

## ***APPENDIX FOUR: HOUSING DEMAND AND SUPPLY ANALYSIS***

The affordable housing demand and supply gap analysis was conducted to show:

- Where there are existing needs for affordable housing by household size;
- The direction these trends are taking (i.e., the needs won't be the same in 2030 as they were in 2005); and
- Household sizes and income ranges the most in need of affordable housing for future policy and planning decisions.

To capture the demand-supply imbalance the distribution of household size and income ranges were taken from the 2005 Census Update Survey. All of the income and housing values throughout this analysis use 2004 dollars – no inflation or real value adjustments were taken.

Additionally, all calculations are estimates of the housing supply, demand and resulting imbalances both existing and projected into the future. These numbers are meant to identify and highlight the types of housing units that are under or over-supplied in the County, not to direct exact building counts.

## ***SUMMARY OF FINDINGS***

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### **FINDING ONE: THERE IS AN EXISTING AND PROJECTED DEFICIENCY IN AFFORDABLE HOUSING FOR LOW AND MODERATE INCOME HOUSEHOLDS**

There is currently not enough housing priced affordably for households earning less than \$90,000 per year. Those households earning the most (greater than \$150,000 annually) have an excess supply of affordable housing. This finding indicates that households are paying greater than 30% of their household income on housing; living in smaller than ideal units (greater than two persons per bedroom); or could not afford to purchase their home today.

#### **Summary of Demand and Supply Imbalance (2005)**

<b>Annual Household Income</b>	<b>Affordable Monthly Housing Cost</b>	<b>Number of Units Demanded</b>	<b>Number Supplied (Owner Occupied)</b>	<b>Number Supplied (Renter Occupied)</b>	<b>Sufficiency/ (Deficiency)</b>
Less than \$30,000	Less than \$749	39,942	619	12,510	(26,813)
\$30,000 to \$59,999	\$750 to \$1,499	77,926	8,325	59,940	(9,661)
\$60,000 to \$89,999	\$1,500 to \$2,249	68,196	48,337	13,680	(6,179)
\$90,000 to \$119,000	\$2,250 to \$2,999	57,585	64,790	2,340	9,545
\$120 to \$149,000	\$3,000 to \$3,749	36,099	47,083	900	11,884
\$150,000 and above	\$3,750 and above	67,251	93,296	630	26,676

The housing supply shortage for households earning low to moderate incomes is only expected to worsen over the next 20+ years. There is a slight amount of excess supply anticipated for households earning under \$60,000. This is due to the large number of rental multifamily units projected to be built between 2005 and 2030. The majority of multifamily units have monthly rents ranging from \$750 - \$1,499. The excess supply will be quickly absorbed by the bordering cohorts (households earning less than \$30,000 and households earning between \$60,000 and \$89,999).

#### **Summary of Demand and Supply Imbalance (2030)**

<b>Annual Household Income</b>	<b>Affordable Monthly Housing Cost</b>	<b>Number of Units Demanded</b>	<b>Number Supplied (Owner Occupied)</b>	<b>Number Supplied (Renter Occupied)</b>	<b>Sufficiency/ (Deficiency)</b>
Less than \$30,000	Less than \$749	50,797	1,491	19,478	(29,828)
\$30,000 to \$59,999	\$750 to \$1,499	99,104	12,465	93,327	6,688
\$60,000 to \$89,999	\$1,500 to \$2,249	86,729	52,631	21,300	(12,799)
\$90,000 to \$119,000	\$2,250 to \$2,999	73,234	75,304	3,643	5,713
\$120 to \$149,000	\$3,000 to \$3,749	45,909	60,197	1,401	15,689
\$150,000 and above	\$3,750 and above	85,527	105,701	981	21,156

## FINDING TWO: THE DEFICIENCY OF AFFORDABLE HOUSING IS MORE SEVERE FOR LARGER HOUSEHOLDS

The larger the household the greater the need for affordable housing options. Four-plus person households have a deficiency of approximately 11,000 units that are affordable, with three person households having a deficiency of approximately 7,000 units. This demonstrates that there is an existing need for affordable family housing options. This trend continues (and worsens) into 2030. Larger families with incomes up to \$120,000 face restricted affordable housing options. In 2005, there was a small surplus of affordable housing for 4+ households earning between \$90,000 and \$120,000. This surplus is projected to be completely gone in 2030.

