

## Chapter 6

### Affordability

#### Introduction

The description of the market for housing in Clark County in the previous chapter provides a starting place for an analysis of the affordability of various levels of housing by residents of each study area. The purpose of this chapter is to determine the ability of households, both renters and homeowners, to purchase modest houses and the ability of renters to afford modest rental units. Since a mortgage is essential to purchasing a house, the first task will be to determine the minimum income required to obtain mortgages of different amounts. The second task will be to separate the income distribution introduced in Chapter 2 into distributions for homeowners and renters. With these, it will be possible to analyze the capacity for both renters and current owners to purchase a house. The chapter will conclude with an analysis of the affordability of rental housing.

#### Mortgage Payments

The analysis begins with the construction of Exhibit 6.1, which shows a range of house prices from \$30,000 to \$200,000 in the far-left column and the associated income required to obtain a 30-year fixed-payment mortgage at 7% interest in the far-right column. For each price, the components of a mortgage payment have been estimated based on the following assumptions.

1. **Principle and Interest (P&I)** is based on the price of the house and the standard calculation of a 30-year mortgage at 7% interest. For simplicity, a zero down payment is assumed. Closing costs are assumed to be paid out-of-pocket.
2. **Property Insurance** is estimated at \$5 per \$1000 of valuation.
3. **Real Estate Taxes** are estimated at 50 mills on 35% of valuation. For example, a \$100,000 home pays \$146 per month in real estate taxes.
4. **Private Mortgage Insurance (PMI)** per year is 0.5% of the total amount borrowed. The payment is this number divided by 12.

The sum of these four elements is the actual mortgage payment. This amount is not shown, however, because it is the total payment on all forms of household debt that ultimately determines the ability to obtain a mortgage. The sixth column contains household debt other than the mortgage, e.g. credit cards, automobile loans, bank loans, etc. The monthly payment for this debt is assumed to be \$500 per month for all buyers. Adding this amount to the sum of the previous columns gives the total monthly payment of all forms of debt shown as “Total Monthly Payment”.

## Exhibit 6.1

## Income Required for Various Mortgage Amounts

<u>House Price</u>	<u>P&amp;I</u>	<u>Property Insurance</u>	<u>Real Estate Taxes</u>	<u>PMI</u>	<u>Other Debt</u>	<u>Total Monthly Payment</u>	<u>Income Required for Mortgage</u>	<u>Housing Category</u>
\$30,000	\$200	\$13	\$44	\$13	\$500	\$768	\$25,583	
\$40,000	\$266	\$17	\$58	\$17	\$500	\$858	\$28,560	
\$50,000	\$333	\$21	\$73	\$21	\$500	\$947	\$31,538	
<b>\$55,190</b>	\$367	\$23	\$80	\$23	\$500	\$993	\$33,083	<i>Modest House</i>
\$60,000	\$399	\$25	\$88	\$25	\$500	\$1,037	\$34,515	
<b>\$68,956</b>	\$459	\$29	\$101	\$29	\$500	\$1,117	\$37,182	<i>New, Low-Cost Class D</i>
\$70,000	\$466	\$29	\$102	\$29	\$500	\$1,126	\$37,493	
<b>\$78,626</b>	\$523	\$33	\$115	\$33	\$500	\$1,203	\$40,061	<i>Median House</i>
\$80,000	\$532	\$33	\$117	\$33	\$500	\$1,215	\$40,471	
\$90,000	\$599	\$38	\$131	\$38	\$500	\$1,305	\$43,448	
\$100,000	\$665	\$42	\$146	\$42	\$500	\$1,394	\$46,426	
<b>\$102,808</b>	\$684	\$43	\$150	\$43	\$500	\$1,419	\$47,262	<i>New, Ave.-Quality Class D</i>
\$110,000	\$732	\$46	\$160	\$46	\$500	\$1,484	\$49,403	
\$120,000	\$798	\$50	\$175	\$50	\$500	\$1,573	\$52,381	
\$130,000	\$865	\$54	\$190	\$54	\$500	\$1,662	\$55,358	
\$140,000	\$931	\$58	\$204	\$58	\$500	\$1,752	\$58,336	
\$150,000	\$998	\$63	\$219	\$63	\$500	\$1,841	\$61,314	
\$160,000	\$1,064	\$67	\$233	\$67	\$500	\$1,931	\$64,291	
\$170,000	\$1,131	\$71	\$248	\$71	\$500	\$2,020	\$67,269	
<b>\$174,722</b>	\$1,162	\$73	\$255	\$73	\$500	\$2,062	\$68,675	<i>New, Good-Quality Class C</i>
\$180,000	\$1,197	\$75	\$263	\$75	\$500	\$2,110	\$70,246	
\$190,000	\$1,264	\$79	\$277	\$79	\$500	\$2,199	\$73,224	
\$200,000	\$1,330	\$83	\$292	\$83	\$500	\$2,288	\$76,202	

According to Fannie Mae guidelines, the total annual payment of debt cannot exceed 36% of total annual income. Multiplying the monthly payment by 12 and dividing it by 0.36 (i.e. 36%) yields the lowest annual income for which the mortgage is affordable, which is shown in the far-right column.

