



BANKWEST CURTIN ECONOMICS CENTRE

HOUSING AFFORDABILITY

Land supply and new housing in Western Australia

Greg Costello, Kenneth Leong and Steven Rowley

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Executive summary

This Bankwest Curtin Economics Centre feature report addresses the topic of land supply new dwelling construction and housing affordability, a major economic and social issue facing West Australian households.

This report complements the BCEC Housing Affordability (2014 and 2016) reports through analysis of similar broad regional submarkets at higher levels of granularity through use of micro-data (individual transaction records). The methodology focuses upon allocation efficiency of affordable housing options across both income criteria and spatial classification.

This is achieved by extending analysis from the overall established housing market to more specifically targeted housing segments associated with affordable housing. In particular, this project will focus upon “new-build” housing components by identifying and analysing vacant land and recent construction activity.

This report focuses on a series of key research questions:

- What supply (established dwellings, new dwellings and land) is the market currently delivering in the Perth Metropolitan region and selected regional centres and how is this supply meeting the demand of a range of household types in a variety of income groups?
- Where is new land being delivered in these regions and how do costs of delivering new dwellings on this land compare to prices of established dwellings within the same regional sub-markets?
- To what extent do land and building costs prevent the delivery of dwelling products affordable to households in low and moderate income groups and are there additional factors preventing the delivery of such dwellings?
- What are the key barriers to entry in the owner purchaser sectors of the established and new dwelling markets?
- To what extent has housing policy, in particular policies focused on first home buyers, been successful in alleviating barriers to market entry and are new policy initiatives required to help households from a variety of income groups enter the owner purchaser market?

Key findings

Housing supply in Western Australia

- Single residential (dwellings & vacant land) is the dominant title type for transactions in Western Australia. Within the Perth Metropolitan region, from 2009-14, 81% of all residential transactions were single residential title type. This figure rises to 87% in Western Australian regional centres.
- There are a higher proportion of strata title dwellings sold within the Perth region, 16% as against 10% of transactions in regional centres. The proportion of strata vacant land transactions is also higher within the Perth region.
- On an annual basis, the relative proportions of these market segments do not vary considerably over the sample period.
- There are numerous subregions in Perth where single residential dwelling transactions comprise more than 90% of all sales. These areas correspond with less densely developed areas with no consistent relationship of age of the housing stock - both very new-build areas and older areas.
- A number of inner-city Perth subregions have proportions of strata title sales greater than 50% of the total number of dwellings. There is extensive new-build strata title development in these regions. The median sale price of strata title properties in these regions is generally comparable to prices of single residential dwellings.

Vacant land supply

- In the Perth Metropolitan region, approximately 72% of transactions during the period 2009-14 were established dwellings and 28% were vacant land. Within regional centres, 32% of transactions were vacant land and 68% were established dwellings.
- A number of subregions in Perth have vacant land sale proportions greater than 30% of all transactions. These subregions also have significant proportions of new housing - five years building age or less.
- In older established areas, high proportions of vacant land sales are strata title development (survey strata) with smaller size lots and higher selling prices than comparable single residential land within the same subregions.
- There is a clear relationship between the price of land and distance from the city centre - price decreases with distance. In general survey strata title land is of significantly higher value than single residential land on a \$/sqm unit rate basis.

Key findings (continued)

New dwellings

- For Perth, new dwellings (five years and under) comprise approximately 13% of single residential transactions - 33% for strata title development.
- During 2014 the Perth land-to-price ratio for single residential dwellings the land component was approximately 48% of the median price. Alternatively, the improved (buildings) component represents 52% of the median price.
- For single residential dwellings, new construction is associated with significant differences in the total land area for dwellings. In 2014 over the full Perth sample, new dwellings had an average land area approximately 30% smaller than older dwellings.
- For all title types there are numerous Perth subregions with relevant price-to-income ratios significantly lower than the citywide measure.
- In Perth, cheapest housing opportunities exist within the single residential market but also through strata title development. Locations for cheap housing opportunities are distinctly different for the two market segments.
- In Regional Centres the price-to-income ratio for single residential dwellings is approximately 5 – significantly lower than for Perth. In several centres lower ratios are explained by very high household income - common in regions where mining is the main economic base.

Affordability - household income

- For the Perth Metropolitan area 2009-14 the median dwelling price (single residential and strata title) was \$500,000.
- In all Perth subregions there were proportions of total transactions selling below the median price.
- Significantly cheaper dwelling opportunities exist within regional centres - approximately 28% cheaper than Perth. These dwellings also tend to be newer buildings.
- In Perth there are significant variations in affordability as determined by price and household income. On a citywide basis, the median price-to-income ratio for single residential dwellings is approximately 7 - slightly higher for strata title dwellings.

Affordable housing and new dwellings

- Flexibility exists within the land and construction sectors to accommodate improved affordability. New dwellings can be cheaper than established dwellings but this requires adaptation by developers and builders in supplying new product.
- At the aggregate Perth sample level, new dwellings carry a significant price premium - approximately 33% higher than for established dwellings. There are significant differences at suburb levels where new dwellings provide affordability options.
- In a number of suburbs across Perth where the price-to-income ratio is below 7, new single residential dwellings are selling at prices below established dwellings. Typically, these new dwellings are on smaller lots and are smaller houses.

- For strata title dwellings in Perth this situation is reversed - new dwellings sell at a premium to older dwellings in the same suburbs and buildings are larger.
- Single residential development is more effective in delivering cheaper housing through new land development and construction - predominantly in outer suburbs. Strata title development is providing a new stock of housing more expensive than the existing older stock within the inner-city suburbs.
- The FHOG “boost period” had a significant influence on numbers of properties sold, average selling days and average discount to listing price - not just in first home buyer suburbs. It was a very effective housing stimulus tool.
- The First Home Savers Account (FHSA) delivered financial assistance to FHB saving a deposit. It was discontinued due to a lack of take up. A similar scheme, with fewer restrictions, would make a positive difference for many FHB.

Housing policy in Western Australia

- WA has consistently had the highest rate of first home buyers (FHB) in the country. This is due to a combination of FHB policies and relatively affordable dwelling prices by national standards.
- Over 75% of potential dwelling purchasers view policies relating to the First Home Owners Grant (FHOG) and stamp duty relief as important.
- The deposit gap is commonly cited as the most significant barrier to home ownership. The FHOG and stamp duty relief are important initiatives that help first home buyers overcome this barrier.
- Stamp duty relief is essential for most FHB and provides purchasers significant savings with a resultant reduction in the saving period prior to an FHB transaction.
- In a housing market with stringent bank lending criteria, first home buyers receiving FHOG and stamp duty relief have little capacity to drive up prices.
- The Keystart scheme has assisted 98,000 households into home ownership since 1989, 88% of which have been FHB. It is considered very important by the housing industry in maintaining the state’s high level of FHB.
- Any negative changes to the existing FHB policies would have a detrimental impact on FHB activity in the state. This negative impact would feed through into the rest of the housing market.

Introduction

Housing in Western Australia commands a significant level of commentary both in political forums and within the popular press. During recent years, Western Australia appears to be experiencing a countercyclical period in comparison to some other states of Australia, notably NSW and Victoria. In part, this is explained by general macroeconomic factors - decline in mining investment, slowing population growth, increasing unemployment levels and a general lack of business confidence in the post-boom period.

Previous reports in the series have focused upon affordability within Western Australia's various housing markets (Cassels et al., 2014, Duncan et al., 2016). Housing outcomes impact significantly upon productivity in WA's economy, impacting employment participation, transport times, congestion influences and general well-being.

This report also examines housing market structures and affordability in Western Australia. While it complements and extends on the previous reports in terms of analysis of similar regional submarkets, it also contributes new information in several important areas such as the role of new vacant land supply and the influence of new building activity.

The data sources used in this report are micro-data provided by Landgate WA, individual transaction records for the period 2009-2014. This higher level of granularity within the data enables this report to examine more specific structural influences within Western Australian housing markets at finer levels of analysis.

The data used contains transaction prices and also detailed information concerning property characteristics, such as land area, building age, title type, number of bedrooms and numerous other property characteristics useful in describing the structure of housing submarkets. Through the use of the data it is possible to disaggregate transactions according to property type - vacant land, detached house, and apartments at very fine levels of geographic disaggregation, including suburb level.

When submarkets are identified at these finer levels and combined with additional information such as income levels, more precise examination of affordability influences are possible. As an example, within this report there is significant analysis of the supply influences of vacant land transactions and associated new building activity both within the Perth Metropolitan region and specific regional centres which was not covered in previous BCEC reports. This data permits identification of the most affordable housing opportunities within the state, outside simply established dwelling transactions.

The findings included in this report provide useful information with respect to the price of new housing in comparison to similar, older housing. Importantly, this analysis also provide specific detail concerning important structural changes within the market in terms of housing characteristics such as lot sizes and building dimensions.

The background of the slide is a light blue gradient. Overlaid on this is a darker blue rectangular area. Within this area, there is a faint, stylized line drawing of a house with a chimney. In the foreground, a hand is holding a pen, appearing to write on a document. A large percentage symbol (%) is also visible, partially obscured by the text. A horizontal blue line runs across the middle of the slide, just below the subtitle.

Chapter 1:

Housing supply in
Western Australia

Housing supply in Western Australia

This first chapter examines housing supply in Western Australia. In particular we seek to understand what supply, in terms of vacant land, established and new dwellings is the market currently delivering in the Perth metropolitan region and also the main regional centres in WA. In following sections of this report we extend this analysis to examine how this supply is meeting the demand of a range of household types in a variety of income groups.

Methodology

To address the question of supply of the various housing market segments delivered both in the Perth Metropolitan region and selected regional centres, we first focus upon a detailed analysis of transaction activity. In order to establish necessary detail, our emphasis is on individual property transactions. Initially we focus upon the historical record of transactions for established dwellings, new dwellings and vacant land in the Western Australian housing market over the period 2009-14.

We utilise two broad systems of data classification and analysis:

- (i) The first is *title* type of transaction.
- (ii) The second technique is *geographic*, by broad location and more finely specified subregions and suburbs.

We begin by focusing upon individual transaction level data (micro data) provided under licence by *Landgate WA*. In order to facilitate efficient analysis we initially classify the data according to three broad land title types:

1. **Single residential** - those properties selling according to a system of title whereby a single land owning entity has title to the land and there is no shared ownership of any portion of the land. This title is commonly referred to as "green" title. We further classify this form of ownership into:
 - a) dwellings-single residential
 - b) vacant land-single residential
2. **Strata title** - those properties selling according to a system of title whereby multiple land owning entities operate under a system of shared ownership of all or some portions of the land determined according to a strata plan. Owners are entitled to exclusive use of areas defined within walls of the building and may also be entitled to exclusive use of land areas as specified in the strata plan. Those property types currently referred to as apartment, duplex, villa, townhouse etc. are generally strata title type properties. We further classify this form of ownership into:
 - a) dwellings-strata title
 - b) vacant land-survey strata title
3. **Other title** - a very small number of properties selling according to a system of title not conforming to either of the above. Typically, these properties are much older in age and have been initially developed under a system of title prior to the introduction of the strata titles act in the 1960s. Many of these properties appear to be developed under old *tenants-in-common schemes* commonly referred to as "purple" title. There are no parcels of vacant land sold under this title system, therefore our further classification is limited to:
 - a) dwellings-other

This general classification of transactions according to title type results in a broad classification of five categories for analysis, according to title type and whether the property is a dwelling or vacant land. Data was collected and analysed across a six-year sample period 2009-14. Initial filtering and data cleaning procedures were applied in order to identify market (arms-length) transactions and remove outlier observations. As a result of this process, all residential transactions with land areas of more than 2000 m² were removed from the sample as were multi-lot transfers and those transactions indicating characteristics not consistent with residential market pricing.

In order to understand the distributions and volumes of transactions for these title type categories we geographically disaggregate the sample into two broad location classifications:

- (i) Perth Metropolitan
- (ii) Regional Western Australia

To effectively further disaggregate the data into appropriate geographically defined submarkets, the Real Estate Institute of Western Australia (REIWA) submarket definitions were applied for the Perth Metropolitan region. These 25 subregion areas are defined as relatively homogenous housing markets in that the properties transacting within an individual subregion comprise broadly similar characteristics in terms of property type, age etc. As an example, from Figure 3, the subregion of Wanneroo North West, located at the northern extremity of the city is associated with significant vacant land sales and new housing. The Western suburbs subregion, located centrally is associated with much older established housing at significantly higher price levels.

In some sections of the report the data is disaggregated to the individual suburb level. This is done to facilitate discussion of property characteristics with associated data, notably household income statistics also reported at the individual suburb level.

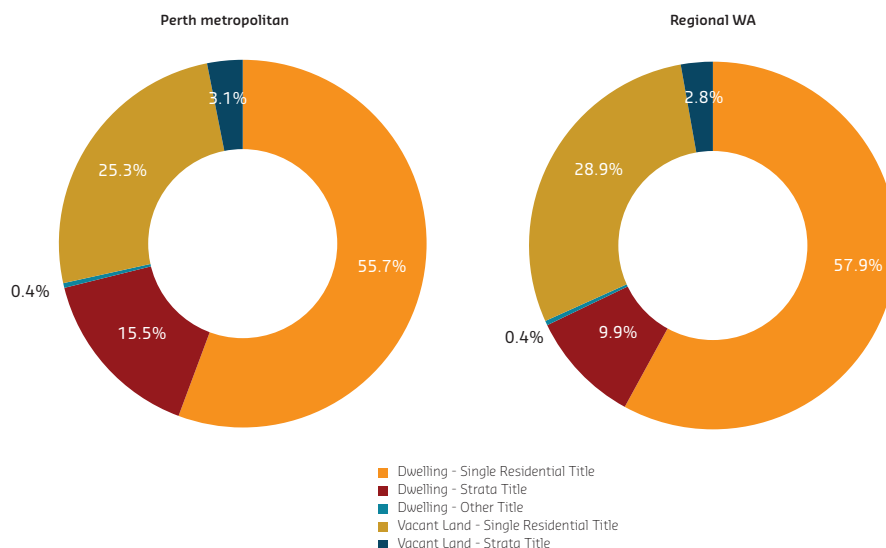
The further geographic disaggregation of regional WA was prepared according to 12 major regional centres in accordance with the state's official geographic classification system. Further details for these broad geographical disaggregation systems are indicated in Figure 3 (Perth metropolitan region) and Figure 12 (Regional centres). Note that in Figure 12, the largest regional centre of Mandurah can be considered as an extension of the Perth Metropolitan area – "Greater Perth". Our reasons for including Mandurah as a regional centre concern both conformity with the state's geographic classification system and consistency with previous reports.

Microdata sample and characteristics

The point of departure of this report from the previous two BCEC Housing Affordability reports is the use of micro-level data on individual transactions. The data are available for the five year period from 2009 to 2014. This sample period has been used as when the project commenced in 2015 full year data was only available to the end of 2014.

To begin, Figure 1 shows the breakdown of the transaction dataset by housing type, for the Perth metropolitan area and regional WA.

Figure 1 Dwelling and vacant land microdata sample, 2009-14



Source: Landgate WA

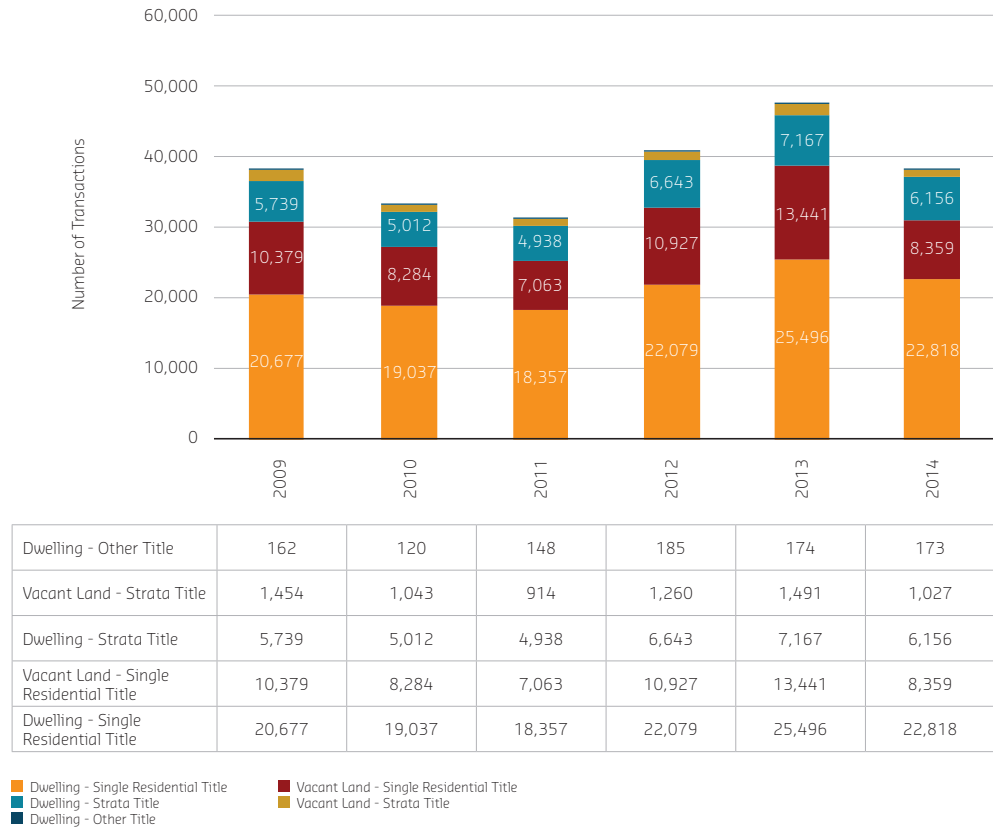
There are several important points to note from the data. The first is the very high proportions of single residential title sales for both the Perth and regional samples. The total component of single residential sales (vacant land and dwellings) is 81 per cent (Figure 1) for the Perth metropolitan area and 87 per cent for regional Western Australia. Interestingly these transaction statistics also quite accurately represent the relevant proportions for the *total stock* of vacant land and dwellings.

In general, the proportions of transactions according to title type are quite consistent according to this general Perth - Regional WA level of disaggregation. There are very small proportions of *other-dwellings* for both samples. The main point of difference appears to be for strata-dwelling transactions. There is a higher proportion in the Perth region, 15.5 per cent, as compared to regional areas, 9.5 per cent.

Within the Perth Metropolitan region approximately 72 per cent of transactions were for established dwellings (single residential, strata title and “off-the-plan”) and 28 per cent were vacant land. Within regional centres, 32 per cent of transactions were vacant land and 68 per cent were established dwellings.

It is also important to consider variations in volumes of transactions over time. In order to do this we further disaggregate the data into annual samples. Figure 2 provides a general summary of volumes of transactions in the Perth Metropolitan region 2009-14.

Figure 2 Perth aggregate sample by property type individual years

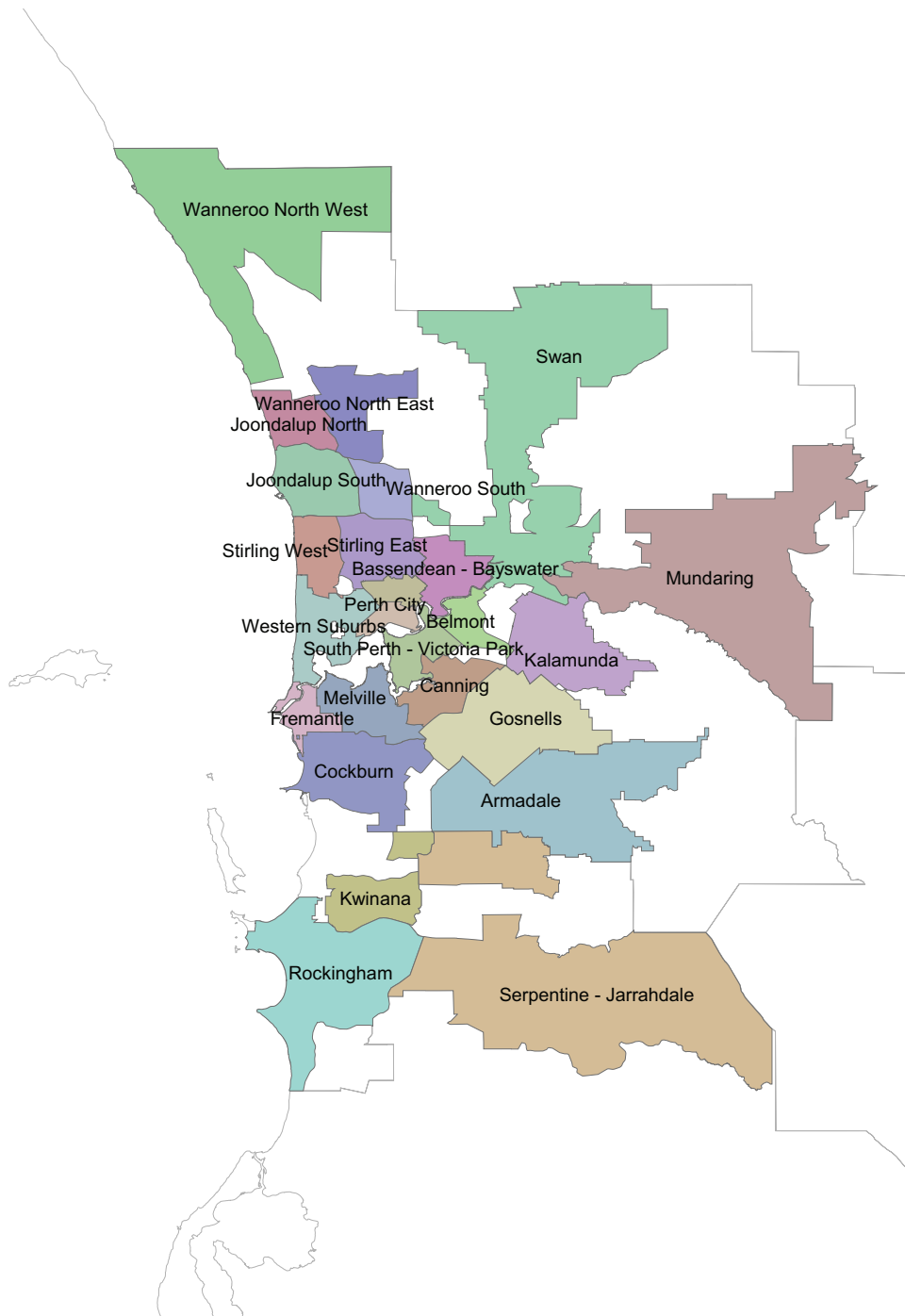


Source: Landgate WA

As indicated, the relevant proportions of transactions remain quite consistent over the six-year sample period. Although most transactions occurred in the period 2012-14, the relative proportions of vacant land and established dwellings according to title type were relatively consistent across annual time periods. This annual time interval analysis has not been done for all of regional WA. It is more appropriate to complete detailed analysis by individual regional centres (further detail below).