### Existing Housing Supply & Demand Conditions (2005)

Annual Household Income	Affordable Monthly Housing Cost	PERSONS IN HOUSEHOLD				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	(9,932)	(6,666)	(4,884)	(5,331)	<b>(26,813)</b>
\$30,000 to \$59,999	\$750 to \$1,499	3,273	(40)	(3,149)	(9,745)	<b>(9,661)</b>
\$60,000 to \$89,999	\$1,500 to \$2,249	3,765	(2,175)	(1,768)	(6,002)	<b>(6,179)</b>
\$90,000 to \$119,000	\$2,250 to \$2,999	7,414	448	(219)	1,902	<b>9,545</b>
\$120 to \$149,000	\$3,000 to \$3,749	6,275	1,821	233	3,556	<b>11,884</b>
\$150,000 and above	\$3,750 and above	14,356	5,471	2,505	4,344	<b>26,676</b>
<b>Net Surplus / (Deficit)</b>		<b>25,150</b>	<b>(1,141)</b>	<b>(7,283)</b>	<b>(11,275)</b>	<b>5,451</b>

### Projected Housing Supply & Demand Conditions (2030)

Annual Household Income	Affordable Monthly Housing Cost	PERSONS IN HOUSEHOLD				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	(9,991)	(7,412)	(5,895)	(6,529)	<b>(29,828)</b>
\$30,000 to \$59,999	\$750 to \$1,499	13,364	5,692	(1,790)	(10,578)	<b>6,688</b>
\$60,000 to \$89,999	\$1,500 to \$2,249	3,755	(4,171)	(3,076)	(9,307)	<b>(12,799)</b>
\$90,000 to \$119,000	\$2,250 to \$2,999	9,061	(1,186)	(1,484)	(677)	<b>5,713</b>
\$120 to \$149,000	\$3,000 to \$3,749	9,057	2,632	283	3,717	<b>15,689</b>
\$150,000 and above	\$3,750 and above	16,814	3,344	875	122	<b>21,156</b>
<b>Net Surplus / (Deficit)</b>		<b>42,060</b>	<b>(1,102)</b>	<b>(11,087)</b>	<b>(23,252)</b>	<b>6,620</b>

## FINDING THREE: THE LARGER A HOUSEHOLD'S INCOME THE GREATER THE OPPORTUNITY TO FIND HOUSING AT LESS THAN 30% AFFORDABILITY

Not all households will spend 30% of their income on housing. The 30% marker was created in this analysis to avoid double counting of units and denote maximum affordability. The following analysis looks at the cumulative housing options (renter and owner occupied supply) available to households that max out at 30% of household income.

### Cumulative Affordable Supply (2005)

Annual Household Income	Affordable Monthly Housing Cost	PERSONS IN HOUSEHOLD				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	8,478	3,164	863	624	<b>13,129</b>
\$30,000 to \$59,999	\$750 to \$1,499	42,942	23,752	8,523	6,178	<b>81,395</b>
\$60,000 to \$89,999	\$1,500 to \$2,249	64,008	43,271	17,902	18,230	<b>143,412</b>
\$90,000 to \$119,000	\$2,250 to \$2,999	79,853	63,650	29,122	37,917	<b>210,542</b>
\$120 to \$149,000	\$3,000 to \$3,749	89,563	77,921	37,315	53,726	<b>258,525</b>
\$150,000 and above	\$3,750 and above	106,786	105,607	53,583	86,475	<b>352,451</b>

This exercise shows us that the greater the household income, the greater the breadth of housing choices. For example, a one-person household earning greater than \$150,000, has over 106,000 housing units that are affordable at 30% or less of their annual household income. It is unlikely that someone in this income range will choose a unit costing less than \$750 per month, but the option exists nonetheless. Comparatively, one person households earning less than \$30,000 annually has less than 8,500 housing units to choose from and still meet the affordability guidelines.

The below table shows the projected cumulative affordable housing units in 2030.

