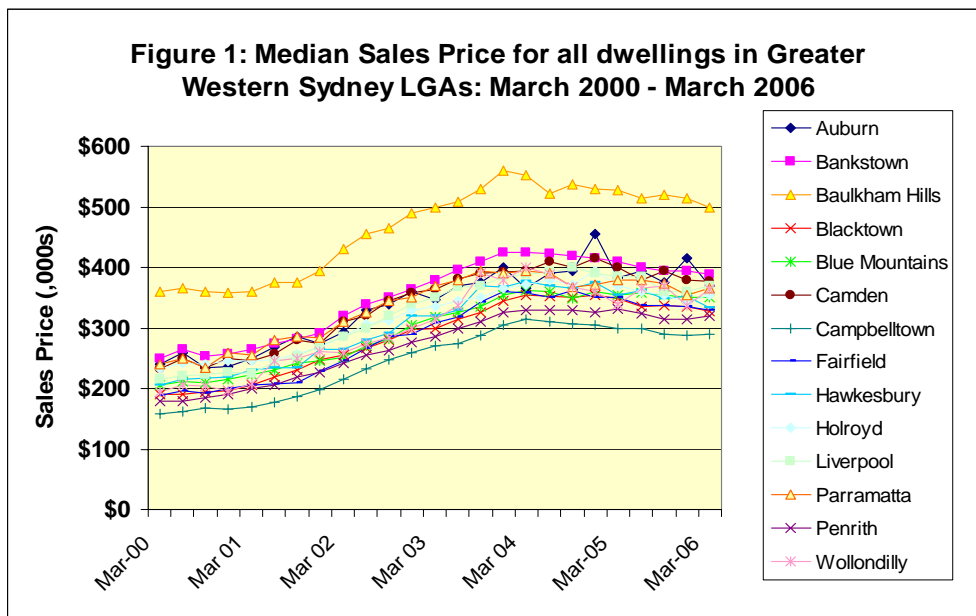
As can be seen from the above, the increase in average cost of houses in the region overall far exceeded the average increase in incomes for the “first home-buyers” age group over this period, at close to double the rate, despite a fall in prices from the end of 2004. As another measure of affordability, the number years of average annual salary that would need to be accumulated in order to equal the average sale price, rose from 8 years to 9.46 years, an increase of 18.2%

Significantly, while average prices did fall from the peak of the property boom in 2004, this fall was just 7.2%, leaving a 24.5% gap between price and income percentage increases. An interesting perspective on this price fall is that families who may have been encouraged to enter the market by the availability of the First Home Owner Scheme payment of \$14,000,

may have seen this amount, or more, wiped from the value of their property by the end of 2006.

Also significant is the fact that the absolute price levels went from just over \$200,000, which could be argued is an affordable level for first home buyers with a household income of \$60,000 (an average two income household for the age group in 2000), to a less than affordable level of over \$350,000 for a household on an income of \$80,000 at the end of the period. In 2001, housing research indicates that no private renter in the bottom 40% of income could afford to purchase in any metropolitan location in Sydney⁵. By 2006 this would appear to be the case (with the possible exception of Campbelltown) not just for low income earners but for *average income earners* in the first home buyers age group analysed in this study.

Although the pattern of increase is consistent across the region, there was considerable variation between LGAs in absolute price levels, as would be expected. Tables and graphs for each LGA are provided in the Appendices, but Figure 1 shows Median House prices for all of the LGAs in the region. With minor variations, each LGA experienced a rapid increase in dwelling price from 2001 to 2004, when median prices reached \$400,000, then decreasing to \$372,000 by the end of 2006 (see Table 1 above).



Source: Dept of Housing Rent & Sales reports, 2000-2006. # Data Prepared by WESTIR Inc.

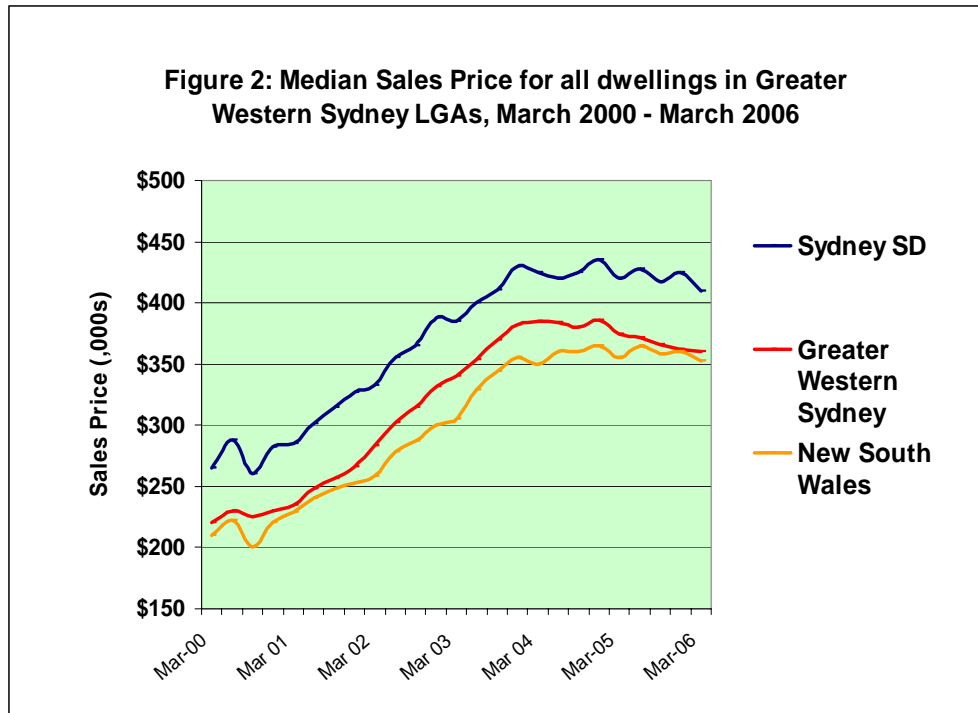
As is apparent from this chart, Baulkham Hills LGA stands markedly out from the other LGAs, with its median sale price peaking at over \$560,000. Anomalous “jumps” in prices for a single quarter for Auburn in 2005 and 2006 would appear to reflect the release of significant numbers of newly constructed dwellings resulting from major redevelopment in the LGA.

At the other end of the scale, house prices in Campbelltown were consistently lower than anywhere else in the region, though much less markedly so, while Penrith, Blacktown and Fairfield also showed consistently low prices. While this might imply that housing is more affordable in these LGAs, this is not the case for existing residents, or those from nearby, similarly disadvantaged LGAs. In fact, in the context of changes in resident incomes, the

⁵ See: Mike Berry and Jon Hall, Policy Options for Stimulating Private Sector Investment in Affordable Housing Across Australia – Stage 1 Report: Outlining the Need for Action, prepared for the Affordable Housing National Research Consortium by the Australian Housing and Urban Research Institute, September 2001, p.59

traditionally more affordable housing areas, such as Campbelltown and Penrith experienced the most marked decline in affordability, as discussed below.

In comparison to other parts of Sydney and NSW, Greater Western Sydney experienced similar patterns of price movement. However, Figure 2, below, indicates an interesting outcome with respect to GWS prices relative to Sydney and the rest of NSW. While this data is based on changes in median house prices, and not on the value of individual properties, this graph suggests that GWS house price increases, and hence value gains for the family home relative to the NSW medians, that were accumulated between 2001 and 2004, seem to have been lost with the property downturn. House prices in GWS were comparable with the rest of NSW in 2000 /2002, increased to approach Sydney median prices from 2002 to 2004, and then fell back to close to NSW median prices again in 2006.



Source: Dept of Housing Rent & Sales reports, 2000-2006. Data Prepared by WESTIR Inc.

This perhaps highlights the hardship suffered by low-income and/or first home buyers in the GWS region who bought in the 2001 to 2004 period, when interest rates were low. Not only did they pay higher prices, but it would appear they saw the value of their properties fall with the property slump to a disproportionate extent compared to NSW as a whole, and other parts of Sydney. The extent of this fall is between 4.0% and 6.9%, depending upon whether median or average sale prices are considered.

