



Housing Affordability

A study for the Perth metropolitan area

Report: 2016

Explanatory Notes

Research and Analysis conducted by:



In association with industry experts, the Real Estate Institute of WA (REIWA), and supported by Shelter WA.

BACKGROUND

1 These explanatory notes provide a comprehensive account of the concepts, definitions and methods used in this report. The analysis is based on house, unit and land sales from January 2013 to December 2015 within the Perth metropolitan area. The data has been extracted from the private sector product “APM Pricerfinder”, which uses Valuer General’s data, sourced through the Real Estate Institute of Western Australia (REIWA).

2 For Housing Authority house, unit and land sales (2013-2015), admin-by-product data has been used. This is because the Housing Authority has thousands of transactions within the Valuer General’s data, of which only a small number are actual sale transactions.

DEFINITIONS

Geography

3 The REIWA geography was used in this report. This included the five REIWA sub-regions; Central; South West; South East; North West and North East. These were then disaggregated to Perth Planning Regions (another REIWA geography) and finally, suburb level. For more detail regarding geography, please see Appendix 1.

4 To ensure all areas of the Perth metropolitan area were covered, a Peel sub-region was added to the REIWA geography. This was defined using the suburbs within the Local Government Areas of Mandurah and Murray.

Household Income Categories

5 Household income is defined using proportions of the Perth median household income. This is the standard definition used by many affordable housing providers^{1,2}. For the Perth metropolitan area, the definitions for December quarter 2015 are calculated in table 1 (below).

Table 1: Definition of Household Income Groups (December quarter, 2015)

Very low income (<50% of median): under \$42,850	\$42,850
Low income (50-80% of median): \$42,851-68,560	\$68,560
Moderate income (80-120% of median): \$68,561-102,840	\$102,840
Estimated median income for Greater Perth*	\$85,700

**Based on median household income for Greater Perth from 2011 Census and indexed by wage price index (ABS Cat No. 6345.0 Table 2b)*

Moderate income has been further divided into two categories:

Moderate income – lower (80-100% of median): \$68,561-85,700	\$85,700
Moderate income – upper (100-120% of median): \$85,701-102,840	\$102,840

Calculation of financial affordability

6 For the purposes of this study, a mortgage calculator has been used to estimate an affordable established dwelling and land price for the Perth metropolitan area. These estimates were based on a number of assumptions which are outlined in table 2 (below). One of the main assumptions is the 30% rule³. That is, for households to avoid housing stress, their mortgage repayments should not exceed 30% of their gross household income.

1 <http://www.aho.nsw.gov.au/-ASSETS/media-publications/publications/factsheets/general-aho-factsheets/NSWAffordableHousingGuidelines.pdf> (p7)

2 http://www.housing.wa.gov.au/HousingDocuments/AHS_Report_final.pdf (P55)

3 This was considered the most suitable metric for measuring housing stress in the paper "Measuring Housing Stress: How much do definitions matter?" (Nepal, Taming and Harding, 2010).

Table 2: Mortgage calculator: financially affordable house and land prices

Indicative affordable house and land prices in Greater Perth

As at December quarter 2015 (a)

Gross Household Income	Affordable loan amount	Deposit	Affordable house price	Affordable land price
\$30,000	\$130,900	\$14,500	\$145,400	\$76,800
\$42,850	\$187,000	\$20,800	\$207,800	\$109,700
\$50,000	\$218,200	\$24,200	\$242,400	\$128,000
\$60,000	\$261,900	\$29,100	\$291,000	\$153,600
\$68,560	\$299,200	\$33,200	\$332,400	\$175,500
\$70,000	\$305,500	\$33,900	\$339,400	\$179,200
\$80,000	\$349,200	\$38,800	\$388,000	\$204,900
\$85,700	\$374,000	\$41,600	\$415,600	\$219,400
\$90,000	\$392,800	\$43,600	\$436,400	\$230,400
\$102,840	\$448,800	\$49,900	\$498,700	\$263,300

(a) Please see assumptions in table 3 (below)

Calculations for financial affordability (established dwelling price)

7 To determine a financially affordable established dwelling price, the mortgage calculator in table 2 uses the following assumptions to calculate the maximum purchase price possible for each of the household income categories. These are based on standard borrowing criteria for the commercial banking sector.

Table 3: assumptions for financially affordable house and land prices

Assumptions:

Interest rate:	5.58% ¹
Deposit:	10.0%
Term of loan:	30 years
Percentage of income devoted to repayments: 30%	30%
Land proportion	52.8% ²

1 Average of standard variable rate for quarter (source: RBA).

2 Land proportion is explained in detail below (section 8 and table 4).

Calculations for financial affordability (land price)

8 To determine a financially affordable land purchase price, the mortgage calculator (table 2) uses the average land value in the Perth metropolitan area and divides this by the average land and new home build value (see table 4, below). This proportion is then applied to each of the household income categories to estimate the approximate amount a household is expected to spend on the land component of their house and land package.

Table 4: Calculating proportion of land value in a new home build

Estimated average value of dwelling approval, Greater Perth ¹	\$271,356.10
Estimated average land price, Greater Perth ²	\$303,725.00
Estimated average total build price, Greater Perth ³	\$575,081.10
Estimated proportion of land expenditure within total build price, Greater Perth ⁴	52.80%

1 Source: Building Approvals, Australian Bureau of Statistics, Cat No. 8731.0, original numbers

2 Source: Landgate data, sourced from UDIA (WA)

3 Calculated as average dwelling approval value plus average land price

4 Calculated as average land price as a proportion of average total build price

9 For very low income households, the above calculation would suggest a land value of \$109,700 and a build component of \$98,082. Discussions with the Housing Authority's building department have set a minimum build price of \$150,000. Therefore, for the very low income households, the affordable land price has been set manually as the difference between the total affordable house price (\$207,800) and the minimum build price (\$150,000). Therefore, the land component for these households has a maximum price of \$57,800.