Five of the houses in Exhibit 6.1 are labeled as benchmarks. The first, with a price of \$55,190, is the “Modest House”. Its price is greater than the lowest 25% of houses in Clark County. The table shows that the minimum income necessary to obtain a mortgage for this “25<sup>th</sup> percentile” house is \$33,083. The second is a “New, Low Cost Class D” house, as defined in Exhibit 5.15 of the previous chapter, with a price of \$68,956<sup>1</sup>. It represents the lowest cost house of reasonable quality that might be built in Clark County. The minimum income necessary to obtain a mortgage for this house is \$37,182. The third labeled house is the “Median House” which means that half the houses in Clark County had a lower price and half had a higher price.<sup>2</sup> An income of \$40,061 is required for this mortgage. It is interesting to note that the median income in Clark County for 2001 is very close to this number, so that the person with the median income can purchase the median house.<sup>3</sup> The “New, Average Quality Class D” and “New, Good Quality Class C” houses from Exhibit 5.15 are the other two benchmarks in Exhibit 6.1.

### **Income Distribution for Buyers and Renters**

In order to determine the number of households in each study area which can afford the modest or low-cost new houses, it is necessary to reconsider the income distribution from Chapter 2. The top half of Exhibit 2.15 is shown in Exhibit 6.2 on the next page. It was not important to distinguish between buyers and renters in that distribution, but such a distinction is necessary for an accurate picture of affordability. Consequently, the distribution is separated between renters and owners in the remainder of the Exhibit 6.2. The process for separating the two groups relies on a statistical estimation of the proportion of renters in a given income range in each block group.<sup>4</sup> The table with the renters’ distribution shows, for example, that in the East study area, there are 1,032 renters with less than \$20,000 annual income, 710 renters with incomes between \$20,000 and \$35,000, and so on. Summing the first column shows the total number of renters in the East. Summing the first row shows the total number of renters throughout Clark County with less than \$20,000 in income.

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<sup>1</sup> The cost, calculated in Exhibit 5.15 includes profit for the builder, so that it is equivalent to the price.

<sup>2</sup> It is the “50<sup>th</sup> percentile” house. The prices for this and the “modest home” come from the 2000 Census.

<sup>3</sup> This is not necessarily the case for similar calculations from other counties.

<sup>4</sup> A regression was run to estimate these proportions. It related the proportion of renters by block group in the 2000 Census data to the median income by block group in the 2001 Claritas data. The estimated proportions were then applied at the median of each income range by block group to obtain the estimated numbers of renters and owners in each block group. While the 2000 Census data on the composition of renters and owners by block group recently has been released, the median incomes for the 2000 data have not been.

## Exhibit 6.2

## Renters and Owners Income Distribution

Income Range	Renters and Owners						Total
	East	North	Rocking Horse	Southwest	Suburban	City	
< \$20,000	1853	1831	4082	812	3893	8578	12471
\$20,000 - \$35,000	1724	1880	2002	722	4775	6328	11103
\$35,000 - \$50,000	1210	1549	1152	658	4463	4569	9032
\$50,000 - \$75,000	1170	2198	904	631	7313	4903	12216
\$75,000 - \$100,000	291	1011	237	243	3948	1782	5730
\$100,000 - \$125,000	56	374	54	74	1823	558	2381
\$125,000 - \$150,000	20	171	20	12	667	223	890
> \$150,000	15	391	19	17	816	442	1258
	6339	9405	8470	3169	27698	27383	55081

Income Range	Renters						Total
	East	North	Rocking Horse	Southwest	Suburban	City	
< \$20,000	1032	1394	3115	480	1575	6020	7595
\$20,000 - \$35,000	710	1058	1129	315	1428	3213	4641
\$35,000 - \$50,000	347	608	453	200	931	1608	2539
\$50,000 - \$75,000	141	362	149	81	640	732	1372
\$75,000 - \$100,000	0	0	0	0	0	0	0
\$100,000 - \$125,000	0	0	0	0	0	0	0
\$125,000 - \$150,000	0	0	0	0	0	0	0
> \$150,000	0	0	0	0	0	0	0
	2229	3423	4846	1076	4574	11574	16148