The graph also suggests that prices leveled in 2004 for NSW and Sydney overall, and that the falls in property price that have been widely reported in the media over 2005 and 2006, occurred mostly in GWS. This observation appears to be supported by recent (Jan 2007) statements by the NSW Valuer General.⁶ This experience has ramifications for mortgage defaulting, among other things, as discussed below.

Table 2 below, shows the largest proportional price increases, and correspondingly most reduced affordability, that were recorded in the traditionally more affordable LGAs in the GWS region, particularly Campbelltown, Penrith, Blacktown and Fairfield. Average house prices in each of these four LGAs began the period below \$200,000 and six years later were

⁶ SMH, January 15: Property Slump Hits Land Values: pg 1

significantly above \$300,000 (with the exception of Campbelltown) with price increases close to, or greater than, 70%. This is a clear evidence of significantly declining housing affordability in the region overall, as the traditionally poorer areas are now much less affordable.

Significantly for both the population of GWS and Sydney overall, the past differential in housing affordability for first home buyers between more central and outlying LGAs in the region is decreasing and the region is becoming more uniformly unaffordable.

Table 2: Proportional House Sale Price Increases and Estimated Average Annual Incomes of 25 – 34 Year Olds in Traditionally Lower Housing Cost LGAs: 2000 - 2006			
Year	Estimated average income	Average Sale Price#	No of years salary = to Sale price
Blue Mountains LGA			
2000	\$29,906	\$221,000	7.4
2006	\$40,008	\$365,000	9.1
% increase	33.8%	65.2%	23.5%
Hawkesbury LGA			
2000	\$29,580	\$238,000	8.0
2006	\$39,099	\$390,000	10.0
% increase	32.2%	63.9%	24.0%
Blacktown LGA			
2000	\$28,736	\$198,000	6.9
2006	\$38,885	\$336,000	8.6
% increase	35.3%	69.7%	25.4%
Campbelltown LGA			
2000	\$27,179	\$169,000	6.2
2006	\$34,509	\$295,000	8.5
% increase	27.0%	74.6%	37.5%
Fairfield LGA			
2000	\$24,208	\$194,000	8.0
2006	\$32,795	\$327,000	10.0
% increase	35.5%	68.6%	24.4%
Penrith LGA			
2000	\$29,855	\$189,000	6.3
2006	\$40,099	\$327,000	8.2
% increase	34.3%	73.0%	28.8%
Liverpool LGA			
2000	\$28,185	\$223,000	7.9
2006	\$37,793	\$368,000	9.7
% increase	34.1%	65.0%	23.1%
Source: Salary estimated base on figures from ABS Census 1996 & 2001, Table B13, Dept of Housing Rent & Sales reports, 2000-2006. # 2006 are based on March 2006 quarter only: Data Prepared by WESTIR Inc.			

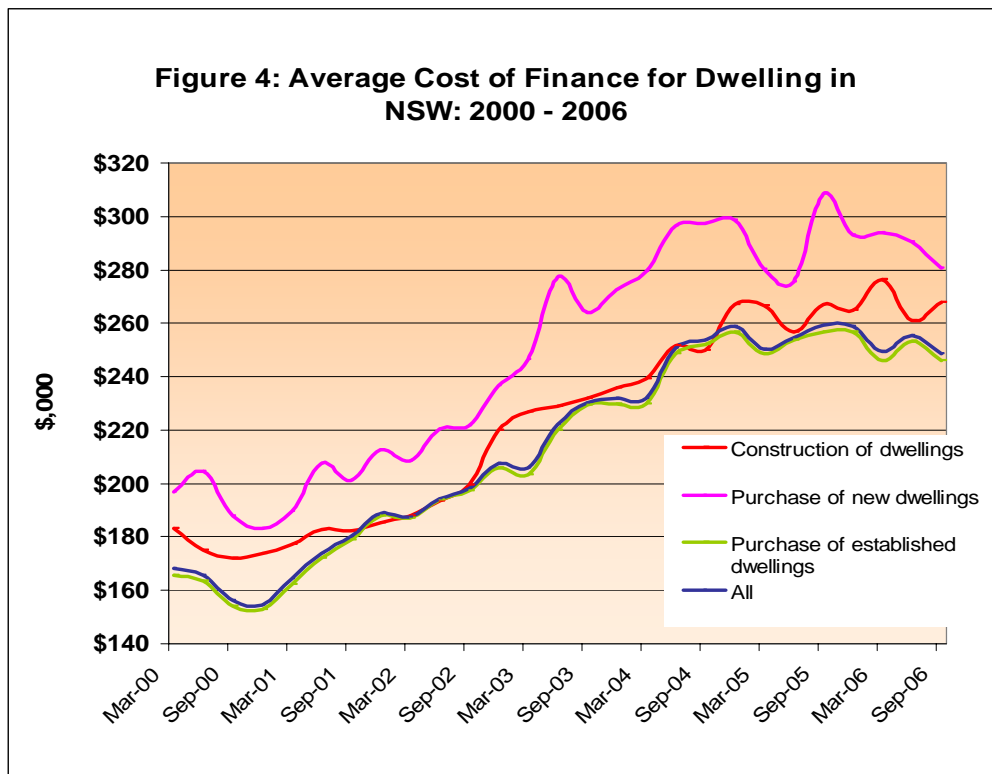
Campbelltown LGA, despite not quite reaching the \$300,000 average price mark, actually recorded the greatest fall in affordability for home purchase, as measured by the number of years of average annual salary for the LGA's residents that would be required to equal the average house price, which increased by 37.5% over the period.

These figures do show that GWS still provides affordable housing opportunities for people on moderate incomes people living in areas close to the city of Sydney, but who cannot afford to purchase housing in these areas. However, for existing residents of GWS, over the period

2000 – 2006 housing became out of reach for many first home buyers from within the region. [Note: full details of changes in this data (and rent level data also) for each of the years from 2000 to 2006 for these LGAs and all of the LGAs in GWS, are provided in the Appendix to this report.]

In these circumstances it is likely that people buying a home in these outlying LGAs have had to pay greater and increasing proportions of their incomes for their mortgages than those in more central LGAs, or have put off purchasing until they have a larger deposit. When this is considered in the context of Figure 2, which shows the average loss in property values in GWS at the end of the housing boom, mortgage defaulting would be much more likely. New home owners with too high repayments and negligible, or perhaps negative, equity, may have a strong incentive to get out of their mortgage. It is notable that media reports (as yet uncorroborated by data) of increases in mortgage defaulting in mid to late 2006 highlighted LGAs in the far west and south west of Sydney.

A note of caution may be warranted in the interpretation of the figures used in this report. GWS is undergoing demographic changes, some of which are reflected in the size and value of new dwellings, particularly separate houses. The proliferation of large, new houses, dubbed “McMansions”, has been widely commented upon. It could be that the numbers of such high priced houses being purchased by above average income earners, is elevating the average and median dwelling prices, and so exaggerating the gap between dwelling price increases and average income increases. New dwelling prices are on average considerably higher than prices for existing dwelling prices, as shown, for NSW as a whole, in Figure 4 below.



Source: ABS: TABLE 10c. HOUSING FINANCE COMMITMENTS (Owner Occupation), By Purpose: State, Original (Average Loan Size - \$000) Data Prepared by WESTIR Inc.

However, this graph also shows that the average cost of finance for dwellings (the “all”) line, follows very closely the average cost of finance for existing dwellings. This indicates that the impact of the higher finance costs for new dwellings, makes a very minor impact upon the average finance cost. In order for large numbers of “McMansions” or otherwise expensive

housing, to make a significant elevating impact upon average or median dwelling prices in GWS, it would have to be assumed that GWS is significantly different from NSW as a whole, in either numbers and/or value of new dwellings relative to existing dwellings. GWS does have greenfield development sites and it would be reasonable to assume that the region has greater proportions of new dwelling development than other parts of the state. However, whether the numbers of new dwellings, and/or their value, is sufficient to influence average or median prices, is impossible to determine with the available data.

While the phenomenon of “McMansions” may catch attention, it is doubtful that they represent a significant proportion of total housing stock, both new and existing, even in GWS. Also, anecdotal information from buyers and real estate agents, reported in the media and directly to the researchers of this report, is that prices of the older stock have increased by the amounts cited.