Adjusted income ranges and affordable purchase prices

10 Household income was derived for December quarter 2015 (see table 1, above). This was then adjusted back to December quarter 2014 and 2013, using the ABS' Wage Price Index (catalogue 6345.0).

Table 5: Adjusted household income ranges, by income category

Household income category	Household income range		
	Adjusted to December 2013	Adjusted to December 2014	Adjusted to December 2015
Very Low Income Household*	<\$41,150	<\$42,100	<\$42,850
Low Income Household*	\$41,151-\$65,840	\$42,101-\$67,360	\$42,851-\$68,560
Moderate Income Household (lower)*	\$65,841-\$82,300	\$67,361-\$84,200	\$68,561-\$85,700
Moderate Income Household (upper)*	\$82,301-\$98,760	\$84,201-\$101,040	\$85,701-\$102,840

**Indexed for wage growth using the ABS' Wage Price Index (6345.0 Table 2b)*

11 The adjusted household income ranges (see table 5, above) are used to update the financially affordable established dwelling purchase price for 2013 and 2014.

Table 6: Financial affordability: adjusted established house/unit prices

Household income category	Affordable established purchase price 2013*	Affordable established purchase price 2014*	Affordable established purchase price 2015*
Very Low Income Household	Up to \$199,600	Up to \$204,100	Up to \$207,800
Low Income Household	Up to \$319,300	Up to \$326,700	Up to \$332,400
Moderate Income Household (lower)	Up to \$399,100	Up to \$408,300	Up to \$415,600
Moderate Income Household (upper)	Up to \$478,900	Up to \$490,000	Up to \$498,700

**Calculations based on indexed household income, ABS, Wage Price Index, 6345.0*

12 The adjusted household income ranges (see table 5, above) are also used to update the financially affordable land purchase price for 2013 and 2014.

Table 7: Financial affordability: land only prices

Household income category	Affordable land purchase category 2013*	Affordable land purchase category 2014*	Affordable land purchase category 2015*
Very Low Income Household	\$55,493**	\$56,617**	\$57,800**
Low Income Household	Up to \$168,600	Up to \$172,500	Up to \$175,500
Moderate Income Household (lower)	Up to \$210,700	Up to \$215,600	Up to \$219,400
Moderate Income Household (upper)	Up to \$252,900	Up to \$258,700	Up to \$263,300
High Income Household	Over \$252,900	Over \$258,700	Over \$263,300

**Land lot price reflects 52.8% of the total affordable established purchase price.*

***For very low income households, a minimum build price of \$150k was set (2015), this was then indexed back to \$147.5k (2014) and \$144.1k (2013). Affordable land purchase is then the total affordable house price for this category, minus the minimum build price.*

DATA QUALITY

Non-residential data

13 Records which were for commercial or other non-residential sales were removed.

Removing erroneous records

14 Some records are transfers of half or quarter values (due to paying a previous owner out of their share). This tends to happen in divorces and at other life stages (e.g. parents transferring property to children). Each suburb was checked for these records by using the data cleansing rules provided by REIWA.

Unusually low or 'land only' sales

15 For some sales marked as 'houses', the sale price is extremely low. Some of these are administrative errors and some are thought to be derelict houses (therefore value reflects only the price of the land). To reduce the number of these being identified as affordable sales, a lower cut-off of 50% of the lower quartile price for house/units in the area was set. Records with sale prices below this cut-off were flagged for investigation as land sales.

Retirement villages

16 Sales in retirement villages have been flagged separately, as they are a product which is relevant to only a small sub-set of purchasing households on low to moderate incomes.

Regional report variables

Household type

17 The size of the housing product required is dependant on the type of household or family who are purchasing. To indicate a potentially appropriate sized product, the number of bedrooms was used for this analysis.

Table 8: Number of bedrooms by household type

Household type	Number of bedrooms
Couples/lone persons	2 bedrooms (or less)
Families	3+ bedrooms

Product type

18 This was derived by the land use field in the Pricfinder (Valuer General's) data. House, duplex, townhouse and villa were all used as labelled. For home unit, group house, triplex, and quadruplex, these were split into two groups:

Villa: if they were single storey.

Unit: if they were two or more storeys (but not a townhouse).

Product scale

19 This was defined using the URBIS definition:

Low-rise: 1-3 storeys.

Mid-rise: 4-8 storeys.

High-rise: 9+ storeys.

Product age

20 In some of the commentary, a broad age descriptor was used:

Older-style: Build year of 1979 and earlier.

Newer-style: Build year of 1986 and later.

No labelling: Build year 1980-1985.

Distance from CBD

21 Distance from CBD was estimated through google maps as the distance between the suburb (central point) and the Perth GPO (as defined by google).

Median price

22 Sale price is a compulsory field within the Valuer General's data. A median value of all reported values was taken within each sales category.

Median Build and Land area

23 Building and land area are optional fields within the Valuer General's data. A median value of all reported values was taken within each sales category.

Median bedrooms

24 Number of bedrooms is an optional field within the Valuer General's data. A median value of all reported values was taken within each sales category.

For further information regarding the methodology, please contact Julie.Considine@housing.wa.gov.au.