We continue by providing more complete descriptions of the sample according to greater levels of geographic disaggregation according to the REIWA classification system of subregions.

To begin, Figure 3 shows the 25 sub-regions that represents the metropolitan area of Perth.

Figure 3 Perth metropolitan area - REIWA sub-regions

This map shows the 25 Perth metropolitan sub-regions as defined by REIWA

Source: REIWA

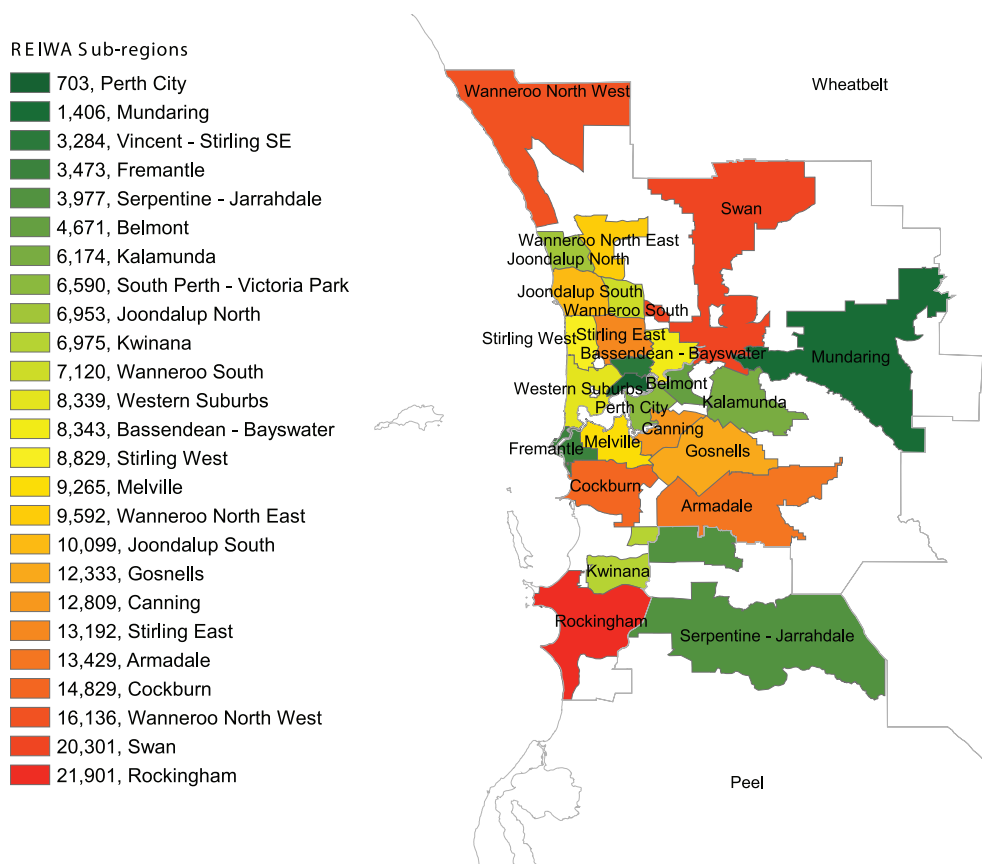
Table 1 provides further detail of volumes of transactions for the full sample period 2009-14 according to REIWA subregion specifications and title/transaction type.

Table 1 Perth sample transactions by REIWA subregions

REIWA subregion	Single residential				Strata title				Other title		Total sales					
	Dwellings	Vacant land	Total	Dwellings	Vacant land	Total	Dwellings	Total								
Armadale	5,845	4.5%	6,107	10.4%	11,952	6.4%	909	2.5%	550	7.7%	1,459	3.4%	18	1.9%	13,429	5.8%
Bassendean Bayswater	4,608	3.6%	494	0.8%	5,102	2.7%	2,504	7.0%	669	9.3%	3,173	7.4%	68	7.1%	8,343	3.6%
Belmont	2,732	2.1%	285	0.5%	3,017	1.6%	1,318	3.7%	301	4.2%	1,619	3.8%	35	3.6%	4,671	2.0%
Canning	7,529	5.9%	1,741	3.0%	9,270	5.0%	2,764	7.8%	721	10.0%	3,485	8.1%	54	5.6%	12,809	5.6%
Cockburn	7,867	6.1%	4,762	8.1%	12,629	6.8%	1,489	4.2%	687	9.6%	2,176	5.1%	24	2.5%	14,829	6.4%
Fremantle	1,880	1.5%	337	0.6%	2,217	1.2%	987	2.8%	219	3.0%	1,206	2.8%	50	5.2%	3,473	1.5%
Gosnells	8,363	6.5%	2,440	4.2%	10,803	5.8%	1,081	3.0%	422	5.9%	1,503	3.5%	27	2.8%	12,333	5.3%
Joondalup North	4,995	3.9%	1,205	2.1%	6,200	3.3%	589	1.7%	140	1.9%	729	1.7%	24	2.5%	6,953	3.0%
Joondalup South	8,746	6.8%	430	0.7%	9,176	4.9%	769	2.2%	120	1.7%	889	2.1%	34	3.5%	10,099	4.4%
Kalamunda	4,298	3.3%	1,177	2.0%	5,475	2.9%	437	1.2%	236	3.3%	673	1.6%	26	2.7%	6,174	2.7%
Kwinana	3,426	2.7%	3,266	5.6%	6,692	3.6%	155	0.4%	125	1.7%	280	0.7%	3	0.3%	6,975	3.0%
Melville	5,722	4.5%	428	0.7%	6,150	3.3%	2,678	7.5%	345	4.8%	3,023	7.1%	92	9.6%	9,265	4.0%
Mundaring	969	0.8%	278	0.5%	1,247	0.7%	76	0.2%	77	1.1%	153	0.4%	6	0.6%	1,406	0.6%
Perth City	205	0.2%	20	0.0%	225	0.1%	461	1.3%	3	0.0%	464	1.1%	14	1.5%	703	0.3%
Rockingham	12,368	9.6%	8,342	14.3%	20,710	11.1%	952	2.7%	188	2.6%	1,140	2.7%	51	5.3%	21,901	9.5%
Serpentine Jarrahdale	1,087	0.8%	2,865	4.9%	3,952	2.1%	6	0.0%	19	0.3%	25	0.1%	0	0.0%	3,977	1.7%
South Perth Victoria Park	2,882	2.2%	434	0.7%	3,316	1.8%	2,967	8.3%	242	3.4%	3,209	7.5%	65	6.8%	6,590	2.9%
Stirling East	5,580	4.3%	619	1.1%	6,199	3.3%	6,437	18.1%	476	6.6%	6,913	16.1%	80	8.3%	13,192	5.7%
Stirling West	3,570	2.8%	889	1.5%	4,459	2.4%	3,851	10.8%	426	5.9%	4,277	10.0%	93	9.7%	8,829	3.8%
Swan	10,480	8.2%	8,226	14.1%	18,706	10.0%	1,242	3.5%	313	4.4%	1,555	3.6%	40	4.2%	20,301	8.8%
Vincent Stirling South East	2,326	1.8%	120	0.2%	2,446	1.3%	701	2.0%	83	1.2%	784	1.8%	54	5.6%	3,284	1.4%
Wanneroo North East	5,087	4.0%	3,538	6.1%	8,625	4.6%	607	1.7%	344	4.8%	951	2.2%	16	1.7%	9,592	4.2%
Wanneroo North West	7,578	5.9%	7,872	13.5%	15,450	8.3%	475	1.3%	204	2.8%	679	1.6%	7	0.7%	16,136	7.0%
Wanneroo South	4,065	3.2%	1,948	3.3%	6,013	3.2%	898	2.5%	202	2.8%	1,100	2.6%	7	0.7%	7,120	3.1%
Western Suburbs	6,256	4.9%	630	1.1%	6,886	3.7%	1,302	3.7%	77	1.1%	1,379	3.2%	74	7.7%	8,339	3.6%
Total	128,464	100%	58,453	100%	186,917	100%	35,655	100%	7,189	100%	42,844	100%	962	100%	230,723	100%

Source: Landgate WA

By reference to Table 1 it can be seen that there is significant range in volumes of transactions across the 25 REIWA subregions. Perth City, 0.3 per cent and Mundaring 0.6 per cent comprise the subregions with lowest levels of total transactions. Swan, 8.8 per cent, and Rockingham 9.5 per cent are the subregions with the greatest volumes of total transactions. More specific geographic characteristics of these subregions can be ascertained by reference to Figure 4 which presents the Perth subregions ranked according to volume of transactions over the sample period.

Figure 4 REIWA sub-regions and total number of sales

This map shows the total number of sales, by sub-region, for the 2009-2014 period

Source: Landgate WA

Importantly, these subregion definitions also indicate important variations in the composition of samples. As an example, the highest proportions of vacant land transactions also occur within the Swan and Rockingham regions, 13 per cent. A number of aspects of the composition of the Perth sample are described in greater detail below.

Perth metropolitan region: Dwellings

Dwellings include all improved housing stock, single residential and strata title. Table 2 provides important descriptive statistics for the Perth sample, dwelling stock. In this table, data is summarised according to single residential dwelling characteristics (price and building age) with similar statistics for strata title development. Median distance from the CBD is also reported. This data provides information on the important spatial characteristics related to the age and density of development within the Perth Metropolitan area.

Table 2 Perth sample dwellings - price, age, distance from CBD

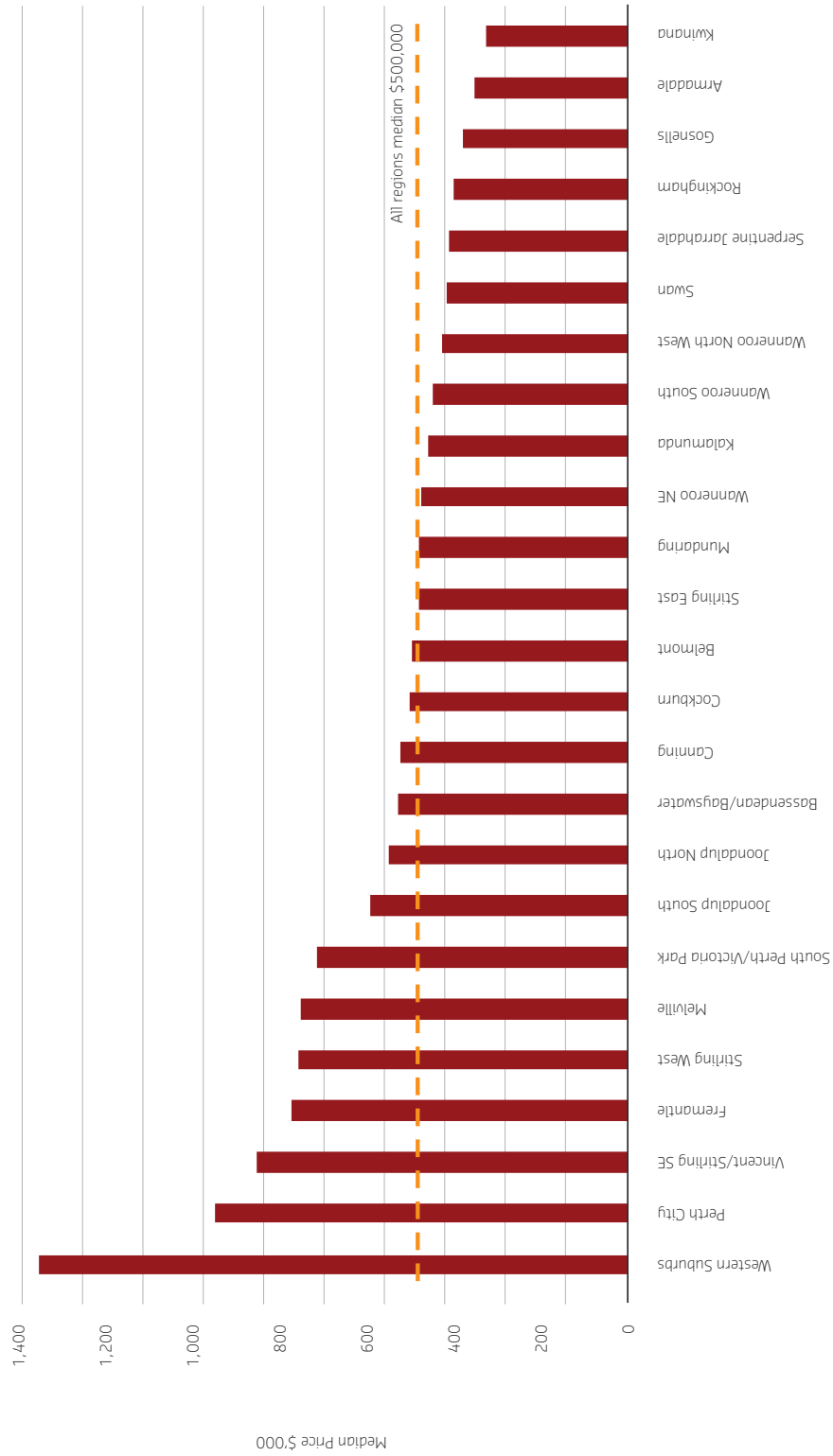
REIWA subregion	Single residential dwellings			Strata title dwellings			Distance to CBD
	Transactions	Median sale price	Age	Transactions	Median sale price	Age	Median
	number	\$'000	Years	number	\$'000	Years	km
Armadale	5,845	360	25	909	310	4	24
Bassendean/Bayswater	4,608	550	43	2,504	505	9	8
Belmont	2,732	499	45	1,318	490	7	8
Canning	7,529	555	25	2,764	440	10	12
Cockburn	7,867	510	16	1,489	425	7	20
Fremantle	1,880	800	56	987	743	14	14
Gosnells	8,363	390	29	1,081	329	13	17
Joondalup North	4,995	560	19	589	450	18	26
Joondalup South	8,746	595	31	769	513	21	18
Kalamunda	4,298	460	28	437	425	6	15
Kwinana	3,426	330	17	155	270	19	33
Melville	5,722	780	29	2,678	672	19	11
Mundaring	969	489	26	76	410	17	22
Perth City	205	855	87	461	980	10	2
Rockingham	12,368	403	15	952	365	9	43
Serpentine/Jarrahdale	1,087	410	5	6	275	35	32
South Perth/Victoria Park	2,882	840	55	2,967	620	16	5
Stirling East	5,580	560	41	6,437	435	6	9
Stirling West	3,570	870	40	3,851	635	11	11
Swan	10,480	425	16	1,242	360	9	19
Vincent/Stirling South East	2,326	890	71	701	725	16	4
Wanneroo North East	5,087	485	8	607	405	4	26
Wanneroo North West	7,578	430	10	475	373	4	36
Wanneroo South	4,065	465	18	898	386	13	14
Western Suburbs	6,256	1,435	53	1,302	939	20	7

Source: Landgate WA

Figure 5 displays a bar chart of median sale prices for the sample period 2009-14 for each subregion arranged in descending order according to price. This represents the aggregate of dwelling transactions (single residential and strata title).

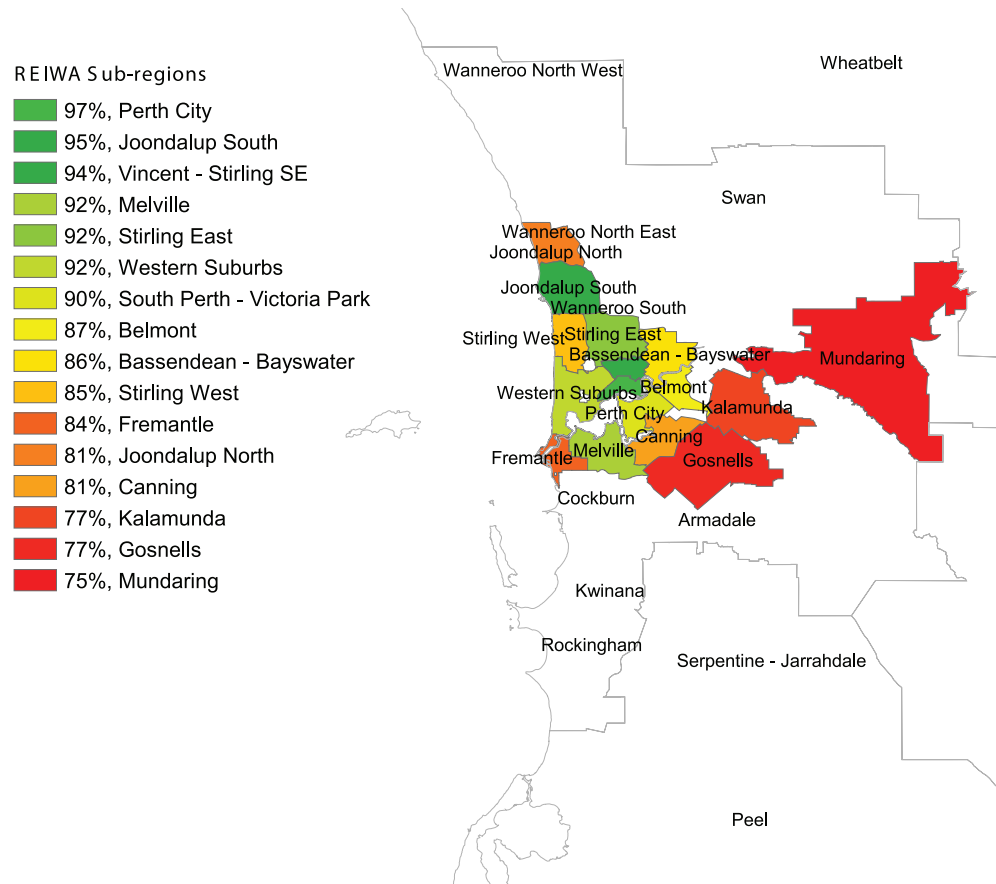
Figure 6 presents a map of the spatial pattern for Perth's most established subregions, those regions with the highest levels of dwellings as a proportion of total transactions. Those subregions with proportions of dwellings to total sales higher than 75 per cent are represented.

In these areas, there are only small proportions of vacant land transactions. Essentially, this chart represents "old Perth," predominantly the established suburbs with primarily single residential dwelling stock. Over time, these regions are being transformed through both built form strata title development, vacant land strata title subdivision and some urban infill development creating smaller vacant land estates.