- ii. **Rent levels and incomes of 20 – 24 year olds.** The overall regional figures for estimated average income levels for this age group compared to median rent levels for 2 bedroom dwellings are given in Table 3 below. Significant and increasing numbers of 20 – 24 year olds are living with their parents or other family members⁷ sharing a larger dwelling with a number of people. The reasons for this are various, including that these young people are not yet forming a family, the lower cost to them of their accommodation and simply lifestyle choices. As this report wishes to identify the constraints that housing affordability place upon families and family formation, two bedroom housing is chosen as the dwelling type for this comparison because this dwelling type is most likely to be both appropriate and desired by young couples or families that are looking to save a deposit for a mortgage.

Year	Estimated Annual income	Estimated average weekly income	Median weekly rent (June quarter)	% of weekly salary needed for rent
2000	\$21,617	\$416	\$177	42.7%
2001	\$22,497	\$433	\$183	42.4%
2002	\$23,414	\$450	\$189	42.0%
2003	\$24,368	\$469	\$193	41.2%
2004	\$25,362	\$488	\$195	40.0%
2005	\$26,396	\$508	\$202	39.8%
2006	\$27,474	\$528	\$211	40.0%
% change 2000-2006	27.1%	27.1%	19.1%	- 6.3%

Source: Salary estimated base on figures from ABS Census 1996 & 2001, Table B13.; Dept of Housing Rent & Sales reports, 2000-2006 #2006 are based on June 2004 quarter only. Data Prepared by WESTIR Inc..

The Table shows that median rents for a two bedroom dwelling have increased, but at a rate lower than the average income for this age group over this period. Accordingly rent levels are slightly more affordable for this group, suggesting that the supply of rental properties has been keeping pace with demand, at least for two bedroom dwellings, perhaps reflecting the boom in investment property development over this period. The percentage of average weekly salary for this age group that was required for cover median weekly rent for this type of dwelling has decreased by 6.3% over this period.

At the time of preparation of this report media and anecdotal reports are suggesting that a significant rise in rents is beginning to occur⁸. Accordingly the figures for 2007, when they

⁷ ABS Census of population and housing: 2059.0: Australia's Youth

⁸ SMH, January 9 and10, "Through the Roof: Rents to Soar 20%" and "Tenants Get the Blues as Landlords Rub Their Hands").

become available, may change this picture considerably. This phenomenon is being ascribed to a reduction in rental property construction, as a result of the overall property downturn as well as changes in investment patterns of investors in property, as a result of changes to Federal government investment policy. If these are the ultimate causes of rental fluctuations, it suggests that there is a need for specific policy for rental housing in order to ameliorate market impacts.

The highest and/or least affordable rent levels were experienced in the LGAs clustered in the eastern part of the region, as listed in Table 4 below. Of these, Auburn stands out in registering the highest average rent increase, at 35.1%, along with lower than average income increases, at 28.7%. This corresponding increase of 5% in the proportion of income spent on rent by this age group. In Parramatta average rent increases for 2 bedroom properties kept pace with average income increases for this age group, while all other LGAs recorded lower rent increases than income increases.

Table 4: Largest Proportional Median Weekly Rent Increases in GWS LGAs: 2000 - 2006			
Year	Estimated Average Weekly Income	Median weekly rent (March quarter)	% of weekly salary needed for rent
Auburn LGA			
2000	\$347	\$185	53.3%
2006	\$447	\$250	55.9%
% increase	28.7%	35.1%	5.0%
Parramatta LGA			
2000	\$413	\$200	48.5%
2006	\$505	\$245	48.6%
% increase	22.4%	22.5%	0.1%
Bankstown LGA			
2000	\$400	\$210	52.5%
2006	\$484	\$240	49.6%
% increase	20.9%	14.3%	-5.5%
Baulkham Hills LGA			
2000	\$448	\$250	55.8%
2006	\$576	\$280	48.6%
% increase	28.7%	12.0%	-13.0%
Holroyd LGA			
2000	\$432	\$210	48.6%
2006	\$551	\$230	41.7%
% increase	27.6%	9.5%	-14.1%
Blacktown LGA			
2000	\$417	\$170	40.7%
2006	\$527	\$210	39.9%
% increase	26.2%	23.5%	-2.1%
Fairfield LGA			
2000	\$360	\$145	40.3%
2006	\$473	\$170	35.9%
% increase	31.4%	17.2%	-10.8%
Source: Salary estimated base on figures from ABS Census 1996 & 2001, Table B13.; Dept of Housing Rent & Sales reports, 2000-2006 #2006 are based on June 2004 quarter only. Data Prepared by WESTIR Inc..			

Auburn's case may have been influenced by the release onto the market of a large number of newly constructed dwellings that were developed over this period, particularly in the Auburn

CBD and the Newington Estate. As the rent level data is derived from new rental bond lodgments, and not rents paid by all tenants in the LGA, these figures may represent an exaggeration of rental increases for this LGA over this period.

The remainder of this document consists of Appendices which include a description of the methodology and a series of tables and charts providing details of each LGA, for use in understanding local rather than regional patterns.

The Charts and Tables included in this report have been also provided in a separate document which allows direct access to the formatted data, for agencies and individuals interested in LGA level data.

4. Appendices

Appendix 1. Methodology

The basic approach of this research is to compare the available data on housing cost movements over the period 2000 to 2006, identifying any likely income increases experienced by people either renting and/or seeking to buy their first home. The majority of the data used in this report was obtained from the Census 1996 and 2001, Table 13, the Department of Housing Rent and Sales Reports: 1999 to 2006, and ABS Housing Finance Commitments: Table 9b.

The age ranges of 20 – 24 years and 25 – 34 years were chosen so as to represent those sections of the population most likely to be either trying to save a deposit for a mortgage (20 – 24) or looking to take out a mortgage (25 – 34). Data collected by the ABS (Census 1999) validates the selection of these age ranges, as this shows that the majority (57.9%) of first home buyers were in the age range of 25 – 34 years⁹. Only 12% of first home buyers are in the 15 – 24 year old age group, corroborating the assumption that this age group is preparing to take out a mortgage. Also ABS data indicates that renting is dominated by younger age households, and that 70% of renting households with the reference person aged between are renting privately¹⁰.

Rent level data was obtained from records of new bond lodgment, and so may not accurately reflect LGA-wide or long term rents. This is because, where significant new development has occurred during the period, properties from these developments may have dominated new bond lodgments and would likely attract higher than average rents for the area.

Estimation of Income levels

Data on incomes is not available on these specific age groups and at the LGA level other than from the Census, although data from the Australian Tax office is most similar. However, even data from the ATO varies with respect to geography used and age group collated, and in any case at the time of preparation of this report, data was only available up to 2003/2004. Accordingly, estimations of income for the age groups are used, based upon the complete data set available through the Census.

The average income for each age range was calculated using the midpoint of each income range. The average annual increase between the 1996 estimated average income and the 2001 estimated average income was then calculated and the resulting interest rate projected to 2006.

To check this method of projection, the figures were tested between 1996 and 2001, where the projections corresponded with the actual recorded figures within a dollar. Also the difference between the actual average income for the entire population and the estimated incomes for the age groupings is similar for the years where figures are available (1996 and 2001) and for the years where projections were made, i.e. 2002 to 2006.

The method of calculation of income makes three assumptions:

1. that income is evenly spread within ranges
2. that the level of increase from 1996-2001 is maintained in 2001-2006
3. that the number of persons in this age range who earn in excess of \$1500 per week is insignificant

To estimate the average income of each age range we took the mid point of each income per week range, these being

⁹ ABS 4102.0 Australian Social Trends, 2003: Recent First Home Buyers(a) 1999

¹⁰ ABS 4102.0 Australian Social Trends, 2002: Housing arrangements: renter households, 1999

nil/negative, \$1-39, \$40-79, \$80-119, \$120-159, \$160-199, \$200-299, \$300-399, \$400-499, \$500-599, \$600-699, \$700-799, \$800-999, \$1000-1499, > \$1500.