### Cumulative Affordable Supply (2030)

Annual Household Income	Affordable Monthly Housing Cost	PERSONS IN HOUSEHOLD				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	13,422	5,089	1,413	1,045	<b>20,969</b>
\$30,000 to \$59,999	\$750 to \$1,499	66,454	37,013	13,371	9,923	<b>126,761</b>
\$60,000 to \$89,999	\$1,500 to \$2,249	92,213	60,432	24,471	23,576	<b>200,692</b>
\$90,000 to \$119,000	\$2,250 to \$2,999	111,995	84,593	37,534	45,517	<b>279,639</b>
\$120 to \$149,000	\$3,000 to \$3,749	125,421	103,059	47,941	64,817	<b>341,237</b>
\$150,000 and above	\$3,750 and above	145,882	134,655	66,320	101,063	<b>447,920</b>

## FINDING FOUR: THERE IS AN OPPORTUNITY TO RETHINK HOUSING PREFERENCES

Housing preference can be thought of as fluid. The notion of attached (townhouse) housing units in the suburbs did not become mainstream until the 1970s. Prior to the 1970s, attached housing was seen as only occurring in cities, with little chance of market acceptability in the suburbs. Once attached housing was built in the suburbs, it became obvious that families would accept denser housing and even seek it out in some cases. Since the 1970s, single family attached housing has been the most prevalent form of new housing stock built in the County.

The current debate is over market acceptability of suburban condos aimed at families. The current mantra is that families (outside of those living in large urban areas, such as New York City, for example) are averse to living in dense condos. As land availability dwindles, and single-family housing prices soar beyond the means of the majority of households, families should begin to accept and choose high-density living if the correct amenities are in place. These amenities include: open, green space, proximity to good schools and County services, proximity to family-friendly entertainment and activities, and a sense of community.

Affordability in a good community drives purchasers at all life stages. The predominance of attached housing in the suburbs began not because families and young professionals all of a sudden decided that they wanted attached product, but rather because they could afford these housing products in their neighborhood of choice. The key to encouraging families to live in high density, condos and apartments is to provide affordable options. Therefore, the focus on only building small, luxury condominiums and apartments must be switched to a focus on providing quality, affordable, dense condominiums and apartments in a variety of sizes.

### Matrix of Housing Options by Household Size

Housing Options	PERSONS IN HOUSEHOLD			
	1	2	3	4+
Efficiency Condo/Apt.	X			
One Bedroom Condo/Apt.	X	X		
Two Bedroom Condo/Apt	X	X	X	
Three-plus Bedroom Condo/Apt.		X	X	X
Townhouse/Duplex	X	X	X	X
Single Family Detached	X	X	X	X

# METHODOLOGY

## HOUSING DEMAND – 2005 AND 2030

### STEP ONE: CALCULATE THE DISTRIBUTION OF HOUSEHOLD SIZE

The overall distribution of household income by household size (Figure 2) was calculated from Figure 1 to find out what percentage each household size made up of the overall number of households. (e.g., 82,342 one-person households divided by 350,000 total households equals 23.5%, which is the share of one-person households.)