Figure 5 Perth dwellings median prices 2009-14 – aggregate view

Source: Landgate WA

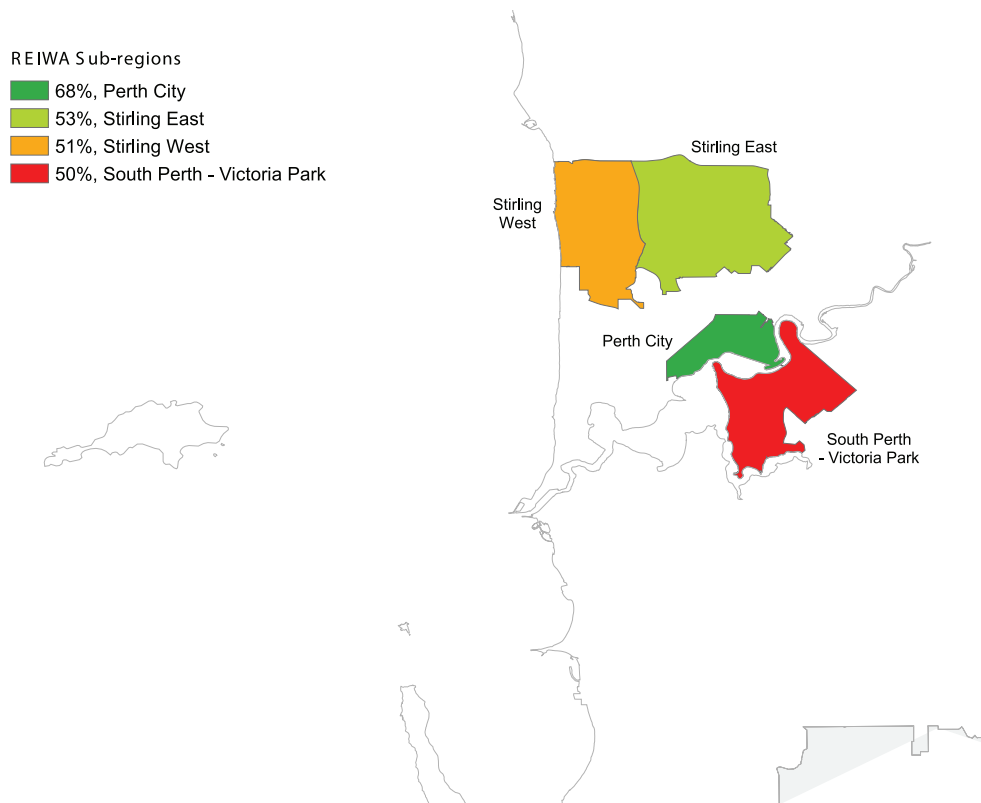
Figure 6 Perth sub-regions dwellings as a percentage of total sales



This map shows the percentage of dwellings to total sales

Source: Landgate WA

As an example, the Western Suburbs is the most expensive subregion. From Table 1 we can establish that of 8,339 total transactions, the majority of these, 6,256 are single residential dwellings, 1,302 strata dwellings and 74 other dwellings – total dwellings 7,632 or 92 per cent of the sample. There are also 707 transactions of vacant land, 77 of these are vacant strata title land. These strata developments are the result of small lot subdivision from older established dwellings. In addition there are 630 vacant land sales for single residential dwellings, most likely the result of small-scale infill subdivisions.

Figure 7 Perth sub-regions – strata title dwellings as a percentage of total dwellings

This map shows the percentage of strata dwellings to total dwellings

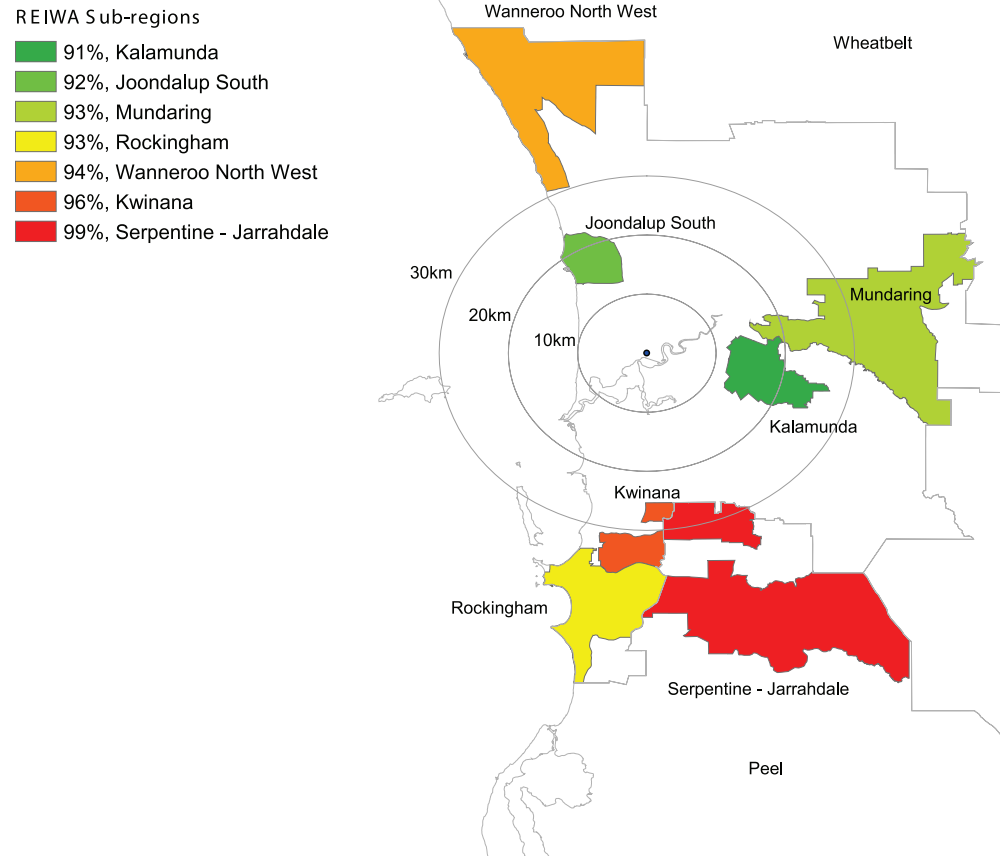
Source: Landgate WA

Table 2 also provides important detail concerning the characteristics and the location of strata title new-build in more densely populated established areas. Some aspects of this relationship are indicated in Figure 7.

In Figure 7, the four regions indicated: Perth city, South Perth-Victoria Park, Stirling West and Stirling East all have proportions of strata title development greater than 50 per cent of the total number of dwellings. From Table 2 note the important relationship that for some of these subregions there is also a wide range in the age of the building stock. The age for strata title dwellings in most cases is younger than the age of single residential dwellings. This suggests extensive new-build strata title development in these regions.

It is also evident that the median sale prices of strata title development for those regions represented in Figure 7 are generally not a lot lower than the median prices of single residential dwellings in these subregions - confirming market acceptance of the strata title development stock. As an example, from Table 2 consider the subregion Stirling East. The median age of single residential dwellings is 41 years whereas it is 6 years for strata title development. The median sale price of single residential dwellings is \$560,000 whereas for strata title dwellings it is \$435,000.

Figure 8 Perth sub-regions – single residential title dwellings as a percentage of total dwellings



This map shows subregions where single residential dwellings comprised more than 90% of total dwellings sold

Source: Landgate WA

Figure 8 provides detail for those subregions where single residential dwellings comprised more than 90 per cent of the total dwelling stock. These areas correspond with the less densely developed subregions in the Perth Metropolitan area. From Table 2 it is also apparent that there is no consistent relationship of the age of the housing stock in these regions.

For example, Joondalup South has an average age of 31 years, whereas Wanneroo North-West has an average age of only 10 years. A similar relationship exists in the southern part of the city. The regions of Mundaring and Kalamunda are low density older housing stock regions, whereas Rockingham, Kwinana and Serpentine-Jarrahdale tend to be newer housing stock in low-density regions.

Perth dwellings price characteristics - Affordability

In understanding the price characteristics of Perth dwellings by subregion it is useful to disaggregate the data to indicate the proportions of dwellings selling below the overall city-wide median sale price in specific subregions. Table 3 and Figure 9 provide useful insights to these characteristics.

Initially, Table 3 shows subregions sorted in order according to median price. The overall Perth median price for the 2009-2014 sample is \$500,000. Also indicated is the percentage of total dwelling transactions for that subregion as a component of total dwelling transactions in the Perth region. Also listed is the number of transactions below the median price for the subregion and the associated proportion of below median price transactions for that subregion sample.

To illustrate, the median price for Kwinana is \$327,750 with 3,584 total dwelling transactions - 2 per cent of total Perth dwelling transactions. Of these transactions, 3,498 are below the Perth median price of \$500,000, representing 98 per cent of the Kwinana subregion sample.

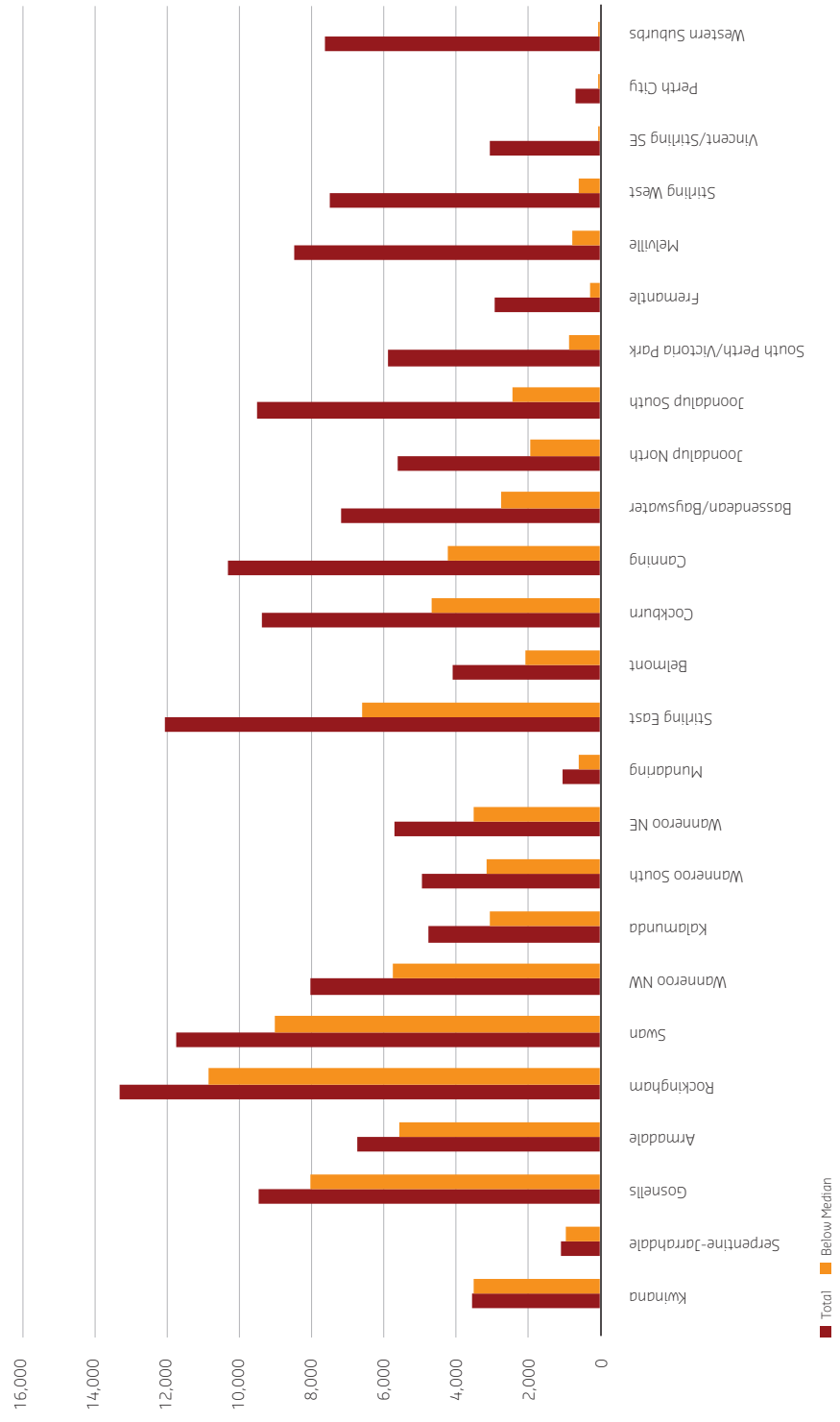
Note from Table 3 that there are 14 subregions within Perth with a median dwelling price either equal to or below the \$500,000 Perth median for the sample period 2009-14.

Table 3 Sub-regions with median price at or below the 2009-2014 overall median

REIWA subregion	Total dwellings		Median sale price	Below median sale price	
	number	% of Total	\$'000	number	% of Region
Kwinana	3,584	2%	327,750	3,498	98%
Armadale	6,772	4%	350,000	5,589	83%
Gosnells	9,471	6%	380,000	8,044	85%
Rockingham	13,371	8%	400,000	10,866	81%
Serpentine Jarrahdale	1,093	1%	410,000	960	88%
Swan	11,762	7%	415,000	9,060	77%
Wanneroo North West	8,060	5%	427,500	5,756	71%
Wanneroo South	4,970	3%	450,000	3,151	63%
Kalamunda	4,761	3%	457,000	3,070	64%
Wanneroo North East	5,710	3%	475,000	3,501	61%
Mundaring	1,051	1%	478,000	585	56%
Stirling East	12,097	7%	480,000	6,617	55%
Belmont	4,085	2%	495,000	2,087	51%
Cockburn	9,380	6%	500,000	4,685	50%
Canning	10,347	6%	525,000	4,250	41%
Bassendean Bayswater	7,180	4%	530,000	2,753	38%
Joondalup North	5,608	3%	547,000	1,960	35%
Joondalup South	9,549	6%	590,000	2,447	26%
South Perth Victoria Park	5,914	4%	715,000	861	15%
Melville	8,492	5%	750,000	770	9%
Stirling West	7,514	5%	755,000	599	8%
Fremantle	2,917	2%	775,000	300	10%
Vincent Stirling South East	3,081	2%	850,000	76	2%
Perth City	680	0%	950,000	15	2%
Western Suburbs	7,632	5%	1,350,000	55	1%
Total	165,081	100%		81,555	

Source: Landgate WA

Figure 9 Perth dwellings affordability perspective – 2009-14 disaggregated median price below \$500k



Source: Landgate WA

In Figure 9, subregions are represented alphabetically to show proportions of transactions below the median sale price of \$500,000 applying to the 2009-14 sample period.

It can be seen that Kwinana and Serpentine-Jarrahdale have the highest proportions of cheaper homes by total sample. However, the greatest volumes of cheaper housing are represented by Gosnells, Rockingham and Swan subregions.

By reference to all subregions it is evident that even for the most expensive (Melville, Perth city, Western suburbs) there are still small proportions of cheaper transactions below the median price level of the full sample.

Perth metropolitan region: Vacant land

Within the vacant land sample there are two general types of observation; (i) single residential vacant land and (ii) survey strata vacant land. Both samples are limited to a minimum land area of 200 m² and a maximum of 2000 m². The central tendency measures of the two samples are broadly comparable however single residential transactions have a larger land area whereas strata title observations have slightly higher prices and a higher land rate \$/sqm due to the overall smaller land area.

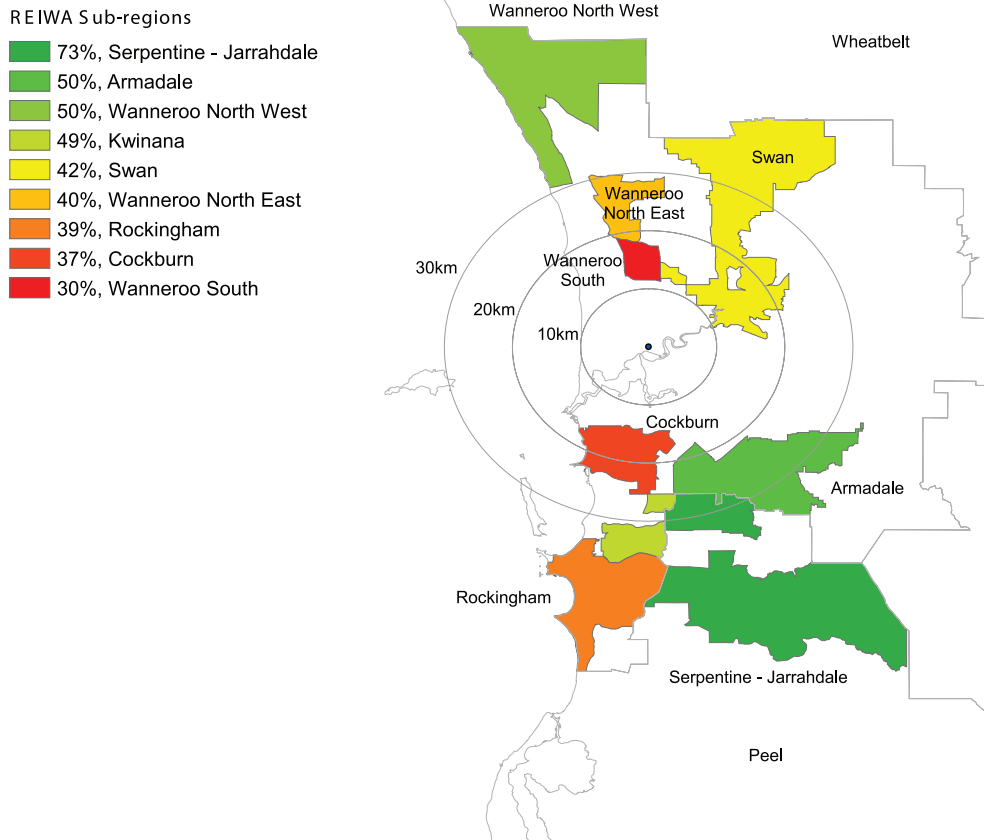
There are significant location differences between the two samples – survey strata more inner-city and established residential areas – single residential more outer suburban new construction regions. In summary, these two sets of vacant land observations comprise distinct sales samples – warranting further analysis according to this distinction based on title system.

Table 4 provides a detailed description of vacant land transactions in all Perth subregions. Figure 10 provides geographic detail for those subregions with the highest proportions of vacant land transactions. As can be seen, these areas exist predominately towards the outer areas of the Metropolitan region.

Table 4 Perth sample vacant land - price, area, distance from CBD

REIWA subregion	Single residential vacant land			Strata title vacant land			Distance to CBD
	Transactions	Median sale price	Area	Transactions	Median sale price	Area	Median
	number	\$'000	m ²	number	\$'000	m ²	km
Armadale	6,107	240	450	550	310	155	21
Bassendean/Bayswater	494	350	424	669	505	280	8
Belmont	285	349	404	301	490	316	7
Canning	1,741	260	455	721	440	244	15
Cockburn	4,762	300	488	687	425	239	21
Fremantle	337	395	359	219	743	325	15
Gosnells	2,440	249	503	422	329	203	19
Joondalup North	1,205	455	560	140	450	255	29
Joondalup South	430	469	476	120	513	405	19
Kalamunda	1,177	245	500	236	425	185	14
Kwinana	3,266	195	445	125	270	145	34
Melville	428	636	507	345	672	500	10
Mundaring	278	275	598	77	410	230	17
Perth City	20	688	466	3	980	400	2
Rockingham	8,342	191	505	188	365	230	44
Serpentine/Jarrahdale	2,865	175	481	19	275	135	32
South Perth/Victoria Park	434	568	500	242	620	380	6
Stirling East	619	458	450	476	435	305	7
Stirling West	889	545	453	426	635	400	11
Swan	8,226	235	450	313	360	197	23
Vincent/Stirling South East	120	533	341	83	725	404	3
Wanneroo North East	3,538	230	462	344	405	200	28
Wanneroo North West	7,872	215	405	204	373	180	40
Wanneroo South	1,948	299	482	202	386	217	16
Western Suburbs	630	850	437	77	939	695	8

Source: Landgate WA

Figure 10 Perth sub-regions – vacant land as a percentage of total sales

This map shows those subregions with the highest proportions of vacant land transactions

Source: Landgate WA

The subregions indicated in Figure 10 all have proportions of vacant land sales greater than 30 per cent of total transactions and also comprise significant proportions of new housing as a proportion of total dwelling stock, indicating rapidly developing new areas.

From Table 4, it is important to note that sales of vacant land occur in all subregions, including those with mostly established housing. A clear trend is that in older established areas there are lower volumes of sales of single residential vacant land and there tends to be higher proportions of survey strata title land indicating subdivision of larger size lots associated with older established housing types that are being redeveloped.

As an example, from Table 4 note the subregion of Bassendean-Bayswater. In this subregion there are 494 single residential land sales with a median lot size of 424 m² and a median sale price of \$350,000. There are 669 sales of survey strata title land with a median lot size of just 280 m² and a much higher median sale price of \$505,000, reflecting the potential revenue that can be generated from the development of such land.

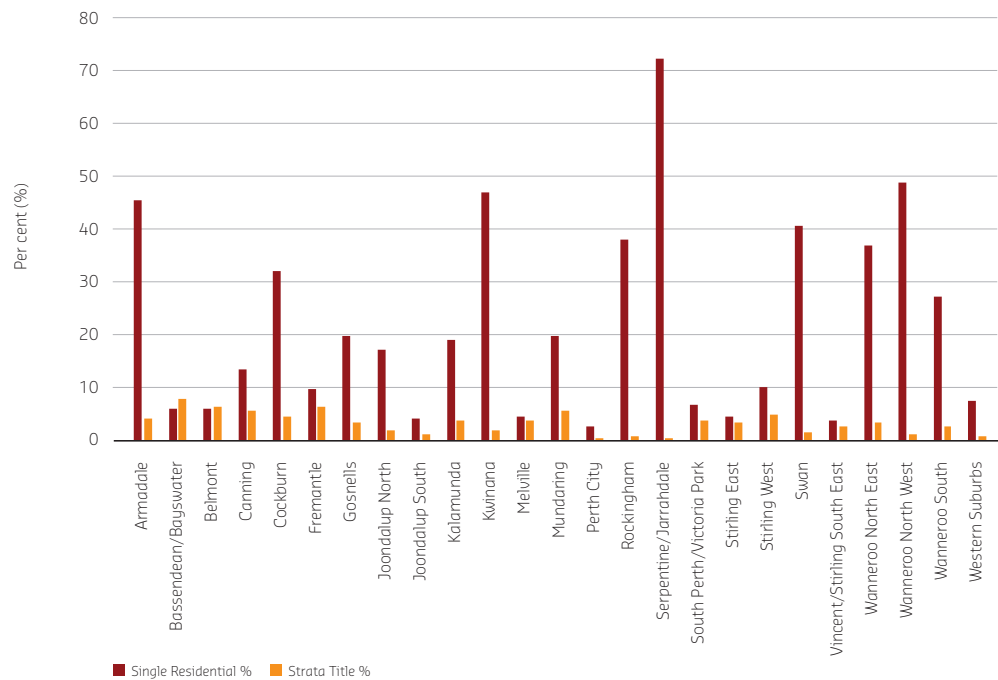
Some of this detail is presented in Figure 11. Here the relevant proportions of vacant land to total transactions are summarised according to title type.