Income Range	Owners						Total
	East	North	Rocking Horse	Southwest	Suburban	City	
< \$20,000	857	455	1009	346	2417	2668	5085
\$20,000 - \$35,000	1058	857	910	424	3490	3249	6739
\$35,000 - \$50,000	900	981	729	477	3684	3087	6771
\$50,000 - \$75,000	1073	1915	787	574	6959	4349	11308
\$75,000 - \$100,000	303	1054	247	253	4117	1858	5975
\$100,000 - \$125,000	58	390	56	77	1901	582	2483
\$125,000 - \$150,000	21	178	21	13	696	232	928
> \$150,000	16	408	20	18	851	461	1312
	4286	6238	3779	2182	24115	16486	40601

## Affordability of Houses

Exhibit 6.3 presents the analysis of the ability of current renters to purchase various houses. The first table refers to the “Modest House.” As described above, a buyer must have a minimum income of \$33,083 in order to obtain a mortgage for this house. The table shows, for each study area, the number of households above and below this threshold. In the East, for example, there are only 579 out of total of 2229, or 26%, of renters who could afford the “Modest House”. The percentages for the North and Rocking Horse, respectively, are 32.3% and 15.4%, etc. Out of a total of 16,148 renters in Clark County, 4,505, or 27.9%, could meet the requirements for a mortgage on this house. A study by the Census Bureau using 1995 data estimated that 9.9% of renters nationwide could afford a modest house in their area.<sup>5</sup> By this standard, Clark County renters are less burdened than the typical renter nationwide.

The remaining three tables measure the affordability of the three types of new construction that were labeled in Exhibit 6.1. As one would expect, the percentage of renters who could afford a given type of house falls as the type of house becomes more expensive. It is significant to note that only 21.9% of renters countywide could afford to buy the New, Low Cost Class D House without government assistance.

Exhibit 6.4 presents the same analysis for current homeowners. The first table shows, for example, that 58.5% of the homeowners in the East and 80% of them in the North could afford the modest existing house. Countywide, that figure is 73%, which is roughly comparable to the 74.6% nationwide reported in the Census study<sup>6</sup>. By this measure, Clark County homeowners bear about the same affordability burden as homeowners elsewhere in the nation.

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<sup>5</sup> Howard A. Savage, “Who Could Afford to Buy a House in 1995?” U.S. Census Bureau, August 1999, Table 1, p.2. This study measured affordability relative to housing prices in a given area, since the level of housing prices varies widely by geography.

<sup>6</sup> Ibid, Table 1, p.2.

## Exhibit 6.3

### House Affordability for Current Renters

#### Modest Existing Home Affordability Analysis

<b>Renters</b>	East	North	Rocking Horse	Southwest	Suburban	Total
# HH above \$33,083	579	1105	747	321	1753	4505
# HH under \$33,083	1650	2317	4100	755	2821	11643
% HH who can afford	26.0%	32.3%	15.4%	29.9%	38.3%	27.9%

#### New Low Cost Class D Home Affordability Analysis

<b>Renters</b>	East	North	Rocking Horse	Southwest	Suburban	Total
# HH above \$37,182	438	882	537	252	1435	3543
# HH under \$37,182	1792	2541	4310	824	3138	12605
% HH who can afford	19.6%	25.8%	11.1%	23.4%	31.4%	21.9%

#### New Average Quality Class D Home Affordability Analysis

<b>Renters</b>	East	North	Rocking Horse	Southwest	Suburban	Total
# HH above \$47,262	204	473	232	117	810	1837
# HH under \$47,262	2025	2949	4614	959	3764	14311
% HH who can afford	9.2%	13.8%	4.8%	10.9%	17.7%	11.4%

#### New Good Quality Class C Home Affordability Analysis

<b>Renters</b>	East	North	Rocking Horse	Southwest	Suburban	Total
# HH above \$68,675	36	92	38	20	162	347
# HH under \$68,675	2194	3331	4809	1056	4412	15801
% HH who can afford	1.6%	2.7%	0.8%	1.9%	3.5%	2.1%

## Exhibit 6.4

## House Affordability for Current Homeowners

Modest Existing House  
Affordability Analysis

Owners	East	North	Rocking Horse	Southwest	Suburban	Total
# HH above \$33,083	2507	5036	1976	1466	18654	29639
# HH under \$33,083	1779	1203	1802	716	5461	10962
% HH who can afford	58.5%	80.7%	52.3%	67.2%	77.4%	73.0%