For the last range of >\$1500 the actual amount of \$1500 was used due to the low percentage of persons in this range and the assumption that even fewer would be in the higher levels of this range. The midpoint was then multiplied by the number of persons in the range and divided by the total number of persons minus those who did not state their income. This gave an average income for the 1996 census and the 2001 census.

To estimate the average income of non-census years we used the formula

$$i = (s/p)^{1/n} - 1 \text{ where}$$

s = end value (2001 census average)

p = start value (1996 census average)

i = rate of interest

n = no. of periods, that is 5 years

This means interest rate = (2001 census avg/1996 census avg)^{1/5} years - 1. The 1/n = to the power of 0.2. This gave the average interest rate for each of the five years of 5.01%, which was then applied to the 1996 average income. As the resulting figure and the 2001 were so similar, at times within one dollar, the calculation was continued from 1996 through to 2001, rather than restarting with the 2001 average figure.

Comparison with what limited data that is available at the LGA level has been made to check the accuracy of this estimation. The table below shows the annual percentage change in income levels for the years 2000/01 to 2001/02 and 2002/03 to 2003/04 for salary earners in Western Sydney LGAs, as recorded by the Australian Taxation Office. These figures show a lower annual salary increase than that used for this report, varying between 1.7% and 4.7%. The variation between the LGAs in average annual % increase was between 2.3% and 4.4%. Hence the actual % income increases for the age groups are likely to have been less than was estimated for this report. Accordingly the gap between income increases and housing cost increases in the LGAs of the region is likely to have been greater than argued here.

Taxation statistics by financial year for selected SLAs of Western Sydney					
		% change 2000/01- 01/02	% change 2001/02- 02/03	% change 2002/03- 03/04	Average Annual Increase 2001/02 - 2003/04
10200	Auburn (A)	2.5	3.7	4.6	3.6
10350	Bankstown (C)	1.5	3	4.3	3
10500	Baulkham Hills (A)	-0.2	4	3.9	2.6
10751	Blacktown (C) - North	-1.4	3.8	4.6	2.3
10752	Blacktown (C) - South-East	1.3	2.8	4.5	2.9
10753	Blacktown (C) - South-West	1.6	3	4.7	3.1
10900	Blue Mountains (C)	2.7	4	5.3	4
11450	Camden (A)	3.8	3.1	5.5	4.2
11500	Campbelltown (C)	1.3	3.9	4.4	3.2
12850	Fairfield (C)	2.2	2.8	4.2	3
13800	Hawkesbury (C)	1.5	4.5	5.7	3.9
13950	Holroyd (C)	1.9	3.2	3.8	3
14900	Liverpool (C)	1.8	3	4.3	3
16250	Parramatta (C)	1.7	3	4.3	3
16350	Penrith (C)	2.7	3.2	5.2	3.7
18400	Wollondilly (A)	2.4	4.5	6.5	4.4
Average		1.7	3.5	4.7	3.3

Source: ATO available online

Appendix 2. Comparisons between estimated income of 20-24 year olds & the median weekly rent for a two bedroom dwelling in GWS LGAs **2000-2006**. Source: Salary estimated base on figures from ABS Census 1996 & 2001, Table B13, Median rent from Dept of Housing Rent & Sales reports, 2000-2006

Auburn LGA				
Year	Estimated Average Annual Income	Estimated Average Weekly Income	Median weekly rent (March quarter)	% of weekly salary needed for rent
2000	\$18,061	\$347	\$185	53.3%
2001	\$18,838	\$362	\$190	52.4%
2002	\$19,648	\$378	\$195	51.6%
2003	\$20,492	\$394	\$200	50.8%
2004	\$21,374	\$411	\$200	48.7%
2005	\$22,293	\$429	\$220	51.3%
2006	\$23,251	\$447	\$250	55.9%
% change 2000-2006	28.7%	28.7%	35.1%	5.0%

Bankstown LGA				
Year	Estimated Average Annual Income	Estimated Average Weekly Income	Median weekly rent (March quarter)	% of weekly salary needed for rent
2000	\$20,807	\$400	\$210	52.5%
2001	\$21,473	\$413	\$215	52.1%
2002	\$22,160	\$426	\$220	51.6%
2003	\$22,869	\$440	\$220	50.0%
2004	\$23,601	\$454	\$230	50.7%
2005	\$24,356	\$468	\$230	49.1%
2006	\$25,153	\$484	\$240	49.6%
% change 2000-2006	20.9%	20.9%	14.3%	-5.5%

Baulkham Hills LGA				
Year	Estimated Average Annual Income	Estimated Average Weekly Income	Median weekly rent (March quarter)	% of weekly salary needed for rent
2000	\$23,285	\$448	\$250	55.8%
2001	\$24,286	\$467	\$260	55.7%
2002	\$25,330	\$487	\$260	53.4%
2003	\$26,420	\$508	\$260	51.2%
2004	\$27,556	\$530	\$255	48.1%
2005	\$28,740	\$553	\$270	48.9%
2006	\$29,976	\$576	\$280	48.6%
% change 2000-2006	28.7%	28.7%	12.0%	-13.0%

Blacktown LGA				
Year	Estimated Average Annual Income	Estimated Average Weekly Income	Median weekly rent (March quarter)	% of weekly salary needed for rent
2000	\$21,700	\$417	\$170	40.7%
2001	\$22,557	\$434	\$180	41.5%
2002	\$23,448	\$451	\$180	39.9%
2003	\$24,374	\$469	\$185	39.5%
2004	\$25,337	\$487	\$195	40.0%
2005	\$26,338	\$507	\$200	39.5%
2006	\$27,378	\$527	\$210	39.9%
% change 2000-2006	26.2%	26.2%	23.5%	-2.1%

Blue Mountains LGA				
Year	Estimated Average Annual income	Estimated Average weekly income	Median weekly rent (March quarter)	% of weekly salary needed for rent
2000	\$20,468	\$394	\$160	40.6%
2001	\$21,311	\$410	\$168	41.0%
2002	\$22,189	\$427	\$175	41.0%
2003	\$23,103	\$444	\$180	40.5%
2004	\$24,055	\$463	\$180	38.9%
2005	\$25,046	\$482	\$180	37.4%
2006	\$26,078	\$502	\$190	37.9%
% change 2000-2006	27.4%	27.4%	18.8%	-6.8%

Camden LGA				
Year	Estimated Average Annual income	Estimated Average Weekly income	Median weekly rent (March quarter)	% of weekly salary needed for rent
2000	\$24,325	\$468	\$170	36.3%
2001	\$25,344	\$487	\$180	36.9%
2002	\$26,406	\$508	\$200	39.4%
2003	\$27,512	\$529	\$210	39.7%
2004	\$28,665	\$551	\$199	36.1%
2005	\$29,866	\$574	\$210	36.6%
2006	\$31,117	\$598	\$220	36.8%
% change 2000-2006	27.9%	27.9%	29.4%	1.2%

Campbelltown LGA				
Year	Estimated Average Annual Income	Estimated Average Weekly Income	Median weekly rent (March quarter)	% of weekly salary needed for rent
2000	\$21,073	\$405	\$160	39.5%
2001	\$21,859	\$420	\$160	38.1%
2002	\$22,675	\$436	\$165	37.8%
2003	\$23,520	\$452	\$170	37.6%
2004	\$24,398	\$469	\$175	37.3%
2005	\$25,308	\$487	\$175	36.0%
2006	\$26,252	\$505	\$180	35.7%
% change 2000-2006	24.6%	24.6%	12.5%	-9.7%

Fairfield LGA				
Year	Estimated Average Annual Income	Estimated average Weekly Income	Median weekly rent (March quarter)	% of weekly salary needed for rent
2000	\$18,716	\$360	\$145	40.3%
2001	\$19,588	\$377	\$145	38.5%
2002	\$20,501	\$394	\$155	39.3%
2003	\$21,457	\$413	\$155	37.6%
2004	\$22,457	\$432	\$160	37.0%
2005	\$23,503	\$452	\$170	37.6%
2006	\$24,598	\$473	\$170	35.9%
% change 2000-2006	31.4%	31.4%	17.2%	-10.8%