Figure 1

Household Income by Household Size (2004)  
Source: 2005 Census Update Survey

	1 %	2 %	3 %	4 %	5+	%	Total	%				
< \$14,999	8,676	10.5%	3,093	2.9%	1,444	2.4%	604	1.0%	913	2.4%	14,731	4.2%
\$15,000- 19,999	2,719	3.3%	1,448	1.3%	1,327	2.2%	513	0.9%	382	1.0%	6,390	1.8%
\$20,000- 24,999	3,554	4.3%	2,438	2.3%	1,270	2.1%	1,024	1.7%	731	1.9%	9,017	2.6%
\$25,000- 29,999	3,619	4.4%	2,936	2.7%	1,755	2.9%	1,048	1.7%	792	2.1%	10,150	2.9%
\$30,000- 34,999	4,528	5.5%	3,214	3.0%	1,723	2.8%	1,418	2.4%	368	1.0%	11,251	3.2%
\$35,000- 39,999	5,509	6.7%	3,075	2.9%	1,756	2.9%	1,160	1.9%	841	2.2%	12,340	3.5%
\$40,000- 44,999	5,817	7.1%	3,428	3.2%	2,000	3.3%	1,677	2.8%	1,247	3.2%	14,170	4.0%
\$45,000- 49,999	5,137	6.2%	3,395	3.2%	2,168	3.5%	1,508	2.5%	1,117	2.9%	13,325	3.8%
\$50,000- 54,999	6,073	7.4%	4,415	4.1%	1,322	2.2%	1,925	3.2%	1,453	3.8%	15,188	4.3%
\$55,000- 59,999	4,397	5.3%	3,278	3.0%	1,934	3.2%	1,217	2.0%	1,499	3.9%	12,326	3.5%
\$60,000- 64,999	4,094	5.0%	4,235	3.9%	2,195	3.6%	2,244	3.7%	1,711	4.4%	14,480	4.1%
\$65,000- 69,999	2,568	3.1%	3,921	3.6%	2,021	3.3%	1,243	2.1%	961	2.5%	10,714	3.1%
\$70,000- 74,999	3,283	4.0%	3,380	3.1%	1,814	3.0%	1,866	3.1%	1,484	3.8%	11,827	3.4%
\$75,000- 79,999	3,063	3.7%	3,937	3.7%	2,039	3.3%	1,732	2.9%	1,105	2.9%	11,875	3.4%
\$80,000- 89,999	4,444	5.4%	6,408	6.0%	3,173	5.2%	3,716	6.2%	2,148	5.6%	19,889	5.7%
\$90,000- 99,999	3,631	4.4%	7,955	7.4%	3,704	6.0%	3,834	6.4%	2,556	6.6%	21,679	6.2%
\$100,000 - 119,999	4,872	5.9%	12,149	11.3%	7,834	12.8%	7,444	12.4%	4,105	10.6%	36,404	10.4%
\$120,000 - 149,999	3,465	4.2%	12,558	11.7%	8,029	13.1%	8,239	13.7%	4,120	10.7%	36,411	10.4%
\$150,000- 199,999	1,449	1.8%	10,606	9.9%	6,710	10.9%	7,702	12.8%	4,185	10.8%	30,651	8.8%
\$200,000- 299,999	716	0.9%	7,338	6.8%	4,504	7.3%	5,883	9.8%	3,387	8.8%	21,828	6.2%
\$300,000+	728	0.9%	4,463	4.1%	2,669	4.3%	4,004	6.7%	3,489	9.0%	15,353	4.4%
Total households	82,342	100.0%	107,670	100.0%	61,392	100.0%	60,002	100.0%	38,593	100.0%	350,000	100.0%
Median 2004 HH Income	\$51,326		\$91,550		\$97,433		\$108,788		\$99,958		\$83,879	

Figure 2

Household Income by Household Size (2004)  
Source: 2005 Census Update Survey

	1	%	2	%	3	%	4	%	5+	%	Total	%
< \$30,000	18,569	22.6%	9,915	9.2%	5,796	9.4%	3,189	5.3%	2,818	7.3%	40,288	11.5%
\$30,000 - \$59,999	31,461	38.2%	20,805	19.3%	10,903	17.8%	8,906	14.8%	6,524	16.9%	78,600	22.5%
\$60,000 - \$89,999	17,451	21.2%	21,882	20.3%	11,243	18.3%	10,801	18.0%	7,409	19.2%	68,786	19.7%
\$90,000 - \$119,999	8,503	10.3%	20,103	18.7%	11,538	18.8%	11,278	18.8%	6,661	17.3%	58,083	16.6%
\$120,000 - \$149,999	3,465	4.2%	12,558	11.7%	8,029	13.1%	8,239	13.7%	4,120	10.7%	36,411	10.4%
> \$150,000	2,892	3.5%	22,407	20.8%	13,883	22.6%	17,589	29.3%	11,061	28.7%	67,832	19.4%
Total Households	82,342	100.0%	107,670	100.0%	61,392	100.0%	60,002	100.0%	38,593	100.0%	350,000	100.0%
HH Size % of Total		23.5%		30.8%		17.5%		17.1%		11.0%		100.0%

## STEP TWO: CALCULATE THE NUMBER OF HOUSEHOLDS (2005) BY HOUSEHOLD SIZE AND HOUSEHOLD INCOME

This distribution was applied to the household estimate from MWCOG’s 2005-2030 Household Projection. (i.e., 23.5% of households in 2005 were 1-Person households. This percentage was applied to the total household estimate from MWCOG-not the Census update survey number of households. Therefore 23.5% times 347,000 households (Figure 4) equals 81,636 one-person households in the County.) Further, the distribution of households within income ranges was applied to the number of households in that particular size range. (i.e., 22.6% of one-person households earn less than \$30,000 per year, which was calculated from Figure 1 and is highlighted in red<sup>1</sup>.