Note in the majority of high-volume vacant land regions such as Armadale, Cockburn, Kwinana, Serpentine-Jarrahdale, Swan and Wanneroo, single residential sales significantly exceed strata title sales.

However, in older established areas – notably Bassendean-Bayswater, Belmont, Fremantle, Melville, South Perth-Victoria Park, Stirling West, Stirling East, the proportions of survey strata title vacant land transactions compared to single residential vacant land transactions tends to be higher - suggesting that many new development areas tend to be predominantly single residential type development (house and land packages). In these areas there appears to be little scope for more dense development schemes given current patterns.

In areas where local authorities have introduced specific planning policy to promote infill development (Belmont, Bassendean-Bayswater) there appears to be greater variation in development.

Figure 11 Vacant land sales – Perth sub-regions



Source: Landgate WA

Table 5 provides further detail of vacant land transactions classified according to sale \$ per square metre land rate (\$sqm). These Tables are arranged so that subregions are sorted in descending order according to the relevant land rate.

Table 5 Perth sample single residential vacant land – price, area, rate \$sqm, distance from CBD

REIWA subregion	Single residential vacant land			
	Transactions	Median area	Rate	Distance to CBD
	number	m ²	\$'000/m ²	km
Western Suburbs	630	437	2,034	8
Perth City	20	466	1,805	2
Vincent/Stirling South East	120	341	1,585	3
Stirling West	889	453	1,266	11
Melville	428	507	1,263	10
South Perth/Victoria Park	434	500	1,172	6
Fremantle	337	359	1,153	15
Stirling East	619	450	1,008	7
Joondalup South	430	476	985	19
Joondalup North	1,205	560	844	29
Belmont	285	404	837	7
Bassendean/Bayswater	494	424	809	8
Cockburn	4,762	488	628	21
Wanneroo South	1,948	482	616	16
Canning	1,741	455	593	15
Wanneroo North West	7,872	405	542	40
Armadale	6,107	450	540	21
Swan	8,226	450	534	23
Gosnells	2,440	503	526	19
Wanneroo North East	3,538	462	506	28
Mundaring	278	598	503	17
Kalamunda	1,177	500	491	14
Kwinana	3,266	445	483	34
Rockingham	8,342	505	394	44
Serpentine/Jarrahdale	2,865	481	365	32
Weighted average (sum)	1	464	576	

Source: Landgate WA

It is apparent that the highest land rates apply to those inner-city established areas with higher proportions of strata title development. This is an important relationship indicating the higher value of land associated with potential for more dense forms of development.

It is also important to note that the majority of land sales at the cheaper unit rates occurred in the outer regions as previously indicated in Figure 13. These are mostly new development regions associated with predominately single residential, house and land package forms of development.

Table 6 Perth sample survey strata title vacant land – price, area, rate \$sqm, distance from CBD

REIWA subregion	Strata title vacant land			
	Transactions	Median area	Rate	Distance to CBD
	number	m ²	\$'000/m ²	km
Western Suburbs	77	695	1,905	8
Vincent/Stirling South East	83	404	1,370	3
Stirling West	426	400	1,292	11
Perth City	3	400	1,216	2
Melville	345	500	1,201	10
Joondalup North	140	255	1,154	29
South Perth/Victoria Park	242	380	1,069	6
Stirling East	476	305	971	7
Joondalup South	120	405	965	19
Fremantle	219	325	956	15
Belmont	301	316	926	7
Cockburn	687	239	896	21
Wanneroo South	202	217	881	16
Canning	721	244	847	15
Mundaring	77	230	824	17
Bassendean/Bayswater	669	280	809	8
Rockingham	188	230	756	44
Swan	313	197	735	23
Wanneroo North East	344	200	734	28
Gosnells	422	203	726	19
Wanneroo North West	204	180	712	40
Armadale	550	155	655	21
Kwinana	125	145	615	34
Kalamunda	236	185	576	14
Serpentine/Jarrahdale	19	135	312	32
Weighted average (sum)	1	272	887	

Source: Landgate WA

After calculating weighted averages (weighted by subregion N), it is evident that the \$sqm rate for survey strata title land is \$887 across the Perth Metropolitan region, significantly higher than \$576 for single residential land.

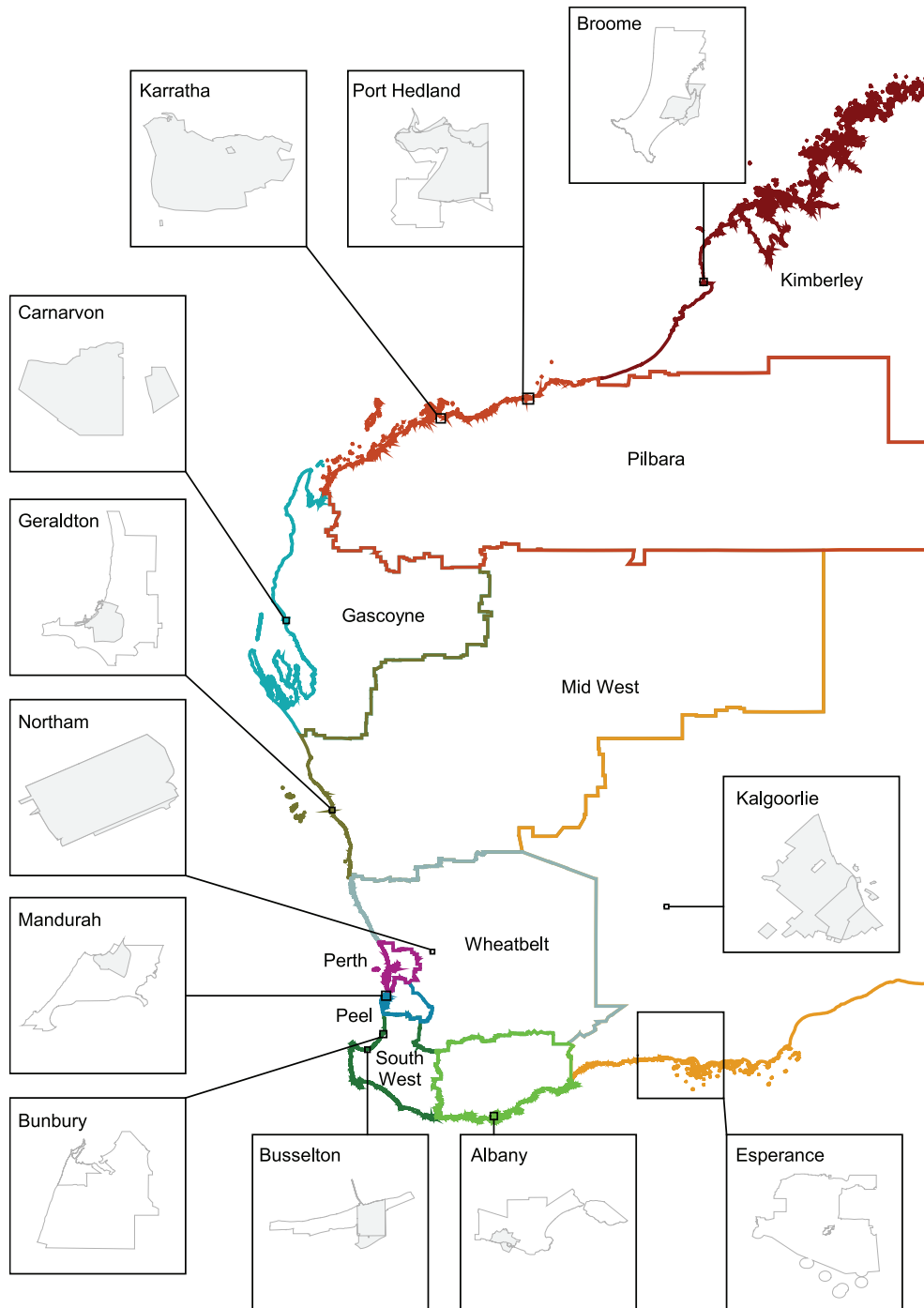
It is also important to note that the majority of land sales at the cheaper unit rates occurred in the outer regions as indicated in Figure 10.

In summary, strata title land is more expensive, closer to the city centre and smaller in lot size than single residential land.

This finding has some important policy implications. First, required land for infill development is expensive, requiring higher revenues from potential development to cover land costs. In turn, this makes dense forms of infill development less affordable for lower income groups.

Regional WA

Figure 12 WA regional centres



Source: Landgate WA

Regional WA – Sample analysis

Within this section of the report we complete a similar transaction analysis focused upon Western Australia's major regional centres. The geography of these major regional centres is indicated in Figure 12. This geography corresponds with the classification of Western Australia's major statistical divisions.

It should be noted that Mandurah, located within the statistical division of Peel is in effect a southern extension of the Perth Metropolitan region, being part of the "Greater Perth" statistical division and as a result displays a pattern of transactions similar to many Perth Metropolitan area subregions.

A number of the Southern regional centres are within significant population regions - important urban centres servicing distinctive regional economies focused on agricultural production and transport infrastructure. Albany, Geraldton, Bunbury, Busselton, Northam and Esperance all fall within this category.

The majority of other regional centres are either central agricultural towns or population centres servicing mining regions. Kalgoorlie-Boulder, Karratha and Port Hedland fall within these categories. Broome offers transport infrastructure and significant tourism resources. Carnarvon is the smallest regional centre based upon some transport infrastructure and agricultural and pastoral activities.

For these reasons there exists a significant diversity within the regional centres. It is important when analysing results to consider the characteristics of individual regional centres. There are a number of aspects of transaction activity that have distinctive regional characteristics – strata title development and vacant land sales in particular. There are some regional centres such as Northam and Carnarvon where there has been virtually no strata title development in the sample period, and others where there has been very significant strata title development.

Within regional WA, Table 7 confirms the greatest number of transactions occurring within the regional centre of Mandurah - 34 per cent of total regional centre transactions. The lowest number of transactions occurred in Carnarvon, 0.7 per cent. After Mandurah, the greatest numbers of total transactions occurred in Busselton, Geraldton, Kalgoorlie-Boulder, Bunbury and Albany. There are further significant variations according to composition of the regional centre sample evident by reference to Table 7.

Table 7 Regional centre sample transactions

Regional centre	Single residential			Strata title			Other	Total sales
	Dwellings	Vacant land	Total	Dwellings	Vacant land	Total		
Albany	2,255	887	3,142	176	98	274	19	3,435
Broome	658	632	1,290	102	10	112	12	1,414
Bunbury	2,469	324	2,793	465	173	638	9	3,440
Busselton	2,931	2,230	5,161	315	254	569	21	5,751
Carnarvon	259	45	304	12	0	12	7	323
Esperance	716	325	1,041	60	11	71	16	1,128
Geraldton	2,544	1,738	4,282	363	51	414	41	4,737
Kalgoorlie Boulder	2,512	209	2,721	789	86	875	22	3,618
Karratha	1,139	742	1,881	405	4	409	0	2,290
Mandurah	8,042	4,951	12,993	1,448	516	1,964	31	14,988
Northam	705	186	891	11	3	14	6	911
Port Hedland	1,057	360	1,417	188	29	217	7	1,641
Total	25,287	12,629	37,916	4,334	1,235	5,569	191	43,676

Source: Landgate WA

These regional centres operate independently as large and significant housing markets within Western Australia's economy. In many of the larger regional centres the pattern of transactions over the sample period is similar to Perth in general characteristics with respect to single residential, strata title and proportion of vacant land transactions.

By reference to Table 1, it is evident that if Mandurah was considered as part of the Perth Metropolitan region it would rank 4th in volume of transactions for all dwellings and 5th in volume of transactions for vacant land.

Similarly, Busselton, Geraldton, Kalgoorlie-Boulder, Bunbury and Albany would all rank as significant subregions if included in the Perth sample. However, there are also important distinctions between specific regional centres.

The highest proportion of strata development within regional centres exists in Kalgoorlie-Boulder, 24 per cent of the total sample. This contrasts with some other regional centres with very low proportions of total strata title transactions, for example, Northam, 2 per cent and Carnarvon, 4 per cent.

In terms of vacant land transactions, there is also significant variation. Broome and Busselton have the highest proportions of vacant land transactions, 45 per cent and 43 per cent respectively. On the other hand, Kalgoorlie-Boulder and Carnarvon have very few vacant land transactions 8 per cent and 9 per cent respectively. This result contrasts with total strata title transactions in Kalgoorlie-Boulder indicating that the majority of new development in this subregion is being created in built form as opposed to vacant land.

These geographical regions are important components of our analysis and will be included as reference points for further analysis of the sample according to price, property characteristics and household income criteria.

Table 8 provides relevant detail concerning sales of dwellings in regional centres. By comparison to the Perth Metropolitan sample (Table 2) it can be ascertained that the regional volume weighted median sale price¹ in regional centres for single residential dwellings is about \$408,000 compared to a similar calculation of \$563,000 applying for the Perth Metropolitan region – a 38 per cent difference.

Table 8 Regional centres sample dwellings price and age

Regional centre	Single residential dwellings			Strata title dwellings		
	Transactions	Median sale price	Age	Transactions	Median sale price	Age
	Number	\$'000	Years	Number	\$'000	Years
Albany	2,255	365	26	176	350	4
Broome	658	661	12	102	560	9
Bunbury	2,469	340	33	465	330	7
Busselton	2,931	467	14	315	407	6
Carnarvon	259	300	42	12	280	27
Esperance	716	370	27	60	355	15
Geraldton	2,544	375	28	363	338	15
Kalgoorlie-Boulder	2,512	350	37	789	320	15
Karratha	1,139	765	32	405	614	26
Mandurah	8,042	400	15	1,448	367	6
Northam	705	248	57	11	350	15
Port Hedland	1,057	775	34	188	750	13

Source: Landgate WA

¹ Median price for region weighted according to number of transactions in centre as a proportion of all regional centre transactions.

Similarly, for strata title development the volume weighted median sale price in regional centres is about \$376,000 compared to Perth sample \$524,000 – a 39 per cent difference. This general observation confirms significantly cheaper dwelling opportunities within regional centres. In addition, generally these dwellings are also more recent constructions.

It is also important to note the significant regional characteristics. The sample period of 2009-14 includes much of the resource boom activity. Note the high dwelling prices applicable to Northern regional centres – Broome, Karratha and Port Hedland.

Although sample sizes in these regions are small, it is evident that prices are significantly higher in these regional centres. As an example, Port Hedland reports a median dwelling price of \$775,000 for the period – well in excess of the majority of Perth Metropolitan area subregions.

On the other hand, a number of the Southern regional centres report median sale prices for dwellings either lower than or very comparable to the cheapest Perth Metropolitan area subregions.

The cheapest regional centre for single residential dwellings is Northam – \$248,000. Bunbury, Kalgoorlie-Boulder, Albany and Geraldton all represent regional centres with significant volumes of transactions where the median sale price for single residential dwellings is below \$400,000 for the sample period.

Mandurah with the highest volumes of transactions has a median single residential dwelling price of \$400,000 for the sample period – significantly below that reported for the majority of Perth Metropolitan area subregions.

In summary, this analysis confirms better housing affordability opportunities within the regional centres as compared to the Perth Metropolitan area assuming that there are not major income discrepancies applicable to residents of regional centres.

Regional WA - New land supply

Table 9 and Figure 13 provide further detail concerning sales of vacant land in regional centres.

Table 9 Regional centres vacant land – price, area and rate \$sqm

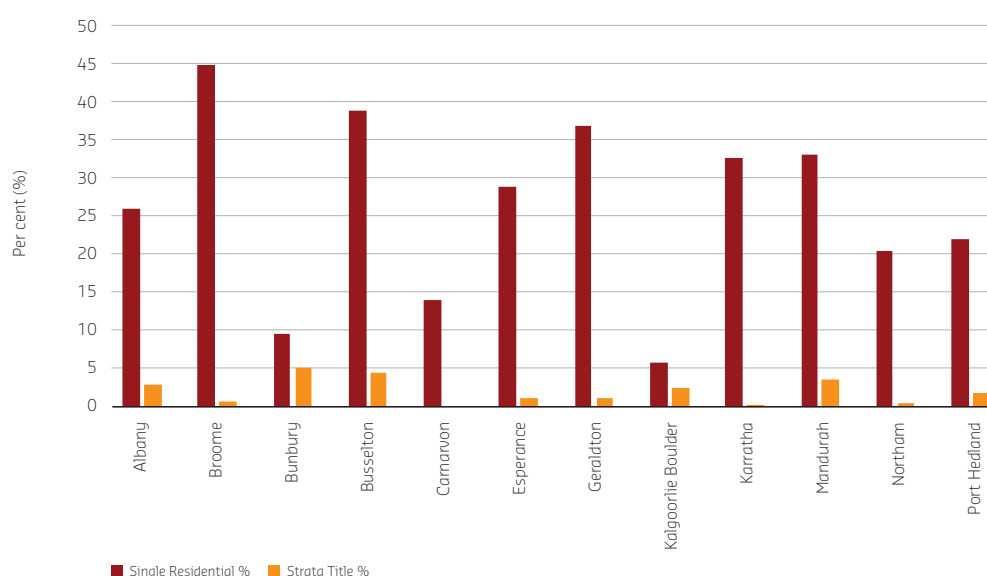
Regional centre	Single residential vacant land				Strata title vacant land			
	Transactions	Median sale price	Area	Rate	Transactions	Median sale price	Area	Rate
	Number	\$'000	m ²	\$'000/m ²	Number	\$'000	m ²	\$'000/m ²
Albany	887	148	671	221	98	140	407	343
Broome	632	255	681	357	10	225	446	547
Bunbury	324	200	580	345	173	146	327	426
Busselton	2,230	180	577	323	254	208	370	593
Carnarvon	45	140	793	209	-	-	-	-
Esperance	325	153	801	190	11	210	525	463
Geraldton	1,738	145	698	217	51	140	387	384
Kalgoorlie-Boulder	209	185	812	227	86	89	435	251
Karratha	742	215	742	394	4	198	498	436
Mandurah	4,951	180	553	361	516	130	316	404
Northam	186	85	773	113	3	65	413	143
Port Hedland	360	775	34	544	29	475	322	1,242

Source: Landgate WA

By comparison to the Perth Metropolitan sample (Table 5) it can be ascertained that the volume of vacant land transactions that have occurred during the sample period for Perth and the regional centres (Table 5) is broadly comparable.

For Perth, approximately 25 per cent of all transactions are represented by vacant single residential land. In regional centres, the proportion is slightly higher at 29 per cent. In both Perth and regional centres the proportion of vacant strata title sales is low, approximately 3 per cent. From Figure 13, it is important to note that samples of vacant land transactions vary considerably between regional centres.

Figure 13 Vacant land sales – regional centres



Source: Landgate WA

Mandurah in particular has a significant volume of vacant land transactions. An important difference exists with respect to proportions of survey strata title vacant land development. In contrast to Perth, there are no areas where the proportion of survey strata title vacant land development approximates single residential.

The highest proportions of survey strata title land development exist in Bunbury and Busselton and to a lesser extent Albany and Mandurah. In all other regional centres the levels of survey strata title land development are low.

The transaction volume weighted median sale price in regional centres for single residential vacant land is about \$316 sqm compared to a similar calculation of \$576 sqm applying for the Perth Metropolitan region – a -45 per cent difference between Perth and regional centres.

The small sample and significant variation in sample characteristics for regional centres makes any similar comparison for vacant survey strata title land between Perth and regional centres impractical. Again, this significantly cheaper vacant land rate confirms cheaper housing opportunities in some regional centres, particularly with respect to new building activity.

Analysis by income groups

In this section income is introduced into the analysis on affordability. A commonly used measure of affordability is the price-to-income ratio of a dwelling, a subset being the 'median multiple'. In this indicator, the price of the dwelling, or a collective measure for a suburb or geographic region, is expressed as a ratio of the income (typically expressed as annual income) of the region. As such the price-income ratio measures the number of years of income required to purchase the dwelling outright (no mortgage).

Since not all dwellings are purchased outright the indicator should not be interpreted literally in this manner. It is useful, however, in relative comparisons between affordability of dwellings in different geographic regions. A price-income ratio that is higher for one suburb than another indicates that the former suburb is less affordable than the latter.