Hawkesbury LGA				
Year	Estimated Average Annual Income	Estimated average Weekly Income	Median weekly rent (March quarter)	% of weekly salary needed for rent
2000	\$23,255	\$447	\$160	35.8%
2001	\$24,243	\$466	\$165	35.4%
2002	\$25,274	\$486	\$170	35.0%
2003	\$26,348	\$507	\$175	34.5%
2004	\$27,468	\$528	\$180	34.1%
2005	\$28,635	\$551	\$185	33.6%
2006	\$29,852	\$574	\$193	33.6%
% change 2000-2006	28.4%	28.4%	20.6%	-6.0%

Holroyd LGA				
Year	Estimated Average Annual Income	Estimated average Weekly Income	Median weekly rent (March quarter)	% of weekly salary needed for rent
2000	\$22,472	\$432	\$210	48.6%
2001	\$23,403	\$450	\$220	48.9%
2002	\$24,372	\$469	\$210	44.8%
2003	\$25,381	\$488	\$215	44.0%
2004	\$26,431	\$508	\$220	43.3%
2005	\$27,526	\$529	\$225	42.5%
2006	\$28,665	\$551	\$230	41.7%
% change 2000-2006	27.6%	27.6%	9.5%	-14.1%

Liverpool LGA				
Year	Estimated Average Annual Income	Estimated average Weekly Income	Median weekly rent (March quarter)	% of weekly salary needed for rent
2000	\$21,771	\$419	\$165	39.4%
2001	\$22,585	\$434	\$170	39.1%
2002	\$23,430	\$451	\$175	38.8%
2003	\$24,306	\$467	\$175	37.4%
2004	\$25,215	\$485	\$180	37.1%
2005	\$26,158	\$503	\$180	35.8%
2006	\$27,137	\$522	\$190	36.4%
% change 2000-2006	24.6%	24.6%	15.2%	-7.6%

Parramatta LGA				
Year	Estimated Average Annual Income	Estimated average Weekly Income	Median weekly rent (March quarter)	% of weekly salary needed for rent
2000	\$21,450	\$413	\$200	48.5%
2001	\$22,184	\$427	\$210	49.2%
2002	\$22,943	\$441	\$220	49.9%
2003	\$23,727	\$456	\$215	47.1%
2004	\$24,539	\$472	\$230	48.7%
2005	\$25,378	\$488	\$230	47.1%
2006	\$26,246	\$505	\$245	48.5%
% change 2000-2006	22.4%	22.4%	22.5%	0.1%

Penrith LGA				
Year	Estimated Average Annual Income	Estimated average Weekly Income	Median weekly rent (March quarter)	% of weekly salary needed for rent
2000	\$23,063	\$444	\$145	32.7%
2001	\$24,100	\$463	\$150	32.4%
2002	\$25,185	\$484	\$155	32.0%
2003	\$26,318	\$506	\$160	31.6%
2004	\$27,503	\$529	\$165	31.2%
2005	\$28,740	\$553	\$165	29.9%
2006	\$30,033	\$578	\$175	30.3%
% change 2000-2006	30.2%	30.2%	20.7%	-7.3%

Wollondilly LGA				
Year	Estimated Average Annual Income	Estimated average Weekly Income	Median weekly rent (March quarter)	% of weekly salary needed for rent
2000	\$22,193	\$427	\$153	35.8%
2001	\$23,191	\$446	\$153	34.3%
2002	\$24,235	\$466	\$165	35.4%
2003	\$25,325	\$487	\$180	37.0%
2004	\$26,465	\$509	\$160	31.4%
2005	\$27,656	\$532	\$185	34.8%
2006	\$28,900	\$556	\$185	33.3%
% change 2000-2006	30.2%	30.2%	20.9%	-7.1%

Appendix 2 Comparison between estimated income of 25-34 year olds & Average Sales Price of all dwellings in GWS LGAs, 2000 – 2006. Source: Estimates based on figures from ABS Census 1996 & 2001, Table B13 & Dept of Housing Rent & Sales Reports 1999-2006

Auburn LGA			
Year	Estimated Average Annual Income	Average Sale Price#	No of years salary = to Sale price
2000	\$24,611	\$241,000	9.8
2001	\$25,816	\$280,000	10.8
2002	\$27,082	\$337,000	12.4
2003	\$28,408	\$376,000	13.2
2004	\$29,801	\$402,000	13.5
2005	\$31,261	\$411,000	13.1
2006	\$32,793	\$376,000	11.5
% increase 2000 - 2006	33.2%	56.0%	17.1%

Bankstown LGA			
Year	Estimated Average Annual Income	Average Sale Price#	No of years salary = to Sale price
2000	\$28,416	\$259,000	9.1
2001	\$29,777	\$280,000	9.4
2002	\$31,203	\$343,000	11.0
2003	\$32,698	\$400,000	12.2
2004	\$34,264	\$414,000	12.1
2005	\$35,905	\$398,000	11.1
2006	\$37,625	\$390,000	10.4
% increase 2000 - 2006	32.4%	50.6%	13.7%

Baulkham Hills LGA			
Year	Estimated Average Annual Income	Average Sale Price#	No of years salary = to Sale price
2000	\$36,655	\$386,000	10.5
2001	\$38,627	\$410,000	10.6
2002	\$40,705	\$492,000	12.1
2003	\$42,895	\$560,000	13.1
2004	\$45,203	\$571,000	12.6
2005	\$47,634	\$556,000	11.7
2006	\$50,197	\$527,000	10.5
% increase 2000 - 2006	36.9%	36.5%	-0.3%

Blacktown LGA			
Year	Estimated Average Annual Income	Average Sale Price#	No of years salary = to Sale price
2000	\$28,736	\$198,000	6.9
2001	\$30,222	\$231,000	7.6
2002	\$31,784	\$283,000	8.9
2003	\$33,428	\$330,000	9.9
2004	\$35,156	\$361,000	10.3
2005	\$36,973	\$344,000	9.3
2006	\$38,885	\$336,000	8.6
% increase 2000 - 2006	35.3%	69.7%	25.4%

Blue Mountains LGA			
Year	Estimated Average Annual Income	Average Sale Price#	No of years salary = to Sale price
2000	\$29,906	\$221,000	7.4
2001	\$31,392	\$247,000	7.9
2002	\$32,952	\$293,000	8.9
2003	\$34,590	\$346,000	10.0
2004	\$36,309	\$376,000	10.4
2005	\$38,114	\$371,000	9.7
2006	\$40,008	\$365,000	9.1
% increase 2000 - 2006	33.8%	65.2%	23.5%

Camden LGA			
Year	Estimated Average Annual Income	Average Sale Price#	No of years salary = to Sale price
2000	\$32,465	\$248,000	7.6
2001	\$34,199	\$270,000	7.9
2002	\$36,025	\$344,000	9.5
2003	\$37,948	\$401,000	10.6
2004	\$39,975	\$430,000	10.8
2005	\$42,110	\$405,000	9.6
2006	\$44,358	\$393,000	8.9
% increase 2000 - 2006	36.6%	58.5%	16.0%

Campbelltown LGA			
Year	Estimated Average Annual Income	Average Sale Price#	No of years salary = to Sale price
2000	\$27,179	\$169,000	6.2
2001	\$28,282	\$188,000	6.6
2002	\$29,430	\$243,000	8.3
2003	\$30,625	\$294,000	9.6
2004	\$31,869	\$309,000	9.7
2005	\$33,162	\$302,000	9.1
2006	\$34,509	\$295,000	8.5
% increase 2000 - 2006	27.0%	74.6%	37.5%

Fairfield LGA			
Year	Estimated Average Annual Income	Average Sale Price#	No of years salary = to Sale price
2000	\$24,208	\$194,000	8.0
2001	\$25,464	\$207,000	8.1
2002	\$26,786	\$268,000	10.0
2003	\$28,176	\$325,000	11.5
2004	\$29,638	\$342,000	11.5
2005	\$31,177	\$338,000	10.8
2006	\$32,795	\$327,000	10.0
% increase 2000 - 2006	35.5%	68.6%	24.4%