**Figure 3**

**MWCOG Household Forecasts, 2005-2030**

	2005	2010	2015	2020	2025	2030
Single Family	239,333	247,604	254,268	261,041	264,231	265,535
Multi-Family	107,667	122,396	135,732	146,859	160,569	175,765
Total	347,000	370,000	390,000	407,900	424,800	441,300

**Figure 4**

**Household Size by Household Income (2005)**

Annual Household Income	PERSONS IN HOUSEHOLD					Total
	1	2	3	4	5+	
Less than \$30,000	18,410	9,830	5,747	3,162	2,794	39,942
\$30,000 to \$59,999	31,191	20,627	10,810	8,830	6,468	77,926
\$60,000 to \$89,999	17,302	21,694	11,147	10,709	7,345	68,196
\$90,000 to \$119,000	8,430	19,931	11,439	11,181	6,604	57,585
\$120 to \$149,000	3,435	12,450	7,960	8,169	4,085	36,099
\$150,000 and above	2,868	22,215	13,764	17,438	10,966	67,251
Total	81,636	106,747	60,866	59,488	38,262	347,000

## STEP THREE: CALCULATE THE NUMBER OF HOUSEHOLDS (2030) BY HOUSEHOLD SIZE AND HOUSEHOLD INCOME

The calculation from step two was done with the Household Forecast for 2030, using the same distribution of household size and income in Figures 1 and 2 and applied to the number of households

<sup>1</sup> This 22.6% was multiplied by 81,636 (the number of one-person households) to come up with 18,410. This was the number of one-person households earning less than \$30,000 per year. The process was continued for each income range by household size to come up with the numbers in Figure 4.

projected for 2030 (441,300). The distribution of household sizes by household income in 2030 is shown below.

**Figure 5**

**Household Size by Household Income (2030)**

Annual Household Income	PERSONS IN HOUSEHOLD					Total
	1	2	3	4	5+	
Less than \$30,000	23,413	12,502	7,308	4,021	3,553	50,797
\$30,000 to \$59,999	39,668	26,233	13,748	11,229	8,226	99,104
\$60,000 to \$89,999	22,003	27,590	14,176	13,619	9,342	86,729
\$90,000 to \$119,000	10,721	25,348	14,548	14,219	8,398	73,234
\$120 to \$149,000	4,369	15,834	10,124	10,389	5,195	45,909
\$150,000 and above	3,647	28,252	17,504	22,177	13,946	85,527
<b>Total</b>	<b>103,821</b>	<b>135,757</b>	<b>77,407</b>	<b>75,654</b>	<b>48,660</b>	<b>441,300</b>

**STEP FOUR: CALCULATE MAXIMUM AFFORDABILITY BY HOUSEHOLD INCOME AND HOUSEHOLD SIZE DISTRIBUTION**

Finally, the 30% of annual household income spent on housing rule was applied to determine affordability ranges for the above household size by household income tables.<sup>2</sup>

Figures 6 and 7 are the housing demand numbers for 2005 and 2030, and depict households separated by household size and income range paying 30% of their income on housing.

**Figure 6**

**Demand by Household Income, Household Size and Affordability (2005)**

Annual Household Income	Affordable Monthly Housing Cost	PERSONS IN HOUSEHOLD				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	18,410	9,830	5,747	5,956	39,942
\$30,000 to \$59,999	\$750 to \$1,499	31,191	20,627	10,810	15,298	77,926
\$60,000 to \$89,999	\$1,500 to \$2,249	17,302	21,694	11,147	18,054	68,196
\$90,000 to \$119,000	\$2,250 to \$2,999	8,430	19,931	11,439	17,785	57,585
\$120 to \$149,000	\$3,000 to \$3,749	3,435	12,450	7,960	12,253	36,099
\$150,000 and above	\$3,750 and above	2,868	22,215	13,764	28,404	67,251
<b>Total</b>		<b>81,636</b>	<b>106,747</b>	<b>60,866</b>	<b>97,750</b>	<b>347,000</b>

Figure 7 applies the housing affordability ranges to the 2030 numbers.