For the analysis conducted in this report, income at the suburban level is obtained from the Australian Census (2011). The income data are weekly total household income, which has been converted to annual income and inflated to 2014 prices using average weekly earnings. By converting the data to 2014 equivalent incomes we are able to analyse calendar year 2014, the most recent year of transactions in the sample.

Total household income data is only available at individual suburb level. In order to convert data to appropriate Perth REIWA subregion or WA regional centre format a weighting process has been used in calculating price-income ratios.

The numbers of transactions within each suburb for an individual subregion are recorded and form the basis of the weighting procedure. The median dwelling price and household income data for each individual suburb within a specific subregion are then both similarly weighted and the relevant price-income ratio for the subregion is determined.

Perth sample

Table 10 displays the price-income ratios for 25 REIWA sub-regions within Perth for the year 2014. This table reports results for single residential transactions only. The table has been compiled from data recorded for the individual suburbs allocated within the specific REIWA subregions.

From the individual subregions, Rockingham registered the highest number of transactions in 2014 with 2,358, followed by Gosnells. At the other end, Perth City only had 32 transactions for single residential housing, not surprising as the CBD and surrounding areas are sparsely represented with respect to single residential housing. This is followed by Mundaring with 176 transactions.

On an unweighted basis for individual suburbs, the highest median prices were recorded in the Western Suburbs subregion, Peppermint Grove (\$3.7 million), Dalkeith (\$2.45 million) and Cottesloe (\$1.98 million). The lowest median prices were recorded in 2014 for Medina (\$290,000) in the Kwinana subregion, Hillman (\$320,000) in Rockingham, and Camillo (\$325,000) in Armadale.

Turning to household income - the denominator of the price-income ratio indicator - on a 2014 basis, Dalkeith (Western suburbs) was the suburb with the highest median household income of \$161,000 per year, followed by North Coogee (Cockburn) with \$158,500 and Peppermint Grove with \$153,500 (Western suburbs). At the lower end of the scale, Calista (Kwinana) was the suburb with the lowest median income at \$42,000, followed by Bentley (Canning) at \$44,500 and Midvale (Swan) at \$47,000.

Table 10 Price-income ratio for Perth single residential sales, 2014

Sub region	Total transactions	Weighted median price	Weighted HH income	Weighted P-I ratio
Armadale	1,200	423,249	82,855	5.11
Bassendean/Bayswater	757	642,469	74,757	8.59
Belmont	439	618,998	75,007	8.25
Canning	728	681,346	81,941	8.32
Cockburn	1,379	599,015	95,162	6.29
Fremantle	306	951,747	83,159	11.44
Gosnells	1,849	496,117	85,528	5.80
Joondalup North	822	646,088	109,518	5.90
Joondalup South	1,491	703,985	103,712	6.79
Kalamunda	788	515,246	86,390	5.96
Kwinana	690	363,602	74,288	4.89
Melville	972	960,773	98,035	9.80
Mundaring	176	539,105	97,327	5.54
Perth City	32	1,135,781	105,146	10.80
Rockingham	2,358	431,261	88,954	4.85
Serpentine-Jarrahdale	250	441,716	95,342	4.63
South Perth/Victoria Park	501	978,055	95,374	10.25
Stirling East	959	670,432	71,858	9.33
Stirling West	608	983,340	102,852	9.56
Swan	1,790	479,015	88,586	5.41
Vincent/Stirling SE	369	1,023,295	102,494	9.98
Wanneroo North East	889	507,483	95,463	5.32
Wanneroo North West	1,357	486,468	88,171	5.52
Wanneroo South	722	530,769	87,085	6.09
Western Suburbs	1,104	1,630,005	124,087	13.14

Source: Landgate WA and ABS Census 2011

This analysis confirms some important features of the Perth housing market with respect to variations in affordability. On an overall citywide basis, the price-income ratio for Perth is approximately 7.

Further detailed analysis of Table 10 confirms that there are a number of subregions where the price-income ratio is lower than the citywide measure. In fact there are 14 subregions with relevant price-income ratios lower than the citywide measure of 7.0 reported in 2014.

There are three subregions where the ratio is lower than 5.0, Serpentine-Jarrahdale, Rockingham and Kwinana. Even the subregion of Joondalup South with a weighted median house price of approximately \$704,000 reports a price income ratio below the overall Perth citywide measure.

At the other end of the scale, there are very expensive subregions. The Western suburbs price-income ratio is 13.14, and four other subregions have price-income ratios approximating 10.0 or higher.

It should be remembered that these expensive areas are not so relevant to the housing affordability debate. Homebuyers seeking affordability tend to focus their attention on those suburbs/subregions with a broad range of affordability options. Table 10 identifies a number of subregions across the Perth metropolitan region with affordable single residential housing options.

This is one of the features and advantages of using micro level data. The greater potential for disaggregation enables a more detailed analysis of housing market characteristics and affordability.

In subsequent sections of this report more detail regarding affordability characteristics will be revealed through the analysis of new-build housing disaggregated at individual suburb level in association with household income characteristics.

Table 11 Price-income ratio for Perth strata sales, 2014

Sub region	Total transactions	Weighted median price	Weighted HH income	Weighted P-I ratio
Armadale	177	335,458	67,318	4.98
Bassendean/Bayswater	418	558,342	74,254	7.52
Belmont	192	537,432	71,772	7.49
Canning	415	534,467	71,400	7.49
Cockburn	254	503,825	85,891	5.87
Fremantle	192	826,120	84,035	9.83
Gosnells	210	406,557	79,434	5.12
Joondalup North	95	495,542	100,681	4.92
Joondalup South	112	595,839	106,270	5.61
Kalamunda	78	464,064	78,873	5.88
Kwinana				
Melville	471	775,961	96,063	8.08
Mundaring				
Perth City	68	1,037,551	105,390	9.84
Rockingham	192	403,534	69,799	5.78
Serpentine-Jarrahdale				
South Perth/Victoria Park	482	728,083	88,312	8.24
Stirling East	1,132	498,341	65,647	7.59
Stirling West	639	704,843	92,482	7.62
Swan	184	389,778	74,786	5.21
Vincent/Stirling SE	92	817,554	100,383	8.14
Wanneroo North East	96	440,865	98,198	4.49
Wanneroo North West	52	429,827	95,444	4.50
Wanneroo South	122	437,217	88,925	4.92
Western Suburbs	209	1,038,144	110,848	9.37

Source: Landgate WA and ABS Census 2011

Table 11 displays the price-income ratios for strata title property for 22 REIWA sub-regions within Perth for the year 2014. This analysis has been reduced from 25 subregions used for single residential transactions on the basis of insufficient sample size for strata title transactions for the subregions of Kwinana, Mundaring and Serpentine-Jarrahdale.

From the other subregions, Stirling- East registered the highest number of transactions, 1,132 followed by Stirling West with 639. At the lower end, Kalamunda has only 78 transactions and Perth City has 68 transactions.

On an unweighted basis for individual suburbs, the highest median prices were recorded in the Western Suburbs subregion, Crawley (\$2.0125 million), and Cottesloe (\$1.31 million). The suburb of Rossmoyne (Canning) also reported a median sale price of \$1.31 million.

The lowest strata title median prices were recorded in 2014 for Warnbro (\$304,500) in Rockingham subregion, Armadale (\$320,000), and Girrawheen (\$324,750) in the Wanneroo South subregion. The details for household income correspond with the previous analysis of single residential housing.

Again, this analysis confirms some important features of the Perth housing market with respect to variations in affordability. On an overall citywide basis, the price-income ratio for strata title dwellings in Perth is approximately 7.2, slightly higher than that for single residential dwellings.

Further detailed analysis of Table 11 confirms that there are eleven subregions where the price-income ratio is lower than the citywide measure. There are five subregions where the ratio is lower than 5.0, Wanneroo north-east, Wanneroo Northwest, Wanneroo South, Joondalup North and Armadale.

It is important to note that all the lowest price-income ratio subregions for strata title property are different than the corresponding subregions previously listed in Table 10 for single residential property - again confirming the different range of affordable housing options in different locations according to title type. These important characteristics are revealed by the disaggregation system used in analysing transactions.

Similarly, there are some very expensive subregions for strata title dwellings. The most expensive areas according to price-income ratios are Perth city, Fremantle, the Western suburbs, South Perth/Victoria Park and Vincent/Stirling. On a price-income ratio basis these subregions are in general cheaper than the corresponding single residential title analysis.

Regional centres sample

Table 12 and Table 13 provide similar price-income ratio details for regional centres in Western Australia during calendar year 2014. For single residential transactions (Table 12), it is evident that the weighted average overall price-income ratio for regional centres is approximately 5, significantly lower than for the Perth region - approximately 7.

Table 12 Price-income ratio for WA regional urban area single residential sales, 2014

WA regional urban area	Total transactions	Weighted median price	Weighted HH income	Weighted P-I ratio
Albany Urban Area	390	382,987	59,651	6.42
Broome Urban Area	100	611,125	95,833	6.38
Bunbury Greater	426	375,391	69,441	5.41
Busselton Urban Area	442	469,172	61,336	7.65
Carnarvon Urban Area	34	325,882	65,782	4.95
Esperance Urban Area	112	357,402	66,811	5.35
Geraldton/Greenough	408	362,348	77,530	4.67
Kalgoorlie/Boulder	276	352,373	118,885	2.96
Karratha Urban Area	2,271	515,682	160,709	3.21
Mandurah/Murray	1,682	426,519	65,998	6.46
Northam	105	260,000	56,831	4.57
Port Hedland	94	771,809	159,677	4.83

Source: Landgate WA and ABS Census 2011

The lowest price-income ratio region within the state is Kalgoorlie-Boulder with a price-income ratio of 2.96. It should be noted that this low ratio is more the result of the high household income number (\$118,885) rather than the median house price of \$352,373. Similarly, both Karratha and Port Hedland confirm lower price-income ratios based largely on a very high household income levels. This is a common trend within the regional centres with mining activities the main source of the economic base.

A number of other regional centres; Northam, Geraldton-Greenough, and Carnarvon have price-income ratios less than 5.0. In these cases the low ratio is largely explained by lower house prices.

The details for strata title sales in regional centres are displayed in Table 13. Due to sample size restrictions, only six regional centres have been included in this analysis. As previously discussed, a number of regional centres are under-represented with respect to strata title dwellings. When the sample is further restricted to one calendar year (2014) the sample is further restricted.

Table 13 Price-income ratio for WA regional urban area strata sales, 2014

WA regional urban area	Total transactions	Weighted median price	Weighted HH income	Weighted P-I ratio
Albany Urban Area	6	416,000	56,463	7.37
Broome Urban Area				
Bunbury Greater	71	357,169	65,767	5.43
Busselton Urban Area	40	428,813	47,717	8.99
Carnarvon Urban Area				
Esperance Urban Area				
Geraldton/Greenough	15	330,000	55,102	5.99
Kalgoorlie/Boulder	89	332,247	116,998	2.84
Karratha Urban Area				
Mandurah/Murray	262	391,275	55,911	7.00
Northam				
Port Hedland	6	692,500	160,049	4.33

Source: Landgate WA and ABS Census 2011

The weighted average price-income ratio for those included regional centres is 6.12. This ratio is heavily influenced by the significant weight applicable to Mandurah.

Again, the most affordable regional centre as indicated by the price-income ratio is Kalgoorlie-Boulder with a ratio of 2.84. This is also due to the same high household income in determining the ratio as for single residential housing.

The same high income influence is evident in the results for Port Hedland (4.3). Many of the other regional centres display price-income ratios comparable to the Perth metropolitan region for strata title dwellings. The highest price-income ratio for strata dwellings is in Busselton, largely determined by dwelling price.

The background of the slide features a blue-toned illustration. It shows a hand holding a pen, positioned as if about to sign a document. Overlaid on this is a white outline of a house with a chimney. A large percentage sign (%) is also visible, partially obscured by the house outline. The overall theme suggests housing, finance, and affordability.

Chapter 2:

Affordable housing
and new dwellings

New dwellings

In this study we define “new” dwellings as those dwellings with a building component measured as five years of age or less as at the date of sale.² In addition, the data is further disaggregated according to the single residential and strata title classifications as previously described. Finally the data is disaggregated in accordance with the geographical systems previously used for the Perth metropolitan area. Due to sample size restrictions new dwellings have not been analysed for regional centres. For the analysis of price differentials data has also been disaggregated to individual suburb level within the Perth region.

² Each observation if improved (single residential or survey strata building) within the Landgate data has a year built variable expressed as a calendar year; 1987, 1999, 2006 etc. Each observation also has a date of sale in calendar format; 20060411 etc. We transform this date of sale variable into a year of sale variable: 20060411 becomes year of sale 2006. If an observation had a year built as 1987 and was sold in 2014 then the building age variable is calculated; year sold 2014 - year built 1987 + 1 = 28 years – an ‘old’ building. If an observation had a year built as 2014 and was sold in 2014 then the building age variable becomes; year sold 2014 - year built 2014 + 1 = 1 year – a ‘new’ building.

Analysis of new dwellings: Single residential and strata titles

It is expected that high concentrations of new dwellings would exist in those areas where there are also high concentrations of vacant land sales. Figure 10 discussed previously reports detail for subregions of the Perth Metropolitan region with the highest proportions of vacant land sales.

For the Perth Metropolitan area, within the sample period 2009-14, approximately 13 per cent of observed transactions were classified as new dwellings for the single residential sample. A significantly larger proportion, 33 per cent of strata title development was classified as new dwellings.

This is an important result - confirming that within some Perth subregions a significantly higher proportion of building activity has been targeted towards denser (strata-title) patterns of development over single residential.

Table 14 reports results for subregions of the Perth Metropolitan region with the highest proportions of new dwelling sales.

Table 14 Perth sample new dwellings

REIWA subregion	Single residential				Strata title			
	Total dwellings	New dwellings	% new for region	% for total new	Total dwellings	New dwellings	% new for region	% for total new
Armadale	5,845	1,267	21.7%	7.7%	909	548	60.3%	4.7%
Bassendean/Bayswater	4,608	189	4.1%	1.2%	2,504	885	35.3%	7.5%
Belmont	2,732	166	6.1%	1.0%	1,318	584	44.3%	5.0%
Canning	7,529	743	9.9%	4.5%	2,764	827	29.9%	7.0%
Cockburn	7,867	1,301	16.5%	8.0%	1,489	630	42.3%	5.4%
Fremantle	1,880	94	5.0%	0.6%	987	232	23.5%	2.0%
Gosnells	8,363	657	7.9%	4.0%	1,081	295	27.3%	2.5%
Joondalup North	4,995	305	6.1%	1.9%	589	65	11.0%	0.6%
Joondalup South	8,746	149	1.7%	0.9%	769	70	9.1%	0.6%
Kalamunda	4,298	399	9.3%	2.4%	437	215	49.2%	1.8%
Kwinana	3,426	728	21.2%	4.5%	155	64	41.3%	0.5%
Melville	5,722	301	5.3%	1.8%	2,678	324	12.1%	2.8%
Mundaring	969	42	4.3%	0.3%	76	15	19.7%	0.1%
Perth City	205	9	4.4%	0.1%	461	133	28.9%	1.1%
Rockingham	12,368	2,233	18.1%	13.7%	952	345	36.2%	2.9%
Serpentine/Jarrahdale	1,087	570	52.4%	3.5%	6	2	33.3%	0.0%
South Perth/Victoria Park	2,882	217	7.5%	1.3%	2,967	568	19.1%	4.8%
Stirling East	5,580	307	5.5%	1.9%	6,437	2,929	45.5%	24.9%
Stirling West	3,570	248	6.9%	1.5%	3,851	1,218	31.6%	10.3%
Swan	10,480	1,898	18.1%	11.6%	1,242	455	36.6%	3.9%
Vincent/Stirling South East	2,326	73	3.1%	0.4%	701	151	21.5%	1.3%
Wanneroo North East	5,087	1,459	28.7%	8.9%	607	408	67.2%	3.5%
Wanneroo North West	7,578	1,935	25.5%	11.8%	475	281	59.2%	2.4%
Wanneroo South	4,065	612	15.1%	3.7%	898	295	32.9%	2.5%
Western Suburbs	6,256	450	7.2%	2.8%	1,302	231	17.7%	2.0%
Total	128,464	16,352		100%	35,655	11,770		100%

Source: Landgate WA

The results in Table 14 provide two important pieces of information. First, the numbers of total dwellings for single residential and strata title segments are reported. Second, the numbers of new dwelling (five years of age or less) transactions are reported.

From this information, two important ratios are calculated:

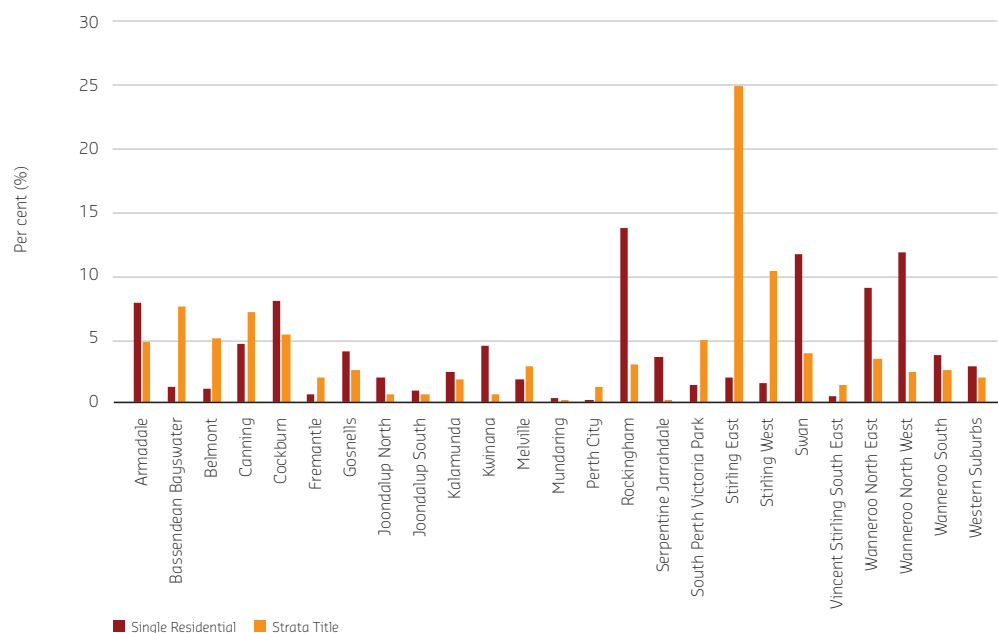
- (i) the proportion of new dwellings for the individual subregion
- (ii) the ratio of new dwellings for an individual subregion as a proportion of the total number of new dwellings for the Perth Metropolitan region.

In general these results are quite consistent with those previously reported for vacant land transactions. For single residential dwellings, the subregions of Rockingham (13.7%), Wanneroo North West (11.8%), and Swan (11.6%) represent those with the highest proportions of new dwellings. These regions are all represented in Figure 10 as subregions with higher percentages of vacant land transactions.

The proportions of new strata title construction are quite different. These proportions of new dwellings are significantly higher than the corresponding proportions for single residential development. Here, the subregion of Stirling East (24.9%) clearly represents the subregion with the highest proportion of new strata title dwelling construction followed by Stirling West (10.3%).

It should be noted that these subregions represent inner-city locations. The locations for these subregions have been previously indicated in Figure 7. The important distinctions between proportions of single residential and strata title construction for new dwellings are indicated in Figure 14.

Figure 14 Perth sample new dwellings



Source: Landgate WA

It is also very important to examine the location and structural characteristics of new dwellings as these can indicate significant variations within market segments. These variations can help explain significant price differences and criteria for market segmentation.

Essentially, for single residential dwellings, new construction is associated with significant differences in the total land area for dwellings. Over the full Perth sample, older dwellings have an average land area of 710 m² whereas new dwellings have a significantly smaller average land area of 500 m², representing an approximate -30 per cent difference.

In addition to this significant variation in land area, at the aggregate Perth sample level, new dwellings also carry a significant price premium. For the full Perth sample, new dwellings have sold at a median price of approximately \$781.2 thousand, whereas older dwellings have sold at \$587.6 thousand representing a price premium of approximately 33 per cent for new dwellings.

It is very important to note that there are significant differences in these trends at suburb level. We discuss below a number of individual suburb areas where new dwelling opportunities provide affordability options over old dwellings.

Price differentials

In this section we employ methodology designed to combine the information revealed by new dwelling transactions, vacant land and price-income ratio analysis. More specifically, we focus upon two specific research questions.

- i. How do costs of delivering new dwellings compare to prices of established dwellings within the same regional submarkets?
- ii. To what extent do land and building costs prevent the delivery of dwelling products affordable to households in low and moderate income groups?

In order to address research question (i) above it is useful to examine several broad statistics relating to dwellings and the components of new dwellings (land and buildings). Consistent with our approach in the following section, we focus our analysis on the most recent year of the sample, 2014.

The median sale price for all single residential dwellings in the Perth region during 2014 was \$550,000 and the median price for vacant single residential land was \$257,000 - representing a ratio of 47 per cent land component to the median price. Alternatively, the buildings component represents \$293,000 or 53 per cent of the median price.