Hawkesbury LGA			
Year	Estimated Average Annual Income	Average Sale Price#	No of years salary = to Sale price
2000	\$29,580	\$238,000	8.0
2001	\$30,987	\$276,000	8.9
2002	\$32,462	\$332,000	10.2
2003	\$34,008	\$396,000	11.6
2004	\$35,626	\$420,000	11.8
2005	\$37,322	\$417,000	11.2
2006	\$39,099	\$390,000	10.0
% increase 2000 - 2006	32.2%	63.9%	24.0%

Holroyd LGA			
Year	Estimated Average Annual Income	Average Sale Price#	No of years salary = to Sale price
2000	\$29,651	\$240,000	8.1
2001	\$31,255	\$262,000	8.4
2002	\$32,946	\$317,000	9.6
2003	\$34,728	\$356,000	10.3
2004	\$36,607	\$429,000	11.7
2005	\$38,587	\$355,000	9.2
2006	\$40,675	\$352,000	8.7
% increase 2000 - 2006	37.2%	46.7%	6.9%

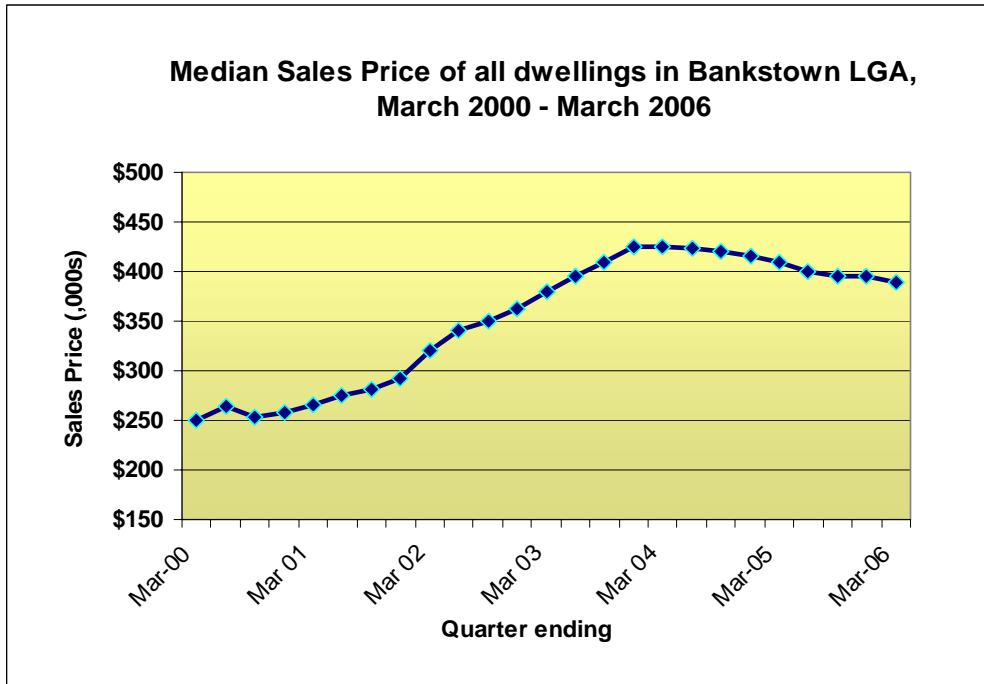
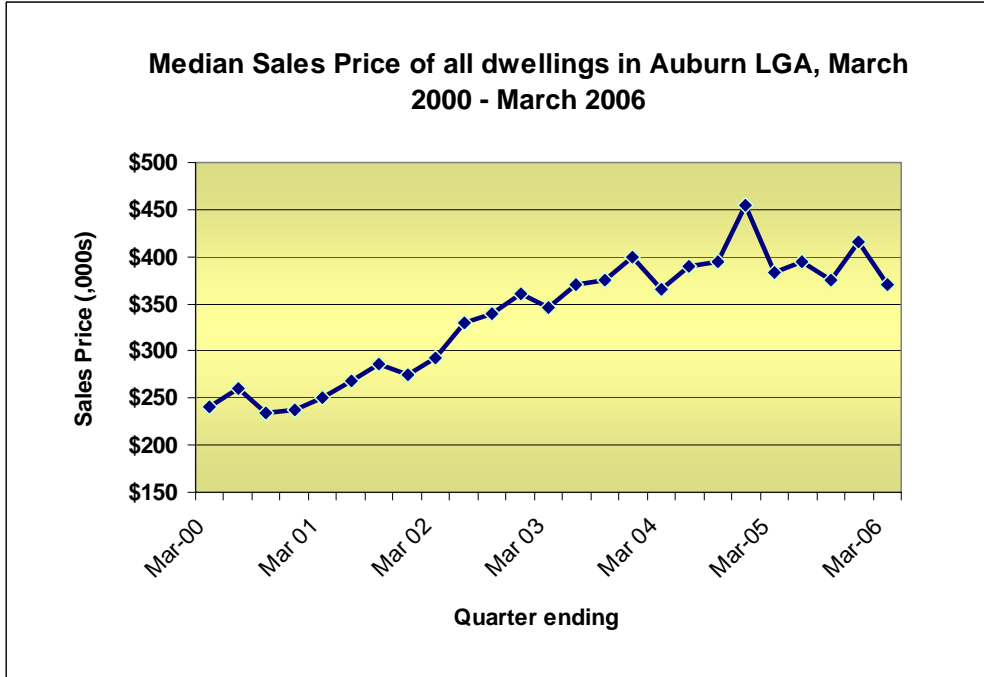
Liverpool LGA			
Year	Estimated Average Annual Income	Average Sale Price#	No of years salary = to Sale price
2000	\$28,185	\$223,000	7.9
2001	\$29,598	\$250,000	8.4
2002	\$31,080	\$316,000	10.2
2003	\$32,637	\$377,000	11.6
2004	\$34,273	\$396,000	11.6
2005	\$35,990	\$386,000	10.7
2006	\$37,793	\$368,000	9.7
% increase 2000 - 2006	34.1%	65.0%	23.1%

Parramatta LGA			
Year	Estimated Average Annual Income	Average Sale Price#	No of years salary = to Sale price
2000	\$30,992	\$249,000	8.0
2001	\$32,486	\$280,000	8.6
2002	\$34,052	\$344,000	10.1
2003	\$35,693	\$397,000	11.1
2004	\$37,414	\$393,000	10.5
2005	\$39,217	\$387,000	9.9
2006	\$41,107	\$372,000	9.0
% increase 2000 - 2006	32.6%	49.4%	12.6%

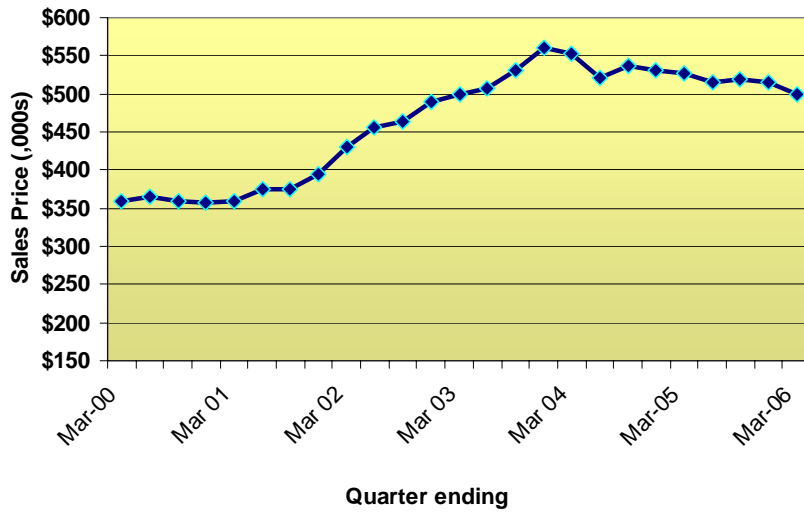
Penrith LGA			
Year	Estimated Average Annual Income	Average Sale Price#	No of years salary = to Sale price
2000	\$29,855	\$189,000	6.3
2001	\$31,359	\$219,000	7.0
2002	\$32,940	\$269,000	8.2
2003	\$34,600	\$316,000	9.1
2004	\$36,344	\$337,000	9.3
2005	\$38,175	\$330,000	8.6
2006	\$40,099	\$327,000	8.2
% increase 2000 - 2006	34.3%	73.0%	28.8%