<sup>2</sup> 30% of \$29,999 is \$8,999. \$8,999 was divided by 12 to determine monthly housing costs at 30% affordability (\$749). This was done for each of the income categories. The monthly housing cost at 30% affordability is the maximum a household should spend on housing, regardless of tenure.



**Figure 7**

Demand by Household Income, Household Size and Affordability (2030)

Annual Household Income	Affordable Monthly Housing Cost	PERSONS IN HOUSEHOLD				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	23,413	12,502	7,308	7,574	50,797
\$30,000 to \$59,999	\$750 to \$1,499	39,668	26,233	13,748	19,455	99,104
\$60,000 to \$89,999	\$1,500 to \$2,249	22,003	27,590	14,176	22,960	86,729
\$90,000 to \$119,000	\$2,250 to \$2,999	10,721	25,348	14,548	22,618	73,234
\$120 to \$149,000	\$3,000 to \$3,749	4,369	15,834	10,124	15,583	45,909
\$150,000 and above	\$3,750 and above	3,647	28,252	17,504	36,123	85,527
	<b>Total</b>	103,821	135,757	77,407	124,315	441,300

## HOUSING SUPPLY – 2005

### OWNER OCCUPIED HOUSING

#### STEP FIVE: CALCULATE MAXIMUM AFFORDABLE FOR-SALE HOME PRICE

The value of owner-occupied housing was determined using M-NCPPC affordability indices based on a household's ability to cover the costs of home ownership at a maximum of 30% of household income. The factors include: taxes, insurance, and mortgage payment. A 10% down-payment, and 30-year fixed interest loan is assumed. Affordable condo prices are lower, since they also include monthly condo fees.

Figure 8

#### Maximum Home Price by Household Income Range

Annual Household Income	Housing Price - Single Family	Housing Price - Condominium
Less than \$30,000	Less than \$108,000	Less than \$100,000
\$30,000 to \$59,999	\$108,000 to \$219,999	\$100,000 to \$201,999
\$60,000 to \$89,999	\$220,000 to \$334,999	\$202,000 to \$304,999
\$90,000 to \$119,999	\$335,000 to \$449,999	\$305,000 to \$405,999
\$120,000 to \$149,000	\$450,000 to \$569,999	\$406,000 to \$509,999
\$150,000 and above	\$570,000 and above	\$510,000 and above

#### STEP SIX: COLLECT DISTRIBUTION OF OWNER OCCUPIED HOUSING STOCK BY TOTAL ASSESSMENT VALUE

Owner-occupied housing supply was determined by looking at Maryland State Department of Assessments and Taxation (SDAT) data. The numbers of single family (detached and attached) homes, as well as condos (multifamily), were collected in each income range to see the distribution of total assessment value.

**Figure 9**

**Distribution of Product Type by Assessment and Affordability (2005)**

Annual Household Income	Affordable Monthly Housing Cost	Housing Assessment	Single Family Detached	Single Family Attached	Multi-Family	Total
Less than \$30,000	Less than \$749	Less than \$108,000	8	303	308	619
\$30,000 to \$59,999	\$750 to \$1,499	\$108,000 to \$219,999	348	1,603	6,374	8,325
\$60,000 to \$89,999	\$1,500 to \$2,249	\$220,000 to \$334,999	10,298	23,104	14,935	48,337
\$90,000 to \$119,000	\$2,250 to \$2,999	\$335,000 to \$449,999	41,179	17,611	6,000	64,790
\$120,000 to \$149,000	\$3,000 to \$3,749	\$450,000 to \$569,999	39,806	4,695	2,582	47,083
\$150,000 and above	\$3,750 and above	\$570,000 and above	86,561	4,800	1,935	93,296
Total			178,200	52,116	32,134	262,450

**STEP SEVEN: APPLY DISTRIBUTION OF BEDROOMS BY PRODUCT TYPE TO HOUSING STOCK**

Housing product types were then translated into number of bedrooms, based on the average number of bedrooms per product type. This distribution was calculated from the U.S. Census, American Housing Survey, Washington Metropolitan Area, 1998. The distribution is shown in the following chart.