New Low Cost Class D House  
Affordability Analysis

Owners	East	North	Rocking Horse	Southwest	Suburban	Total
# HH above \$37,182	2241	4784	1755	1343	17674	27796
# HH under \$37,182	2045	1455	2024	840	6442	12805
% HH who can afford	52.3%	76.7%	46.4%	61.5%	73.3%	68.5%

New Average Quality Class D House  
Affordability Analysis

Owners	East	North	Rocking Horse	Southwest	Suburban	Total
# HH above \$47,262	1636	4125	1265	1022	15198	23246
# HH under \$47,262	2650	2114	2514	1160	8917	17355
% HH who can afford	38.2%	66.1%	33.5%	46.8%	63.0%	57.3%

New Good Quality Class C House  
Affordability Analysis

Owners	East	North	Rocking Horse	Southwest	Suburban	Total
# HH above \$68,675	670	2515	543	506	9325	13560
# HH under \$68,675	3616	3724	3236	1676	14790	27041
% HH who can afford	15.6%	40.3%	14.4%	23.2%	38.7%	33.4%

## Affordability of Rental Housing

In order to analyze the affordability of rental housing, current rents, number of bedrooms and location were collected for a sample of 174 rental sites in Clark County in the summer of 2002.<sup>7</sup> The sample was geo-coded and used to estimate statistically how an apartment's rent is related to the number of bedrooms it has and the median income in the study area where it is located. The median income for each study area was then used to predict the median rent for each type of apartment (by number of bedrooms) in each study group. The results are shown in Exhibit 6.5.

However, affordability for a renter also depends on utility costs. Consequently, these rents are net of utility costs. Based on data from the Springfield Metropolitan Housing Authority, typical utility costs for each type of apartment were estimated as shown in Exhibit 6.6. These costs were added to the net rents to find the gross rents (rent including utilities) shown in Exhibit 6.7.

### Exhibit 6.5

#### Predicted Median Net Rents

Apartment Location	Median <u>Net</u> Rent by Number of Bedrooms			
	1	2	3	4
East	\$364	\$427	\$490	\$553
North	\$418	\$481	\$544	\$607
Rocking Horse	\$326	\$389	\$452	\$515
Southwest	\$389	\$452	\$515	\$578
Suburb	\$447	\$510	\$573	\$636

### Exhibit 6.6

#### Typical Utility Costs

Number of Bedrooms	Typical Utility Cost
1 BR	\$112
2 BR	\$128
3 BR	\$154
4 BR	\$176

<sup>7</sup> The data were collected from classified advertisements in the Springfield News-Sun by L.S. Ankrom. The 174 observations constituted all the advertisements in the newspaper over a period of several weeks.

## Exhibit 6.7

### Predicted Median Gross Rents

Apartment Location	Median Gross Rent by Number of Bedrooms			
	1	2	3	4
East	\$476	\$555	\$644	\$729
North	\$530	\$609	\$698	\$783
Rocking Horse	\$438	\$517	\$606	\$691
Southwest	\$501	\$580	\$669	\$754
Suburb	\$559	\$638	\$727	\$812

A standard measure of the affordability of rental housing is that the household spends no more than 30% of its income on rent and utilities. Thus, in order to afford a one-bedroom apartment with the median rent in the East study area, the monthly gross rent of \$476 multiplied by 12, which is \$5,712, must be no more than 30% of a household's total income. To find the lowest income for which this is true, the annual gross rent is divided by 0.3 to obtain \$19,040. This amount is shown in the first box in Exhibit 6.8. The rest of the numbers in this table are calculated in the same fashion.

## Exhibit 6.8

### Affordability Thresholds for Median Rental Housing

Apartment Location	Affordability Threshold by Number of Bedrooms			
	1	2	3	4
East	\$19,040	\$22,200	\$25,760	\$29,160
North	\$21,200	\$24,360	\$27,920	\$31,320
Rocking Horse	\$17,520	\$20,680	\$24,240	\$27,640
Southwest	\$20,040	\$23,200	\$26,760	\$30,160
Suburban	\$22,360	\$25,520	\$29,080	\$32,480

Exhibit 6.9 shows the numbers of currently renting households with incomes above and below a benchmark income. The analysis is performed for both "low-income" renters, those with 50% of Clark County Median Household Income (MHHI)

and “very low-income” renters (30% of MHHI). In contrast to Exhibit 6.4, the bottom line of each table in Exhibit 6.9 shows the percentage below the threshold. Using the standard affordability measure and comparing Exhibits 6.8 and 6.9 shows that “low-income” households cannot afford an apartment with more than one bedroom at the median rent in any study area. In the North and Suburban study areas, they would not be able to afford even the median one-bedroom apartment. “Very low-income” households would not be able to afford an apartment with a separate bedroom in any study area at the median rent by this standard. Consequently, the evidence suggests that poor renters in Clark County suffer a significant affordability burden for rental housing.