Wollondilly LGA			
Year	Estimated Average Annual Income	Average Sale Price#	No of years salary = to Sale price
2000	\$29,413	\$225,000	7.6
2001	\$31,139	\$267,000	8.6
2002	\$32,967	\$310,000	9.4
2003	\$34,902	\$395,000	11.3
2004	\$36,951	\$420,000	11.4
2005	\$39,120	\$410,000	10.5
2006	\$41,417	\$397,000	9.6
% increase 2000 - 2006	40.8%	76.4%	25.3%

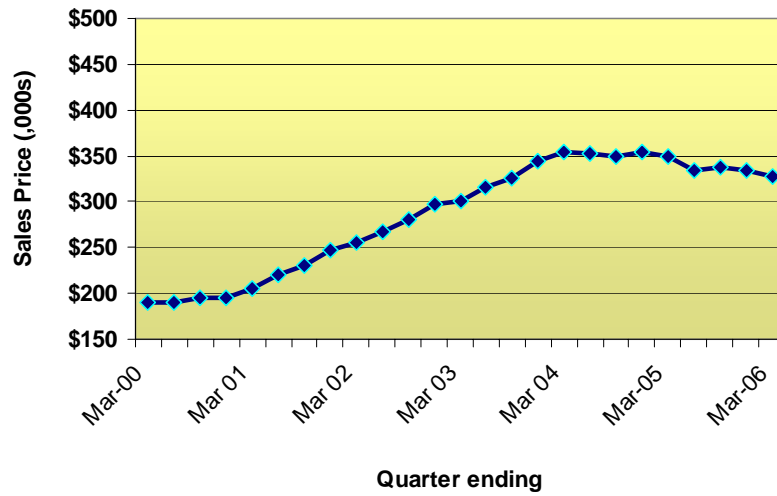
Appendix 3 Median sale prices changes for all dwellings in GWS LGAs: March 2000 – March 2006



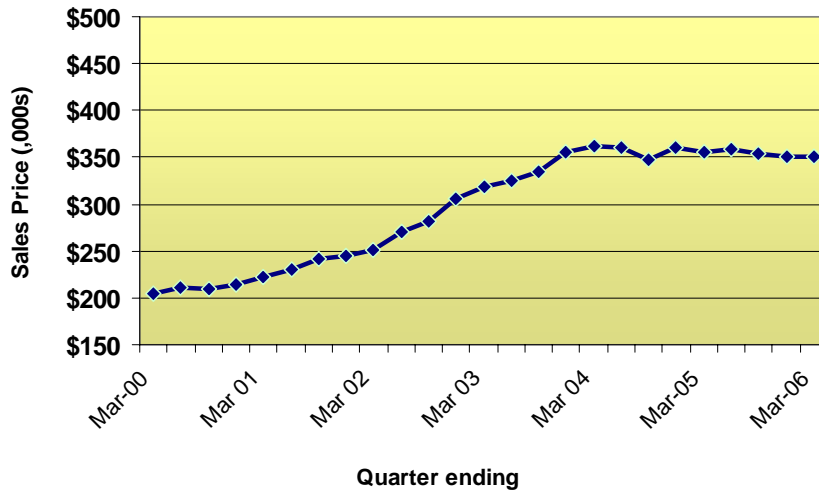
**Median Sales Price of all dwellings in Baulkham Hills LGA,
March 2000 - March 2006**



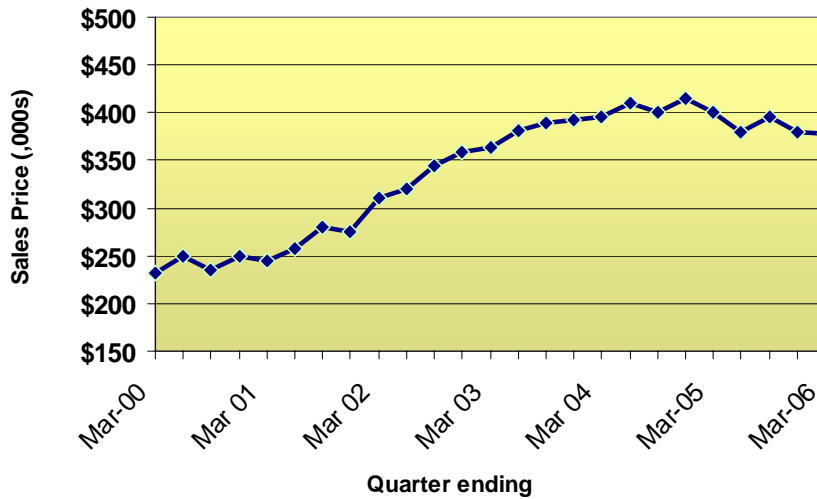
**Median Sales Price of all dwellings in Blacktown LGA,
March 2000 - March 2006**



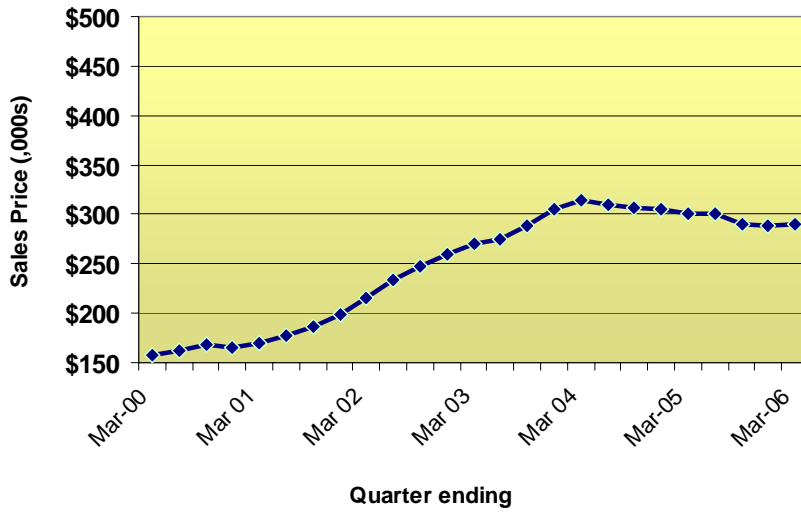
Median Sales Price of all dwellings in Blue Mountains LGA, March 2000 - March 2006



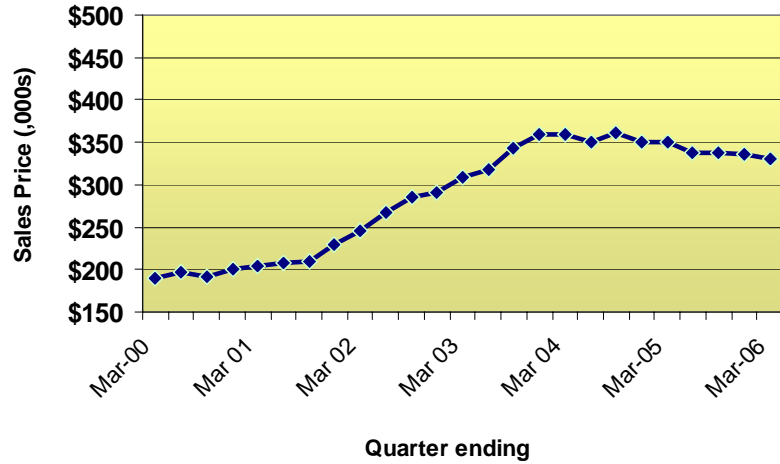
Median Sales Price of all dwellings in Camden LGA, March 2000 - March 2006