A similar analysis of new single residential dwellings (age 5 years or less) reveals that the median selling price during 2014 was slightly lower - \$530,000, representing a ratio of 48.5 per cent land component to the median price.

If the full sample of all single residential dwellings is reduced to only those selling below the median price of \$550,000 for 2014, then the median price for this reduced sample is \$446,000. If the sample of vacant residential land is also reduced to only those lots selling below the median price of \$257,000 the median price for land is \$212,500. Again, the ratio is about 48 per cent for this reduced sample. Alternatively, the buildings component represents \$233,500, or about 52 per cent of the median price.

The relevance of these statistics and this form of analysis is important in selecting an appropriate proportion of new building capitalisation of vacant land which represents the general trend for new buildings across Perth Metropolitan region. This form of analysis is further developed in Table 15.

Table 15 is arranged to include all subregions of Perth where the median sale price for single residential established dwellings in 2014 was equal to or below the median price of \$550,000. Subregions are arranged in ascending order by median price. In addition, the median price for vacant single residential land is also listed.

To illustrate consider the subregion of Kwinana with the lowest median dwelling price. In 2014 the median price (P) for dwellings was \$330,000, vacant land (L) \$195,000 and the L/P ratio 59 per cent. The depreciated buildings (B) represent \$135,000 and the B/P ratio 41 per cent. Note this ratio is lower than the overall 52 per cent applicable to the wider Perth region. To compensate for this influence of depreciation, the new amount (N) for a building is calculated as 52 per cent of the price - \$171,600. The overall difference between a new dwelling and an established dwelling is \$36,600 - the price differential (D) between new and established dwellings. The purchaser of a new dwelling is paying approximately \$36,600 more than for an established dwelling.

Table 15 Established vs new dwellings Perth sample 2014

REIWA subregion	Single residential dwellings		Vacant land			Existing building		New building	Difference
	Trans- actions	(P) Median price	Trans- actions	(P) Median price	Ratio	(B) Amount	Ratio	(N) Amount	(D) Amount
	number	\$'000	number	\$'000	L/P %	P - L = \$'000	B/P %	P * .52 = \$'000	B - N = \$'000
Kwinana	3,426	330	3,266	195.0	59%	135	41%	171.6	-36.6
Armadale	5,845	360	6,107	240.0	67%	120	33%	187.2	-67.2
Gosnells	8,363	390	2,440	249.0	64%	141	36%	202.8	-61.8
Rockingham	12,368	402.5	8,342	191.0	47%	212	53%	209.3	2.2
Serpentine/Jarrahdale	1,087	410	2,865	175.0	43%	235	57%	213.2	21.8
Swan	10,480	425	8,226	235.0	55%	190	45%	221.0	-31.0
Wanneroo North West	7,578	430	7,872	215.0	50%	215	50%	223.6	-8.6
Kalamunda	4,298	460	1,177	245.0	53%	215	47%	239.2	-24.2
Wanneroo South	4,065	465	1,948	299.0	64%	166	36%	241.8	-75.8
Wanneroo North East	5,087	485	3,538	230.0	47%	255	53%	252.2	2.8
Mundaring	969	489	278	275.0	56%	214	44%	254.3	-40.3
Belmont	2,732	499	285	349.0	70%	150	30%	259.5	-109.5
Cockburn	7,867	510	4,762	300.0	59%	210	41%	265.2	-55.2
Bassendean/Bayswater	4,608	550	494	350.0	64%	200	36%	286.0	-86.0

Source: Landgate WA

In Table 15, differentials (D) where buyers of new dwellings appear to be paying more than established dwellings are represented with negative numbers. It is important to note that the majority of subregions have negative price differentials – confirming that new dwellings are typically more expensive than established dwellings. However, this trend is not consistent. Note that in several subregions; Rockingham, Serpentine-Jarrahdale and Wanneroo North East, the price differential is positive indicating that new dwellings are cheaper than established dwellings. The potential reasons for these variations in price differentials require further analysis.

In order to effectively analyse new as compared to established dwellings in terms of price it is necessary to focus at the individual suburb level. By doing this, we are assuming that at this finer level of disaggregation important locational influences are consistent between both new and older dwellings transacting within the same suburb area.

It is also important for robust analysis that appropriate sample selection criteria be used. Consistent with previous analysis, we define new dwellings as those with a building age in the year 2014 of 5 years or less. To assess the impact upon affordability we also integrate previous price-income ratio analysis for suburbs identified as being affordable (lower price-income ratios).

In order to construct robust samples for individual suburbs to compare the prices and characteristics of new and older buildings we adopt some important sample selection criteria. First, consistent with previous sections we disaggregate the sample according to title type: single residential and strata title dwellings. We confine the analysis in this section to Perth Metropolitan region suburbs only. Similar analysis for all regional centres excepting Mandurah is problematic in terms of sample size.

For the single residential sample, initially we select those suburbs having a price-income ratio in 2014 of 7 or less. This criterion confines the sample to those suburb locations with price-income levels below the overall citywide median.

For the strata title sample we do not employ this restriction. The characteristics of new strata title development within the Perth Metropolitan region are markedly different from single residential development. In order to construct suitable samples for analysis, this restriction was removed.

To further restrict the sample we employ some further criteria. Sample size is restricted to those suburbs with a total number of transactions of 20 or more properties during 2014. Within any suburb selected, 20 per cent or more of the transactions are required to be new dwellings – 5 years of age or less.

For single residential dwellings, the median price of an individual suburb is required to be below the Perth median price for 2014 of \$550,000. A further criterion was identified for suburbs transacting within the lower quartile of Perth transactions, below \$445,000.

These final criteria were adopted to focus specifically upon the issue of affordability. For the Perth single residential sample, these results are summarised in Table 16. The locations of these individual suburbs are indicated in Figure 15 (a)

Table 16 presents the results for 16 suburbs within the Perth Metropolitan region satisfying these transaction criteria. Note that 5 of these suburbs have new building median price levels below the lowest quartile within the Perth Metropolitan region of \$445,000. The data is arranged according to the price level of new building transactions. As an example, the first suburb, Bertram has the lowest new dwelling median price of \$390,000.

The table is further arranged to display the relevant REIWA subregion and the calculated price-income ratio. The suburb of Bertram has 30 new building transactions in 2014 compared to 119 older building transactions. The new transactions therefore represent slightly more than 20 per cent of the sample.

Note also the different property characteristics confirmed by analysis of new buildings and old buildings. The median land area for new dwelling construction in Bertram is 351m² whereas for older dwellings it is 592m². This equates to new lot sizes being approximately 41 per cent smaller than for older dwellings (Δ Land %). Similarly, house sizes are also smaller, -24 per cent (Δ House %). As a result the price for new dwellings is also about 12 per cent cheaper than for older dwellings (Δ Price %).

In summary, although prices are cheaper for new dwellings there is a significant difference in the property characteristics between the new and old building samples. New dwellings typically have lower land areas and lower house sizes than the older dwellings.

Further analysis of Table 16 confirms that this trend is consistent through the majority of suburbs analysed. In the cases of suburbs where there is a premium for prices of new dwellings over older dwellings such as the suburb of Wellard, it is evident that land is larger and building size is also larger for new dwellings. These results

provide some important information concerning the nature of affordability and the importance of new land development and dwelling construction.

It is evident that in a number of suburbs across the Perth Metropolitan region new dwellings are selling at prices below older dwellings within the same suburbs. Typically, these new dwellings are on smaller lots and are smaller dwellings. In summary, for the suburbs listed in Table 16, on a suburb volume weighted basis, new dwellings are approximately 4 per cent cheaper than older dwellings. However, lot sizes are approximately 20 per cent smaller, and house sizes approximately 5 per cent smaller.

This analysis confirms that some flexibility exists within the land development and construction sectors to accommodate improved affordability. New dwellings can be cheaper than older dwellings but this requires adaptation by developers and builders in supplying product to the market with characteristics that enable more affordable dwellings. In summary, it is evident that new dwelling construction can deliver affordability on smaller lot sizes but this also requires innovation from builders to deliver satisfactory construction options.

Table 16 Single residential dwellings 2014 new vs old buildings

Suburb	REIWA subregion	Afford- ability	New buildings 5 years or less				Old buildings 6 years or more				Δ = Difference New vs Old			
			Price- income ratio	Trans- actions number	Price \$'000	Land area m ²	House area m ²	Trans- actions number	Price \$'000	Land area m ²	House area m ²	Δ Price %	Δ Land %	Δ House %
Bertram	Kwinana		4.5	30	390.0	351	127	119	443.0	592	168	-12.0	-40.7	-24.4
Butler	Wanneroo North West		4.8	65	420.0	350	139	226	465.0	551	168	-9.7	-36.5	-17.3
Banksia Grove	Wanneroo North East		4.8	83	439.0	420	162	70	418.0	578	147	5.0	-27.3	10.2
Ellenbrook	Swan		4.6	86	439.5	455	151	322	448.5	520	152	-2.0	-12.5	-0.7
Byford	Serpentine-Jarrahdale		4.6	98	440.0	502	173	125	450.0	590	169	-2.2	-14.9	2.4
Baldivis	Rockingham		4.1	241	452.0	500	181	248	475.0	608	201	-4.8	-17.8	-10.0
Yanchep	Wanneroo North West		6.5	68	457.5	462	178	94	481.0	709	158	-4.9	-34.8	12.7
Wellard	Kwinana		4.2	53	460.0	471	172	26	435.0	451	161	5.7	4.4	6.8
Aveley	Swan		4.7	80	475.0	420	166	92	552.5	609	221	-14.0	-31.0	-24.9
Piara Waters	Armadale		4.4	83	550.0	476	184	29	590.0	576	214	-6.8	-17.4	-14.0
Harrisdale	Armadale		4.6	93	565.0	449	195	55	595.0	576	219	-5.0	-22.0	-11.0
Hammond Park	Cockburn		4.8	22	581.5	515	196	29	599.0	556	205	-2.9	-7.4	-4.4
Southern River	Gosnells		5.3	60	610.0	517	212	79	608.0	607	219	0.3	-14.8	-3.2
Aubin Grove	Cockburn		4.7	35	615.0	541	209	68	605.0	576	204	1.7	-6.1	2.5
Landsdale	Wanneroo South		5.3	55	615.0	480	204	89	595.0	640	195	3.4	-25.0	4.6
Burns Beach	Joondalup North		5.8	32	857.5	553	236	14	891.0	601	240	-3.8	-8.0	-1.7

Source: Landgate WA

Table 17 Strata title dwellings 2014 new vs old buildings

Suburb	REIWA subregion	Affordability	New buildings 5 years or less				Old buildings 6 years or more				Δ = Difference New vs Old	
		Price-income ratio	Trans-actions number	Price \$'000	House area m²	Trans-actions number	Price \$'000	House area m²	Price \$'000	House area m²	Δ Price %	Δ House %
Armadale	Armadale	6.2	31	340.1	111	62	305.0	101	11.5	101	11.5	9.9
Kelmscott	Armadale	5.1	21	350.0	112	24	318.0	103	10.1	103	10.1	8.7
Waikiki	Rockingham	4.7	29	369.0	110	5	355.0	108	3.9	108	3.9	1.9
Ellenbrook	Swan	4.3	39	409.0	113	28	397.5	138	2.9	138	2.9	-18.1
Balga	Stirling East	7.4	164	411.0	103	86	366.5	99	12.1	99	12.1	4.0
Midland	Swan	7.2	20	419.0	101	41	370.0	106	13.2	106	13.2	-4.7
Westminster	Stirling East	6.9	51	455.0	104	62	420.0	108	8.3	108	8.3	-3.7
Nollamara	Stirling East	7.0	92	477.8	102	151	460.0	114	3.9	114	3.9	-10.5
Bentley	Canning	12.0	20	570.0	133	62	511.0	124	11.5	124	11.5	7.3
Morley	Bassendean Bayswater	7.8	65	580.0	141	78	520.0	131	11.5	131	11.5	7.6
Innaloo	Stirling West	7.0	62	615.3	108	128	579.5	114	6.2	114	6.2	-5.3
Yokine	Stirling East	8.7	43	655.0	139	94	573.0	129	14.3	129	14.3	7.8
Dianella	Stirling East	7.4	26	732.5	156	83	512.0	120	43.1	120	43.1	30.0
Doubleview	Stirling West	6.8	23	785.0	164	76	652.5	129	20.3	129	20.3	27.1
Scarborough	Stirling West	8.1	39	820.0	171	155	695.0	136	18.0	136	18.0	25.7

Source: Landgate WA

Table 17 employs the same general analysis for the strata title property segment. Figure 15 (b) indicates the location of these suburbs. There are some important differences in comparing strata title properties. First, because of the nature of “common” land areas in strata title development the land components of these transactions have not been analysed. Second, there is no restriction on the price-income ratio for suburb selected. The suburbs selected are included to enable a full and comprehensive comparison of the differences between new strata title development and older buildings.

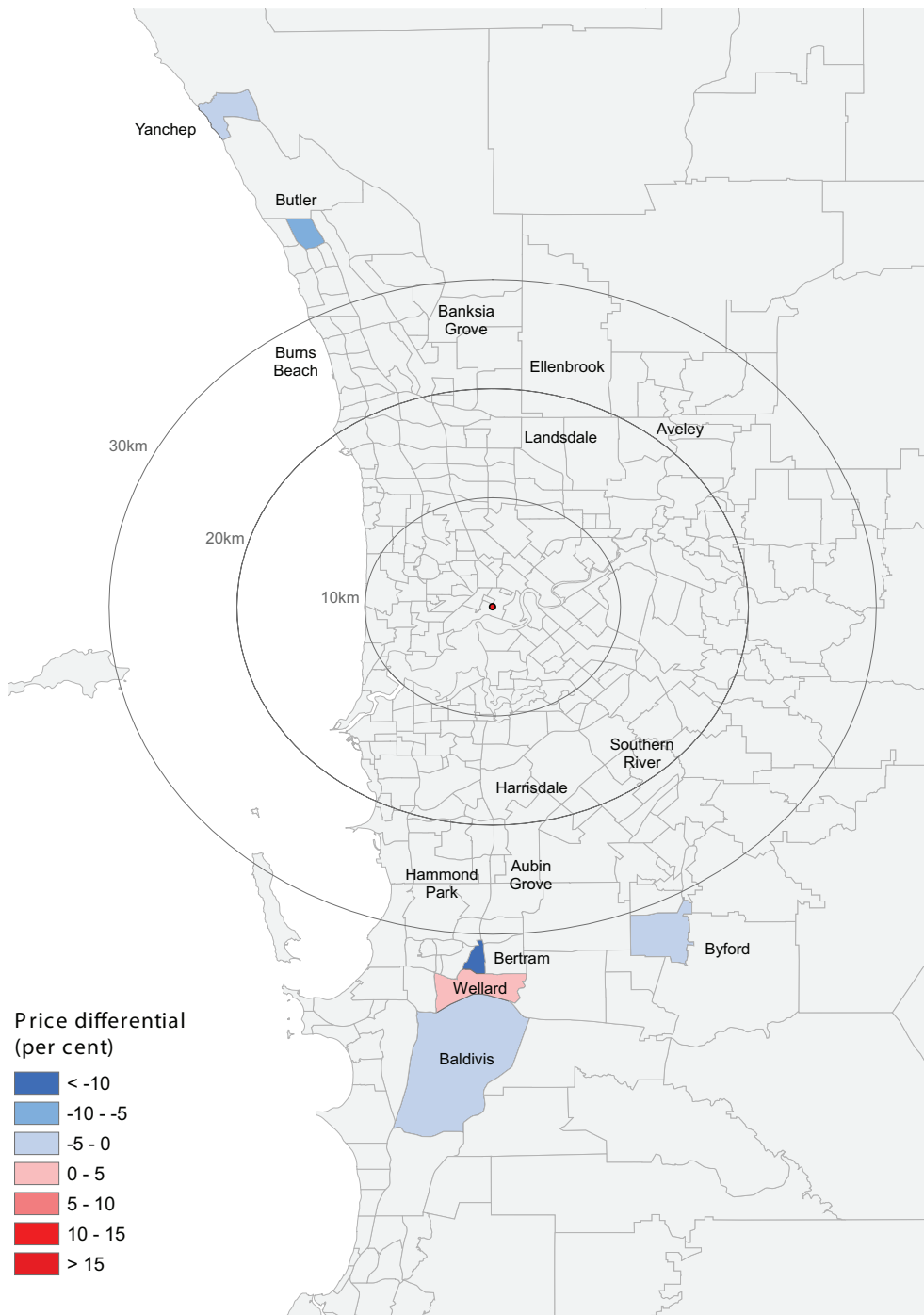
It is evident that the general pattern of pricing and property characteristics for strata title development is distinctively different than for single residential dwellings. For strata title development, new dwellings appear to be upgrading the standard of property characteristics.

For new strata title dwellings, on a suburb volume weighted basis, median prices are approximately 11 per cent higher than for older dwellings in the same suburbs. In addition, building sizes are approximately 3 per cent higher. These trends are apparent across the majority of the 15 suburbs analysed. Note also that these trends are quite consistent across the wide range of price-income ratio suburbs.

Table 17 is also arranged so that suburbs are ranked according to the median price of new building; hence Armadale is the cheapest with Scarborough the most expensive. Note that six suburb groups fall below the overall lower price quartile of the overall Perth Metropolitan region. In addition, a number of suburbs have price-income ratios well below the overall Perth average. In all these cases new strata title dwellings are selling at a price premium to older strata title dwellings even though in some cases (Ellenbrook and Nollamara) dwelling sizes are significantly smaller.

It is likely that this overall trend of new strata title dwellings selling at a premium to older strata title dwellings in the same suburbs is from the influence of depreciation of older dwellings and improved design features of new dwellings. In a number of these suburbs older strata title dwellings tend to be smaller and in excess of 30 years of age or more. In addition, the new dwellings have many design benefits including bigger building areas. A number of new developments are occurring on well-established inner-city sites where older single residential housing stock has been demolished.

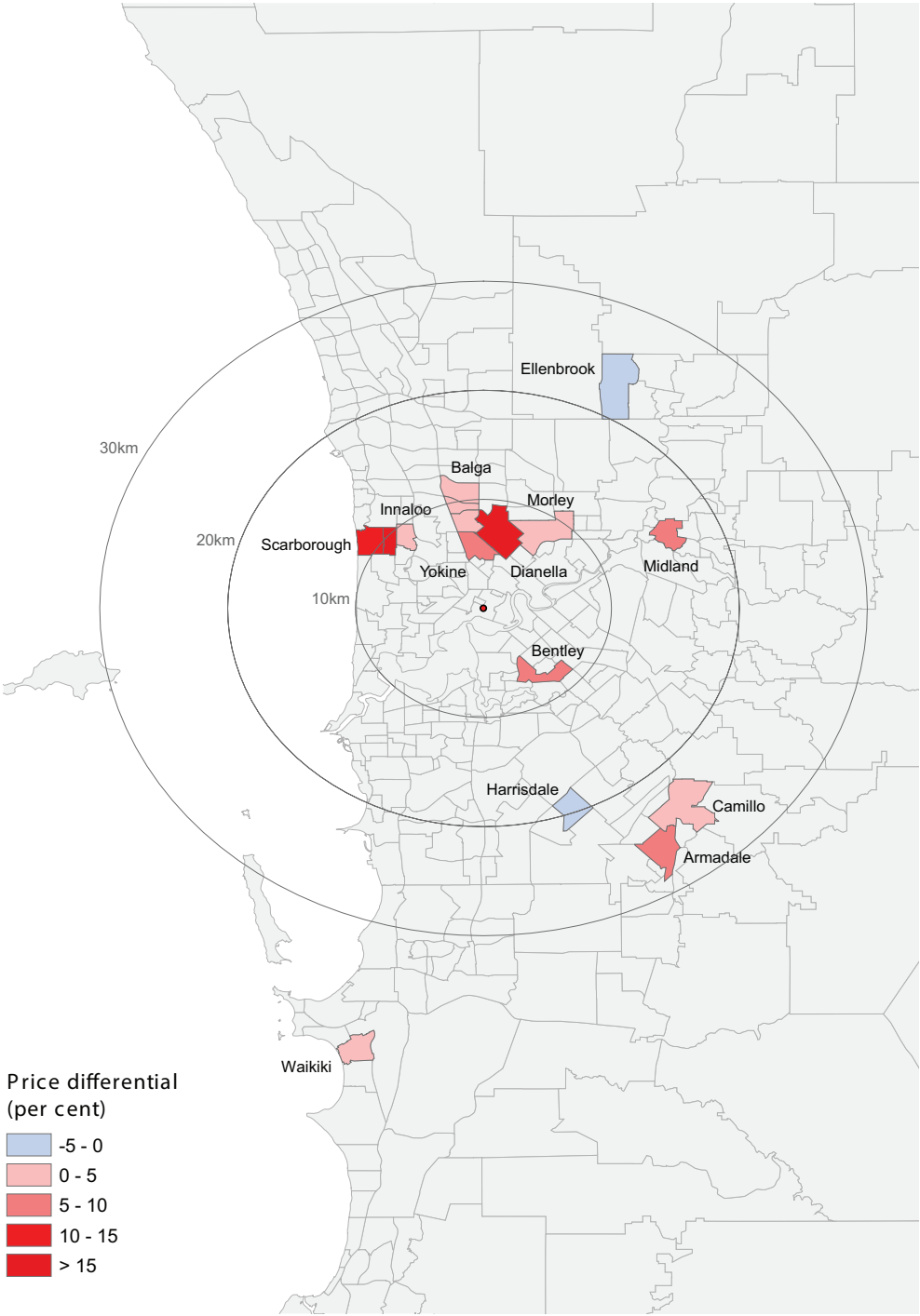
In summary, these results provide important information with respect to housing affordability policy development. It is apparent that single residential development is more effective in delivering cheaper housing through new land development and construction. This occurs predominantly in the outer suburbs of the Perth Metropolitan region. In a number of suburbs, new dwellings are cheaper than older dwellings. On the other hand, strata title development is providing a new stock of housing more expensive than the existing older stock of strata properties within the inner-city suburbs.