## Exhibit 6.9

### Rental Unit Affordability for Current Renters

<b>Low Income</b>	East	North	Rocking Horse	Southwest	Suburban	Total
# HH under \$20,092	1036	1401	3122	482	1584	7624
# HH over \$20,092	1193	2022	1725	595	2990	8524
% HH <b>below</b> \$20,092	46.5%	40.9%	64.4%	44.8%	34.6%	47.2%

<b>Very Low Income</b>	East	North	Rocking Horse	Southwest	Suburban	Total
# HH under \$12,055	622	840	1877	289	949	4578
# HH over \$12,055	1607	2582	2969	787	3624	11570
% HH <b>below</b> \$12,055	27.9%	24.6%	38.7%	26.9%	20.8%	28.4%

### Rental Unit Distribution

Another view of the rental market can be seen through the distribution, by study area, of rental units sorted by rent and number of bedrooms. Exhibit 6.10 shows this distribution, derived by applying 2000 Census data on actual number of rentals (by block group) to 1990 weights. These data will be instrumental in the analysis of policy options in Chapter 7.

## Exhibit 6.10

## Distribution of Rents by Number of Bedrooms and Study Area

Number of Bedrooms	Rental Intervals								Totals
	< \$300	\$300 - \$350	\$350 - \$400	\$400 - \$450	\$450 - \$500	\$500 - \$550	\$550 - \$600	> \$600	
<b>EAST</b>									
0 BR	13	14	0	0	0	0	0	0	27
1 BR	61	197	296	53	0	0	0	0	607
2 BR	0	0	313	391	195	0	0	0	899
3 BR	0	0	0	167	175	244	0	0	586
4 BR	0	0	0	0	11	41	59	0	111
<b>NORTH</b>									
0 BR	15	29	12	2	0	0	0	0	58
1 BR	0	229	358	442	116	3	0	0	1148
2 BR	0	0	176	576	459	246	13	0	1470
3 BR	0	0	0	79	216	214	143	6	658
4 BR	0	0	0	0	0	24	44	21	89
<b>ROCKING</b>									
0 BR	43	5	0	0	0	0	0	0	48
1 BR	312	1086	428	15	0	0	0	0	1841
2 BR	0	73	1238	459	14	0	0	0	1784
3 BR	0	0	589	381	27	0	0	0	997
4 BR	0	0	0	0	65	96	15	0	176
<b>SW</b>									
0 BR	3	10	1	0	0	0	0	0	14
1 BR	0	64	94	142	0	0	0	0	300
2 BR	0	0	62	82	296	10	0	0	450
3 BR	0	0	0	0	60	184	27	0	271
4 BR	0	0	0	0	0	9	28	4	41
<b>SUBURB</b>									
0 BR	9	10	18	9	2	2	0	0	50
1 BR	0	137	110	285	187	60	5	18	802
2 BR	0	0	102	356	481	526	139	73	1677
3 BR	0	0	0	0	450	425	644	353	1872
4 BR	0	0	0	0	0	32	33	107	172

## Conclusion

Compared to other areas of the country, the owner-occupied housing stock in Clark County is affordable. Only a relatively low number of Clark County residents would need to spend more than 36% of their income on housing and other debts to purchase a modestly priced house. Among current homeowners, 73% could buy the modestly priced house, compared to 74.6% nationally.

However, over the long run, Clark County faces a problem because much of the existing housing stock is old. As shown in Exhibit 6.1, the cost of building a new low-cost Class D house, which is roughly equivalent to an existing modestly-priced house, is \$68,956. This cost is significantly greater than the price for which a modestly priced house sells, \$55,190. There are opportunities for public and private provision of new stock. But, new construction will disrupt the existing housing markets. A more complete analysis of this contention follows in the next chapter.

At the same time, poor renters in Clark County carry a significant affordability burden. As shown in Exhibit 6.9, 8,524 of Clark County households that rent (47.2% of the total) qualify as “low-income.” 4,578 of these (28.4% of the total) are “very low-income.” As shown above, these people, on their own, are unable to afford apartments at the median rent in almost all categories and locations. Therefore, opportunities for increased public provision of rental housing.