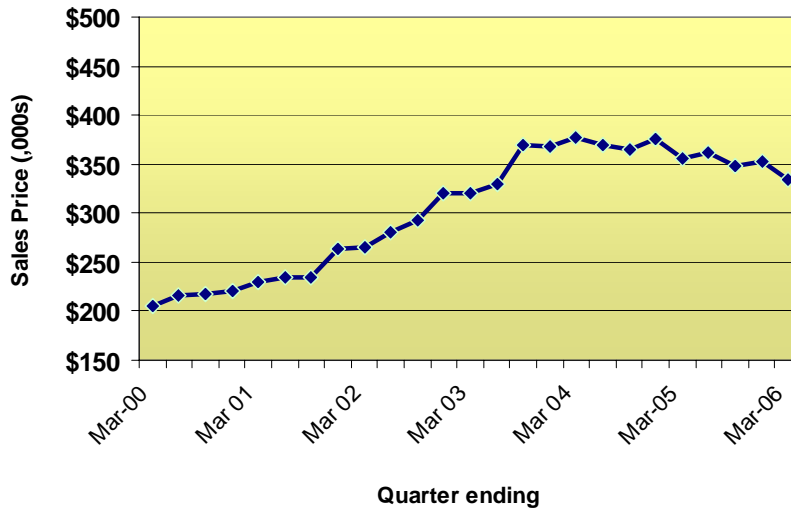
Median Sales Price of all dwellings in Campbelltown LGA, March 2000 - March 2006



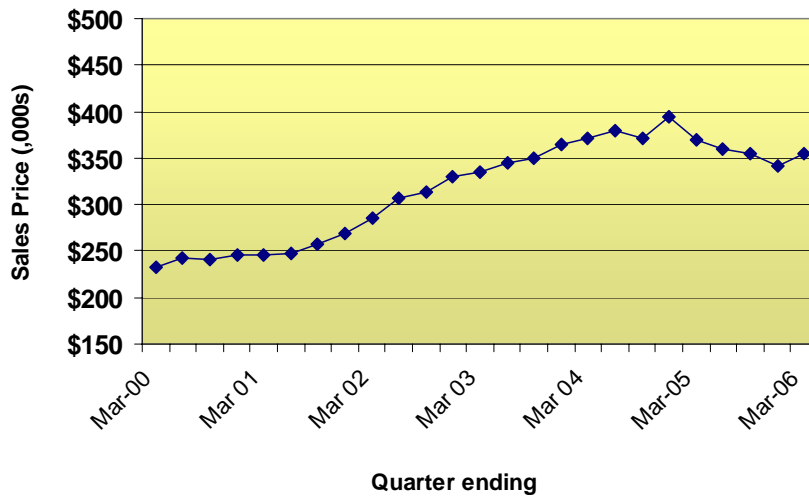
Median Sales Price of all dwellings in Fairfield LGA, March 2000 - March 2006



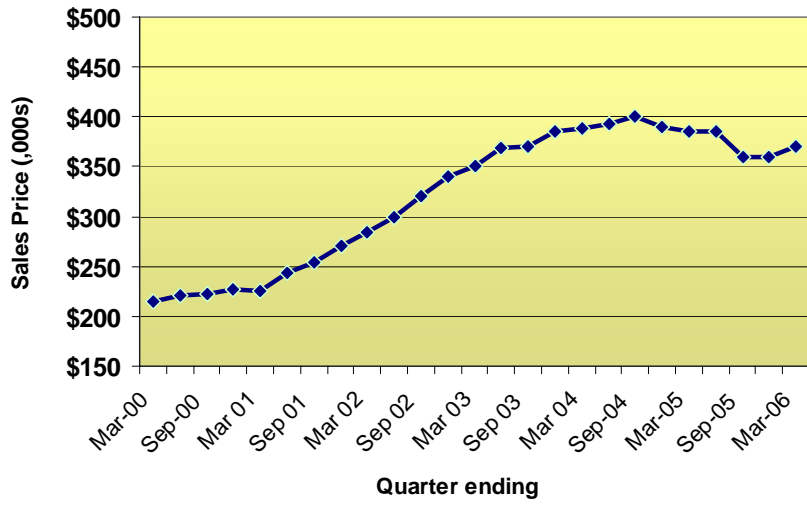
Median Sales Price of all dwellings in Hawkesbury LGA, March 2000 - March 2006



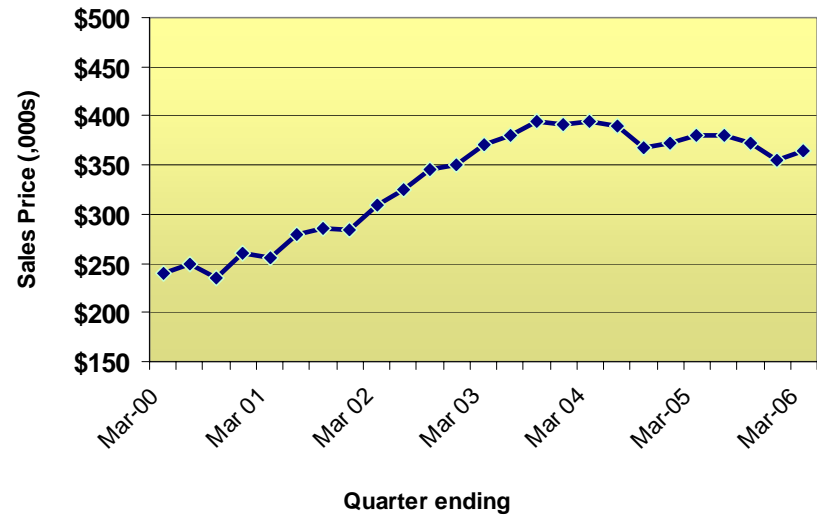
Median Sales Price of all dwellings in Holroyd LGA, March 2000 - March 2006



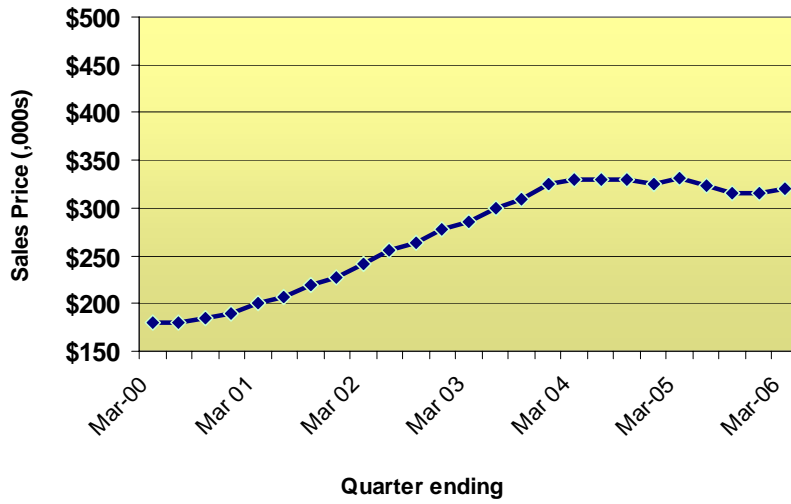
**Median Sales Price of all dwellings in Liverpool LGA,
March 2000 - March 2006**



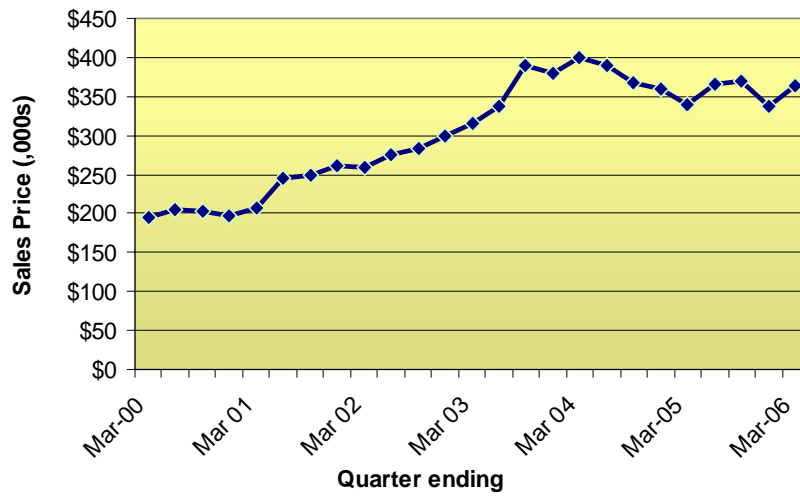
**Median Sales Price of all dwellings in Parramatta
LGA, March 2000 - March 2006**



**Median Sales price of all dwellings in Penrith LGA,
March 2000 - March 2006**



**Median Sales Price of all dwellings in Wollondilly
LGA, March 2000 - March 2006**



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