Figure 15A New and established dwelling price differential suburbs**(a) Single residential**

Source: Landgate WA

Figure 15B New and established dwelling price differential suburbs

(b) Strata dwellings



Source: Landgate WA

The background of the slide is a solid blue color. Overlaid on this is a faint, larger-scale image. It depicts a hand holding a pen, poised to sign a document. On the document, there is a simple line drawing of a house with a chimney and a large percentage symbol (%).

Chapter 3:

First home buyer policies
in Western Australia

Introduction

Previous BCEC research highlighted the deposit required to purchase a dwelling as the biggest barrier to home ownership (Cassels et al., 2014, Duncan et al., 2016). Housing policy in Western Australia has attempted to address this barrier through direct grants (First Home Owners Grant), saving assistance (First Home Saver Account), low deposit home loans and shared ownership products (Keystart) and a reduction in purchase costs (Stamp Duty Relief). These policies are now regarded as important by both potential and recent purchasers as shown in the two tables below (Duncan et al., 2016).

Table 18 shows for recent home buyers in WA, over 60 per cent viewed the first home owners grant (FHOG) and 50 per cent stamp duty relief as important in helping them access home ownership. For potential home buyers in WA (Table 19), over 75 per cent of survey respondents viewed government grants and stamp duty relief as important assistance measures, with just over half supporting a scheme providing government help to save for a deposit. State specific programs are available, notably in Western Australia, ACT and South Australia, to help those on low incomes into home ownership. In WA, various Keystart products have helped thousands of households access the housing market.

Table 18 How important was the following government assistance?

	Very important	Quite important	Not important	I was not eligible	I did not apply for the incentive	I did not know about the incentive/ Incentive not available
	%	%	%	%	%	%
First Home Owners Grant	38.3	21.9	13.2	13.2	3.2	10.2
Stamp Duty Relief	35.3	15.5	9.8	14.9	3.8	20.6
First Home Savers Account	13.2	7.7	17.2	14.9	13.6	33.4

Source: Bankwest Curtin Economic Center | BCEC Housing Affordability Survey 2015

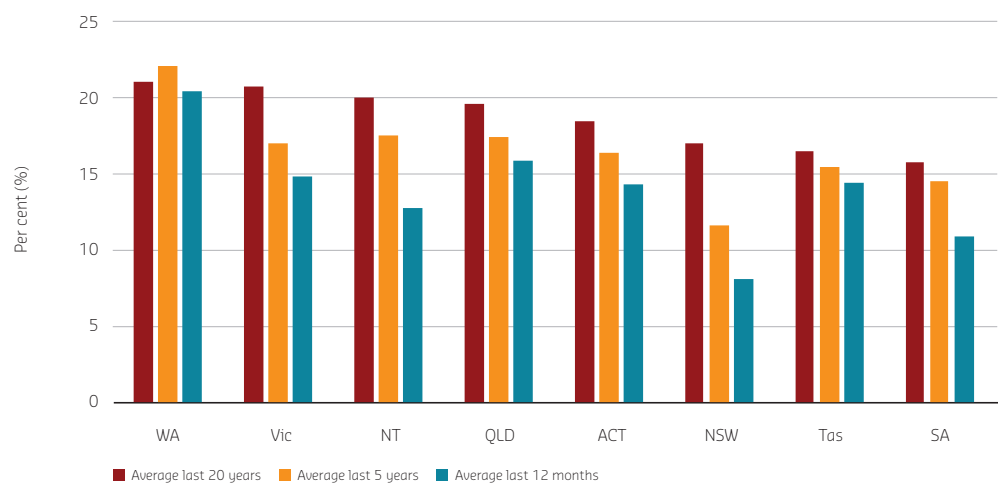
Table 19 How important do you view the following types of government assistance in helping you into home ownership?

	Very important	Quite important	Not important	Don't know
	%	%	%	%
Government grant to help with deposit	52.3	23.9	13.5	10.3
Stamp Duty exemption	59.0	19.5	4.6	16.9
Government help with saving towards a deposit	41.0	28.8	17.3	12.9
Ability to access superannuation to fund deposit	33.8	17.7	30.4	18.1

Source: Bankwest Curtin Economic Center | BCEC Housing Affordability Survey 2015

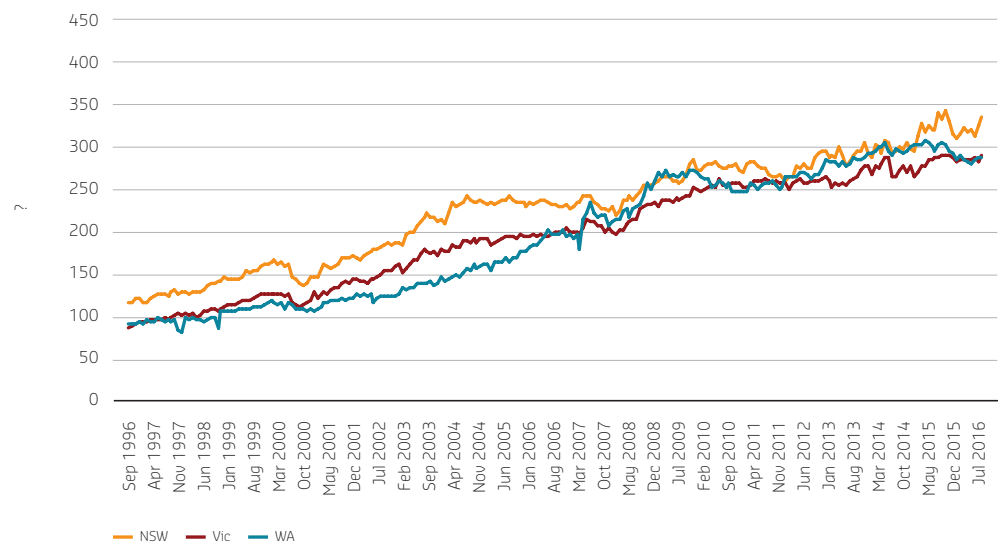
Western Australia is widely regarded as the home of the first home buyer (FHB) with rates of FHB activity well above other states and territories. Figure 16 shows the level of FHB activity over the last 20 and 5 years and also the last 12 months. For every period WA had the highest proportion of FHB. From September 2016 to September 2017 the rate in WA was well over double that of NSW (20% compared to 8%). Figure 16 shows that the average loan size in WA is around \$50,000 lower than NSW with the average loan amount diverging following the recent accelerated price growth in NSW.

Figure 16 Dwellings finance: Proportion of first home buyers



Source: ABS 5609.0 Housing Finance, Australia. TABLE 9b. HOUSING FINANCE COMMITMENTS (Owner Occupation), By Type of Buyer and Loan: State, Original

Figure 17 First home buyer average loan size



Source: ABS 5609.0 Housing Finance, Australia. TABLE 9b. HOUSING FINANCE COMMITMENTS (Owner Occupation), By Type of Buyer and Loan: State, Original

Barriers to home ownership

With mortgage rates at historically low levels, once a household enters the housing market, mortgage payments are manageable providing there is no significant change in household circumstances. The main barrier to entry is finding an affordable dwelling that meets the housing requirements; physical and locational, of the household.

The BCEC 2016 housing affordability report provides a comprehensive view of housing affordability in WA (Duncan et al., 2016). This is supported by a recent report by the Housing Authority in WA (2016a), which identified the proportion of dwellings affordable for households on low to moderate incomes. Households on 50-85 per cent of the Perth median income, paying only 30 per cent of their income on housing costs, would be able to afford a house up to \$332,000, assuming they had a 10 per cent deposit. Only 8 per cent of properties sold during 2013-2015 were within this price range.

For most households looking to enter home ownership, access to finance is critical but lenders will require some form of deposit before approving a mortgage. The actual level of deposit will depend on the lender and the willingness of the borrower to pay for lenders mortgage insurance (LMI) (designed to protect the lender not the borrower), the cost of which is added to the loan. LMI is typically required for loan to value ratios above 80 per cent and enables potential borrowers to access home ownership for a lower level of deposit but it does come at a cost.

A borrower looking to borrow \$475,000 to finance the purchase of a \$500,000 dwelling would have to pay LMI of around \$16,000. If this were added to a 25 year loan facility it would increase monthly mortgage payments by around \$100 per week and the total cost of paying off the mortgage by \$30,000. However, LMI does offer a household the advantage of accessing ownership sooner, saving on rent and potentially benefiting from earlier capital growth.

Given lender requirements and the cost of LMI, the deposit becomes particularly important and is commonly cited as the biggest barrier to home ownership. The 2015 BCEC housing affordability survey asked households in the private rental sector why they were renting. The top reason cited was because they didn't have enough savings for a deposit. The survey also identified that 78 per cent of households receiving parental support to enter home ownership had help with the deposit (Duncan et al., 2016). Less than 30 per cent of respondents living with parents or in a group household had more than \$20k savings available for a deposit, while over half believed they would need more than \$50k saved to meet deposit requirements. The average gap between the deposit currently available to an individual living with their parents and the amount they would expect to need in order to purchase a dwelling was calculated to be \$64,500, compared to \$37,100 for those living in a group household (Duncan et al., 2016).

Policies designed to help potential homeowners overcome the deposit gap include the FHOG, stamp duty relief and First Home Savers Account. The WA government also has a number of low deposit home loan schemes under the Keystart banner. The remainder of this chapter deals with each of these in turn.

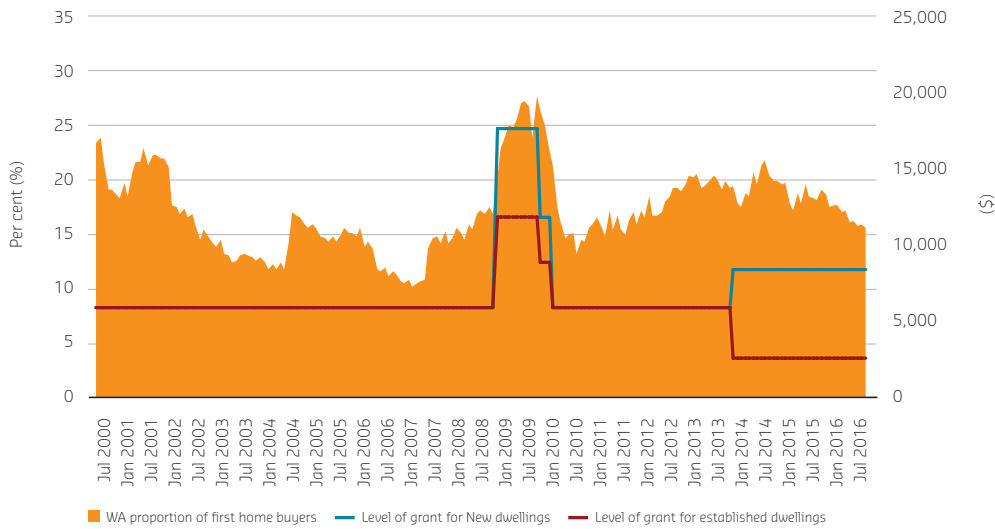
First Home Owners Grant

The FHOG was introduced in July 2000 as a flat rate of \$7,000 for established and new build dwellings to offset the impact of the introduction of GST. The FHOG “boost” was implemented for contracts made between 14 October 2008 and 30 September 2009 which provided an additional \$7,000 for buying an established home and an extra \$14,000 for buying or building a new home. The boost was halved between 1st October 2009 and 31st December 2009 and reduced back to \$7,000 on 1st January 2010. The boost was introduced to try and stimulate the housing market during the slump in activity resulting from the global financial crisis. Further changes were made to the grant in mid-2013 with the grant for new dwellings increased to \$10,000, and for existing dwellings cut to \$3,000. The grant was once again increased on 1st Jan 2017 for 12 months from \$10,000 to \$15,000 for new dwellings in an attempt to stimulate FHB activity and support the housing market. The grant for established dwellings was discontinued in October 2015.

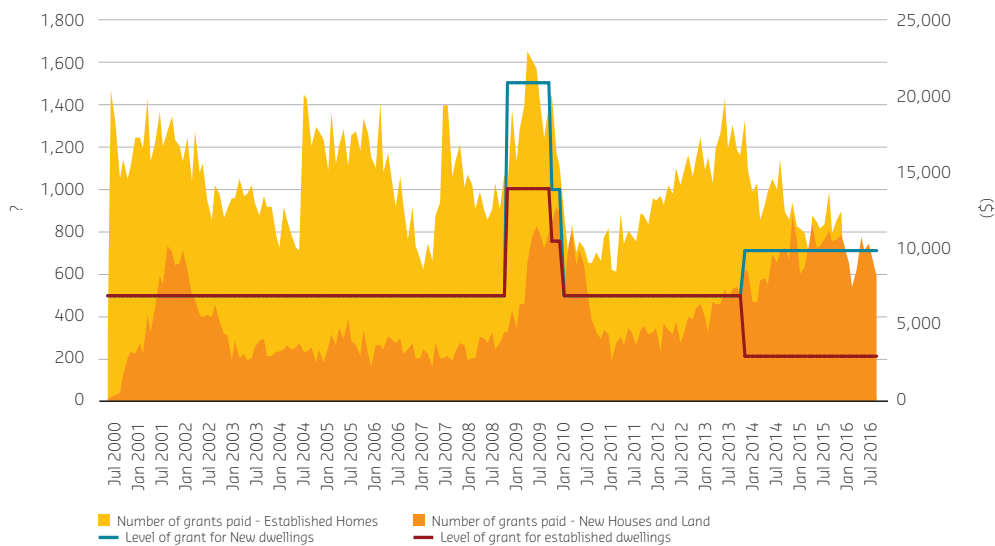
It is often argued the FHOG is an ineffective tool and is simply capitalised into house prices - so does not make housing more affordable. There is limited evidence to support this argument, discussed below, but what is clear is the FHOG has been effectively used to stimulate market activity.

Figure 18 describes how first home owners responded to changes in the level of grant described above. The FHOG boost increased the proportion of first home buyers in the market significantly, reaching almost a third in September 2009, with grant applications up 55 per cent on the previous year. The additional grant for new dwellings boosted the proportion of new build from 20 per cent in October 2007 to 50 per cent in October 2009. This increase had a positive impact on the level of development activity, boosting the construction industry and the economy in general. It stimulated the bottom end of the market which fed through to the rest of the market. FHB activity remained strong after a sharp drop post boost (Figure 19) - to be expected as the additional grant allowed many purchasers to bring forward their purchasing decisions as they were able to meet their deposit requirements early.

Activity levels rose along with general market activity in the period 2011-2014, fuelled by very strong population growth increasing competition in the rental market. Further changes to the grant to favour new build saw a drop in activity, mainly due to a general slowdown in the housing market delivering a cheaper private rental market with more choice and making the decision to purchase a dwelling less urgent (Housing Industry Forecasting Group (HIFG), 2016).

Figure 18 WA first home owner activity

Source: Department of Treasury WA

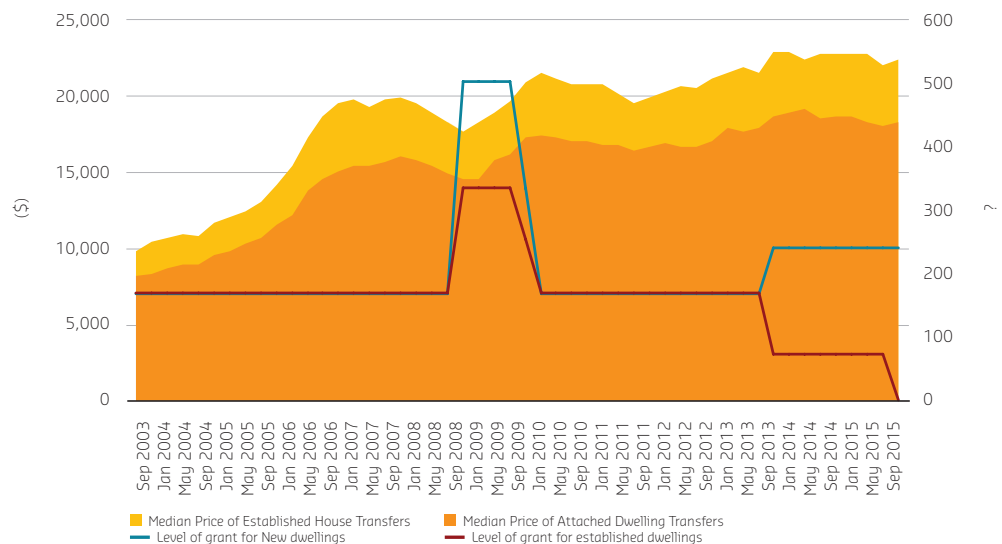
Figure 19 FHOG grant activity

Source: Department of Treasury WA; ABS 5609.0 Housing Finance, Australia. TABLE 9b. HOUSING FINANCE COMMITMENTS (Owner Occupation), By Type of Buyer and Loan: State, Original

Figure 20 provides some evidence that the increase in housing market activity resulting from the boost had an impact on prices. From the date of the boost period introduction (September 2008) to the removal of the grant, including an additional 3 months for transaction activity to flow through (March 2010), median prices for established single residential dwellings rose by 18 per cent (\$78,000) and strata title dwellings by 17 per cent (\$60,000)³. During this time the rate of population growth fell, led by a sharp drop in overseas migration. In order to be eligible for the FHOG the applicant needs to be a permanent resident. This means overseas migrants on 457 visa are not eligible until they become permanent residents, which is usually a two year residency period. The significant growth in overseas migration from 2006 into 2008 resulted in the growth of FHOG eligible households, many of which would have taken advantage of the FHOG boost during 2008-2009. This would certainly have contributed to the increased level of activity during the boost period.

The boost increased activity because it closed the deposit gap of many households rapidly - allowing them to bring forward their purchasing or building decision. In the established market this led to more competition for dwellings and inevitable price increases but by closing the deposit gap it did allow many more purchasers into the market earlier than they would otherwise have been able to achieve.

Figure 20 Median prices and FHOG level



Source: Department of Treasury WA; ABS 6416.0 - Residential Property Price Indexes: Eight Capital Cities

³ Price data are for Perth capital city only while the FHOG data are for the whole of WA.

In times of low market activity and restrictive bank lending policies the FHOG will have little inflationary impact on house prices. However, a short term boost such as that seen in 2008 increases activity in the market and drives up prices.

The following tables and graphs examine the outcomes in a number of case study suburbs. The analysis concentrates on single residential houses as these markets are dominated by such dwellings and there are too few observations relating to other strata title dwelling types to be of use.

Analysing the period around the boost it is possible to examine the impact of increasing the level of grant to first home owners on market outcomes. Table 20 shows 10 of the most popular first home buyer suburbs based on the level of FHOG activity. The table shows the change in land and house prices between Q3 2008 and Q2 2010 to cover the FHOG boost period. There is little consistent activity relating to land prices with falls in Butler and Byford and some large rises in Thornlie and Nollamara. There is more uniformity in dwelling price movements with significant gains in all but two of the suburbs.

Table 20 Land and house price changes in key first home buyer suburbs

	Land price change	House price change
Baldivis	3%	10%
Butler	-16%	0%
Byford	-12%	8%
Canning Vale	0%	4%
Ellenbrook	5%	13%
Gosnells	7%	-6%
Nollamara	13%	20%
Piara Waters	7%	8%
Thornlie	20%	14%

Source: Authors calculations from Landgate VGO data.

Other indicators relating to house prices provide an interesting insight into how the FHOG boost affected suburb level housing markets. The selection of suburbs in Table 21 includes both traditional first home owner locations as well as more established, inner ring suburbs. Traditionally it is assumed that the boost only affected the lower price areas where transactions were dominated by first time buyers but the analysis below shows how the boost contributed to an increase in housing market activity in all suburbs analysed. Such activity would certainly be affected by the strong population growth between 2006 and 2008 with many overseas migrants becoming eligible for the FHOG during the boost period.

The boost not only stimulated FHB activity but allowed households to trade up with the impact rippling throughout the market. It was a very successful policy in terms of stimulating market activity and therefore the economy. The table shows significant reductions in the time it took to sell dwellings and big increases in the number of dwellings sold during the boost period. The average discount on the listings price was also cut, providing evidence of price pressure. The house price change column confirms price rises for most suburbs, a result of increased demand.

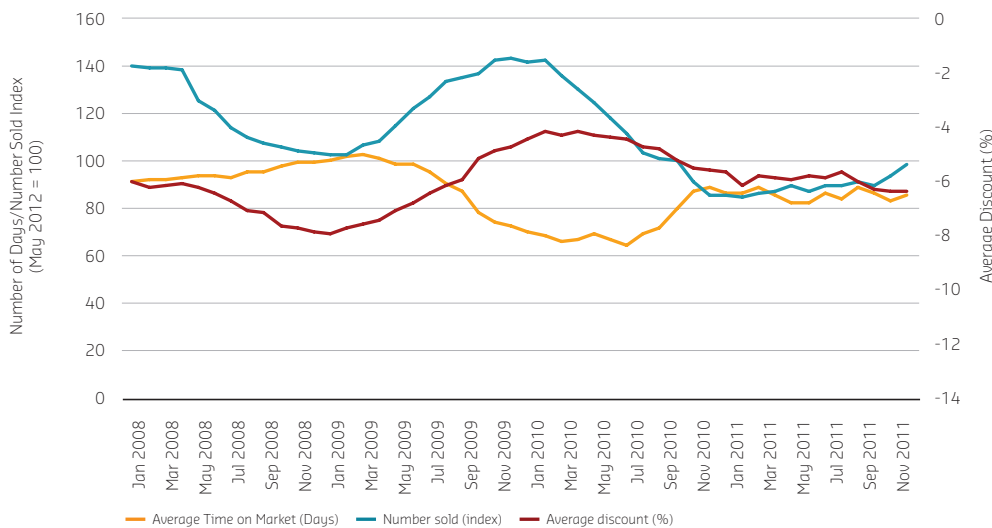
Table 21 House market data Q3 2008 to Q2 2010

	Time on market	Number sold	Average discount	House prices
Baldivis	-27%	54%	-47%	4%
Butler	-44%	36%	-49%	11%
Byford	-32%	75%	-56%	0%
Canning Vale	-41%	9%	-31%	12%
Ellenbrook	-33%	1%	-48%	4%
Gosnells	-32%	12%	-43%	3%
Harrisdale	-8%	14%	-52%	8%
Nollamara	-36%	32%	-34%	3%
Piara Waters	-26%	56%	-56%	-2%
Thornlie	-39%	15%	-39%	5%
Fremantle	-28%	32%	-20%	5%
Subiaco	30%	81%	-1%	0%
Victoria Park	-18%	18%	-16%	3%
South Perth	-18%	57%	-19%	12%
Leeming	-51%	40%	-41%	10%
Cottesloe	4%	60%	6%	-14%

Source: CoreLogic Australia data accessed via SIRCA.

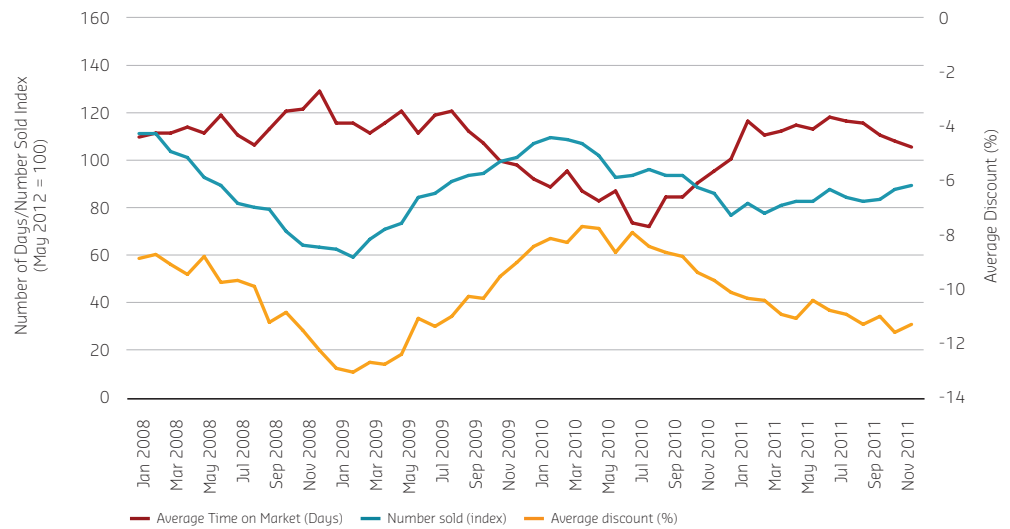
Figure 21 to Figure 23 present the data graphically for three case study suburbs over an extended period, January 2008 to November 2011; two traditional first home buyer suburbs and two well known suburbs popular with households seeking to trade-up. The patterns are quite similar, albeit the timing slightly different. The number of houses sold surges with the introduction of the boost in October 2008, and drops off quickly after cuts to the grant at the end of 2009. As the number sold surges, the average number of selling days falls and the average discount also falls. The increase in activity unusually coincided with a fall in population growth. As stated above, this was offset by the strong growth of 2006-2008 feeding through into home purchases. The lagged impact of population growth on housing market activity should not be underestimated. Surges in growth normally impact on the rental market in the short term before having a gradual impact on the owner occupied sector.

Figure 21 Housing market activity: Gosnells



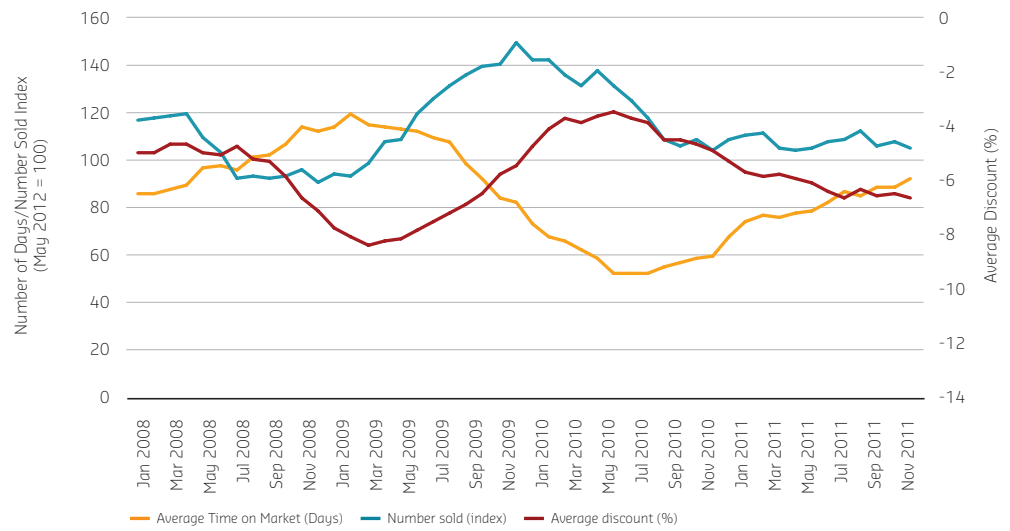
Source: CoreLogic Australia data accessed via SIRCA.

Figure 22 Housing market activity: Fremantle



Source: CoreLogic Australia data accessed via SIRCA.

Figure 23 Housing market activity: Leeming



Source: CoreLogic Australia data accessed via SIRCA.

First Home Savers Account

On 1st July 2008 the government introduced the First Home Savers Account (FHSA). It was discontinued six years later due to the lower than forecast take up rates with its removal forecast to save the government \$134.3 million over 5 years (Australian Government, 2015).

When first announced, the number of accounts forecast was 750,000 but by the peak in June 2014 reached just 49,400 (Australian Prudential Regulation Authority, 2016). The objective of the scheme was to help first home buyers save for a deposit through government contributions topping up FHB savings. The government made an annual 17 per cent contribution on the first \$6,000 of savings with interest taxed at only 15 per cent.

For example, if an account holder saved \$6,000 the government would contribute \$1,020. The minimum savings amount was \$1,000 each year with savings required for four years before the money could be withdrawn and used towards home purchase. The maximum account balance was capped at \$90,000. If the savings were not used to buy a first home they would automatically be added to the individual's superannuation fund.

By June 2014 there was almost \$616.7m in FHSA. Once discontinued, the restrictions on using the savings only for dwelling purchase were lifted with the FHSA switched to normal savings accounts within the host institution.

The UK government recently announced a similar scheme, the Help to Buy ISA, where £50 was added to every £200 saved, capped at a total £3,000 contribution. It would take 56 months of savings to reach the £3,000 cap.

As can be seen from Table 18 above only 20 per cent of buyers believed the FHSA incentive was important with over a third unaware of its existence. However almost 70 per cent of potential purchasers thought government help in saving for a deposit was important. This is not surprising given the deposit requirements of many lenders.

For example, a median price Perth house is around \$500,000. A 20 per cent deposit is \$100,000. A household on a gross income of \$80,000 would need to save 20 per cent of their net income for around seven and a half years in order to accumulate this deposit given the low interest rates available on savings. If they are paying 40 per cent of their income on rent this would prove very difficult. Therefore any government scheme to help bridge this deposit gap would be advantageous to FHB.

Many FHB are reliant on their parents or grandparents for help achieving an acceptable deposit (Duncan et al., 2016). A considerable disadvantage exists for FHB where this help is not available. A low household income coupled with no parental assistance means low likelihood of accessing home ownership.

Western Australia is fortunate to have a government backed low deposit home loan scheme (Keystart, see below) to help such individuals. This is not the case in all states. If it is a priority of government to get people into home ownership a well-designed and well disseminated savings scheme to help bridge the deposit gap is extremely important.

Stamp duty relief

Full stamp duty relief is available for first home buyers purchasing a house of \$430,000 or less. Partial exemption is available up to \$530,000. For the purchase of land full relief is available up to \$300,000 and partial relief to \$400,000. The cost of stamp duty on a \$430,000 house without this relief is \$14,440. This is a sum which would need to be added to the deposit so would be a significant burden on a first home buyer. Table 18 shows how 60 per cent of purchasers thought the relief important (20% did not know about it) while almost 80 per cent of future purchasers believe such an exemption important.

The relief was introduced in July 2008 and was partly responsible for the increase in FHB activity shown in Figure 18. There has been much debate about the merits or otherwise of stamp duty and the advantages of replacing it with a land tax. Stamp duty undoubtedly inhibits market activity because it is a major cost incurred when purchasing. It is a barrier to a first purchase and a disincentive to a subsequent purchase. It reduces household mobility and is a disincentive to downsizing. There is broad support from the property industry for its replacement largely because it would increase market activity. It is argued that this, in turn, would deliver broader economic benefits.

The removal of stamp duty would potentially increase established housing supply through increasing market activity. Households reluctant to move due to the costs imposed by stamp duty may be stimulated to do so, particularly those seeking to downsize. In turn this may increase available purchase options in older suburbs where home ownership is dominated by older households. This in turn would have an impact on households looking to trade up making more entry level properties available. In order for this to happen there needs to be sufficient diverse and affordable housing options to meet the needs of households looking to downsize.

Stamp duty relief has certainly been a successful policy and allowed FHB into the market earlier than would otherwise have been the case. It reduces the cost of the mortgage by the size of the stamp duty amount delivering a positive impact on affordability. Removing stamp duty relief would make it much more difficult for FHB to enter the market.

Keystart products

Keystart home loan products are backed by the WA state government and are designed to “make home ownership a reality for people who might otherwise not have been able to afford a home.” (Housing Authority, 2016b). There are a number of products under Keystart outlined below. Since its inception in 1989, Keystart has enabled around 98,000 people to achieve home ownership with 88 per cent of these loans for first home buyers (Housing Authority, 2016b). In 2015-16 there were 2,489 new loans valued at \$878.9 million (Housing Authority, 2016b).

There are a number of different Keystart products:

- Keystart’s loan products assist low to moderate income earners and first homebuyers with a good credit history who are unable to raise a deposit through mainstream lenders, or who may be unable to afford the full cost of a home and need a shared equity arrangement. The standard Keystart loan maintains low deposit requirements, does not require lenders mortgage insurance and has no monthly account keeping fees.
- SharedStart is a shared ownership scheme available for first and subsequent homebuyers with the Housing Authority. Under this scheme properties are only available from the Housing Authority and include newly-built homes and off-the-plan properties in a variety of areas around Western Australia.
- Goodstart Shared Equity Scheme Assists public housing rental tenants and non-first home buyers transition out of their current public housing rental into their own homes.
- Access Shared Equity Scheme helps people with permanent disabilities or those who care for a dependant with a permanent disability to purchase a home.
- Aboriginal Home Ownership Scheme Assists Aboriginal people and Torres Strait Islanders to own their own home. Both full and shared ownership options are available. (Housing Authority, 2016b)

A first home buyer looking to purchase a new property around \$430,000, approximating the Perth lower quartile price, would need around \$100,000 if there were no stamp duty relief, no FHOG and the lender required a 20 per cent deposit. A household on a median income saving at a rate of 20 per cent of their net income would need around 10 years to raise this amount without some form of external financial support.

In contrast, if the buyer were eligible for a Keystart metro home loan, the FHOG and received stamp duty relief they would only need a deposit of \$4,300 (1%) of which the remaining \$4,300 (1%) deposit would be delivered by FHOG. It would be possible for a household on an income of around \$80,000 to save this amount in a year.

Keystart is viewed very favourably by the housing industry and is considered one of the reasons why WA retains such a high level of first home ownership (HIFG, 2016). Any changes to the program would have implications for activity at the bottom end of the housing market which in turn would affect those seeking to trade up.

The income and house price limits within Keystart were recently revised with the upper income limit for families raised from \$115,000 to \$135,000 with a price limit of \$480,000 in the Metro area. These increased limits should feed through into increased applications as more households become eligible for the loans. With the mismatch between median incomes and median house prices and the lack of housing diversity, the product is very much limited in its geography by the house price limits but does deliver very positive benefits for those with specific housing requirements.

The background of the slide features a blue-toned illustration. It shows a hand holding a pen, drawing a simple outline of a house with a chimney. Overlaid on the house is a large percentage sign (%).

Discussion

and conclusion

Discussion and conclusion

This report examines housing market structure and affordability in WA. This report complements and extends the BCEC Housing Affordability reports (2014 and 2016), with analysis at higher levels of market disaggregation through use of micro-data (individual transaction records) provided by Landgate WA for a six-year sample period (2009-14).

The report examines both the Perth Metropolitan region and selected regional centres - covering a wide range of research objectives including supply characteristics of established housing, vacant land, new housing, the function of these segments in supplying affordable options in WA housing markets and housing policy.

In examining supply characteristics, a specific method of market disaggregation is employed. Primarily, the market is disaggregated according to title type – single residential and strata title, then according to whether improved (established dwellings) or vacant land and finally geographically according to previously defined housing subregion criteria.

Single residential remains the dominant title type throughout Western Australia for established dwellings, vacant land and new dwellings. Overall, approximately 80 per cent of the state's housing transactions involve this title type. Strata title development is more prevalent within the Perth metropolitan area. Just under one third of the state's residential property transactions relate to vacant land with the proportion being slightly higher in regional centres.

An important finding concerns identification of distinctive geographical patterns relating to market segmentation according to title type. There are many areas where single residential transactions comprise more than 90 per cent of all sales activity, and regions where more than 30 per cent of all transactions comprise vacant land. For inner-city regions there are suburbs where strata title dwellings comprise more than 50 per cent of transactions – much of this new construction.

These geographical patterns reveal an evolving housing market with respect to pricing, affordability and housing characteristics – particularly in the Perth metropolitan area.

For regional centres there are significant variations in characteristics of individual region samples – in some regions minimal strata title development, in others significant vacant land activity. It is apparent economic base characteristics for individual regions assume an important role in determining housing preferences and affordability. Regions with mining as a significant component of the economic base have higher household incomes and improved affordability characteristics.

We adopt several approaches to analysis of housing affordability. A traditional analysis by price-to-income ratio reveals a wide range of affordability characteristics throughout the state. Numerous affordable suburbs were identified within Perth and regional centres.

A more focused methodology examining price differentials between established and new housing reveals that new land development and building play important roles in supplying affordable housing options – again involving distinct geography.

For Perth, new dwellings comprise approximately 13 per cent of single residential transactions and 33 per cent for strata title development. Single residential development appears more effective in delivering cheaper housing through new land and construction options predominantly in outer regions. In these regions there are numerous low price-to-income suburbs where new housing is selling at cheaper levels than established housing. Importantly, there are also significant differences in the characteristics of these dwellings. Typically, cheaper new housing is situated on smaller lots with associated smaller buildings.

Strata title development is assuming a different role in the evolving Perth housing market. Although providing some affordable housing options, in general new strata dwellings are selling at a premium over existing strata dwellings and in many cases at prices comparable to or above older single residential development in the same suburbs. This is leading to more densely developed suburbs and improved housing amenity. New strata development is providing larger dwellings and improved design options over the existing housing stock for inner-city regions.

An important finding of this study is that flexibility exists within the land and construction sectors to accommodate improved affordability. New dwellings can be cheaper than established dwellings but this requires adaptation by developers and builders in supplying new product. An important challenge exists in supplying the market with an adequate range of affordable new dwelling types within a range of suitable locations – both inner city and outer suburban choices.

From a housing policy perspective there is general acceptance of the role of First Home Buyers (FHB) in stimulating transaction activity throughout the housing market. A reliable flow of FHB transaction activity makes it possible for other homeowners to trade up through different price segments. In this regard, housing policy targeted at FHB has been focused towards meeting the deposit gap required to make an initial purchase.

The results of this study suggest a policy challenge with respect to recent changes focusing FHOG and stamp duty relief initiatives on the new building sector. The distinctive patterns of geography revealed in our analysis suggest that new building activity is confined to specific locations with respect to price levels appropriate for FHB. The lack of diversity in new housing options could be restricting the effectiveness of recent FHOG initiatives.

The background of the slide features a blue-toned illustration. It shows a hand holding a pen, positioned as if about to sign a document. Overlaid on the document is a simple line drawing of a house with a chimney. A large percentage sign (%) is also visible, suggesting a financial or real estate context. The word 'Glossary' is centered in a white, serif font.

Glossary

Glossary

Dwellings

include all improved housing stock, single residential and strata title.

First Home Owners Grant

A once-off payment to encourage and assist first home buyers to buy or build a residential property for use as their principle place of residence.

Other title

A very small number of properties selling according to a system of title not conforming to either of the above. Typically, these properties are much older in age and have been initially developed under a system of title prior to the introduction of the strata titles act in the 1960s. Many of these properties appear to be developed under old tenants-in-common schemes commonly referred to as “purple” title.

REIWA

Real Estate Institute of Western Australia

Single residential

Those properties selling according to a system of title whereby a single land owning entity has title to the land and there is no shared ownership of any portion of the land. This title is commonly referred to as “green” title.

Strata title

Those properties selling according to a system of title whereby multiple land owning entities operate under a system of shared ownership of all or some portions of the land determined according to a strata plan. Owners are entitled to exclusive use of areas defined within walls of the building and may also be entitled to exclusive use of land areas as specified in the strata plan. Those property types currently referred to as apartment, duplex, villa, townhouse etc. are generally strata title type properties.



References

References

Australian Government (2015). Budget measures budget paper No. 2 2014-15. <http://budget.gov.au/2014-15/content/bp2/html/index.htm>

Australian Prudential Regulation Authority (2016). First Home Savers Accounts. <http://www.apra.gov.au/crossindustry/FHSA/Pages/default.aspx>

Cassells, R., Duncan, A., Gao, G., James, A., Leong, K., Markkanen, S. and Rowley, S. (2014). Housing affordability: The real costs of housing in WA. Bankwest Curtin Economics Centre, Focus on Western Australia Series, Issue #2, April 2014.

Duncan, A., James, A., Leong, K., Ong, R. and Rowley, S. (2016), Keeping a roof over our heads: BCEC housing affordability report 2016. Bankwest Curtin Economics Centre, Focus on Western Australia Series, Issue #7, June 2016.

Housing Authority (2016a). Housing affordability – A study for the metropolitan Central sub-region area. Housing Authority, REIWA, Shelter WA. Government of Western Australia

Housing Authority (2016b). Housing Authority annual report. Government of Western Australia. http://www.housing.wa.gov.au/HousingDocuments/Housing_Authority_Annual_Report_2015_16.pdf

Housing Authority (2016c) Seniors Housing Strategy: Discussion Paper November 2016. Government of Western Australia

Housing Industry Forecasting Group (HIFG) (2016). Forecasting dwelling commencements in Western Australia 2016-2017. Housing Industry Forecasting Group. November 2016 www.HIFG.net.au

Corresponding Author Details

Greg Costello
Associate Professor
Curtin Business School

GPO Box U1987
Perth, WA 6845

Phone: 9266 7778

Email: greg.costello@curtin.edu.au

Other Authors:

Kenneth Leong, Bankwest Curtin Economics Centre

Steven Rowley, School of Economics and Finance, Curtin University

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Contact

Bankwest Curtin Economics Centre (BCEC)

Level 4, Building 408
Curtin University
GPO Box U1987
Perth WA 6845
Tel: +61 8 9266 2873
Email: bcec@curtin.edu.au

bcec.edu.au