**Figure 10**

**Distribution of Product Type by Household Size (1998)**

	Single Family Detached	Single Family Attached	Multi-Family
Efficiency	0%	0%	4%
1 Bedroom	0%	0%	0%
2 Bedrooms	2%	11%	44%
3 Bedrooms	9%	27%	47%
4+ Bedrooms	38%	49%	5%
Total	51%	13%	0%
Total	100%	100%	100%

The above distribution was applied to Figure 9, to determine the distribution of houses assessed at levels affordable to housing units at 30% of their annual household income by number of bedrooms. (Figure 11).

An example of how the calculation works in the efficiency case is as follows:

For each household income range, the percent distribution of single family detached, attached and condo units was applied. 0% of single family detached and attached units are efficiencies, while 4% of multifamily units (condos) are efficiencies.

Annual Household Income	Single Family Detached Efficiencies	Single Family Attached Efficiencies	Multifamily Efficiencies	Total Efficiencies
Less than \$30,000	0*8=0	0*303=0	.04*308=12	0+0+12=12
\$30,000 to \$59,999	0*348=0	0*1,603=0	.04*6,374=255	0+0+255=255
\$60,000 to \$89,999	0*10,298=0	0*23,104=0	.04*14,935=597	0+0+597=597
\$90,000 to \$119,000	0*41,179=0	0*17,611=0	.04*6,000=240	0+0+240=240
\$120 to \$149,000	0*39,806=0	0*4,695=0	.04*2,582=103	0+0+103=103
\$150,000 and above	0*86,561=0	0*4,800=0	.04*1,935=77	0+0+77=77
Total	0	0	1,284	1,284

The values differ slightly from this explanation and those in Figure 11, due to rounding in the spreadsheet.

**Figure 11**

**Distribution of Housing Units by Number of Bedrooms, Affordability, and Assessment Value (2005)**

Annual Household Income	Affordable Monthly Housing Cost	Efficiency	Number of Bedrooms				Total
			1 Bedroom	2 Bedrooms	3 Bedrooms	4+ Bedrooms	
Less than \$30,000	Less than \$749	12	169	227	167	44	619
\$30,000 to \$59,999	\$750 to \$1,499	255	2,988	3,460	1,237	386	8,325
\$60,000 to \$89,999	\$1,500 to \$2,249	597	9,319	14,184	15,981	8,256	48,337
\$90,000 to \$119,000	\$2,250 to \$2,999	240	5,401	11,281	24,578	23,291	64,790
\$120 to \$149,000	\$3,000 to \$3,749	103	2,449	6,064	17,556	20,912	47,083
\$150,000 and above	\$3,750 and above	77	3,111	9,996	35,342	44,770	93,296
Total		1,285	23,436	45,213	94,860	97,657	262,451

***STEP EIGHT: APPLY HOUSING STOCK DISTRIBUTION OF BEDROOMS TO HOUSEHOLD SIZE TO DETERMINE EXISTING OWNER OCCUPIED HOUSING STOCK BY ASSESSMENT VALUE AND HOUSEHOLD SIZE***

The number of bedrooms was then distributed into household sizes. The Census’s American Housing Survey shows the average distribution of household size into unit type (by bedroom) for the Washington Metropolitan area.

**Figure 12**

Distribution of Number of Bedrooms by Household Size (1998)

	Number of Bedrooms				
	Efficiency	1 Bedroom	2 Bedrooms	3 Bedrooms	4+ Bedrooms
1 Person	100%	68%	34%	21%	9%
2 Persons	0%	24%	38%	32%	26%
3 Persons	0%	5%	17%	19%	17%
4+ Persons	0%	3%	11%	28%	48%
Total	100%	100%	100%	100%	100%

This distribution was applied to the distribution of housing units by number of bedrooms, assessment value, and affordability to find household size by assessment value and affordability. Figure 13 shows the owner-occupied housing supply (single family detached, single family attached, and condo) in the County.

A similar calculation to the one used to distribute housing product type into number of bedrooms was used to determine the distribution of number of bedrooms into household size.

An example of how this distribution works in the case of one-person households is as follows:

For each household size, the percent distribution of number of bedrooms by household size was applied. For example, one-person households accounted for 100% of efficiencies, 68% of one-bedrooms, 34% of two bedrooms, 21% of three bedrooms, and 9% of four-plus bedroom units. These include all product types (single family attached, detached, and multifamily units). These percentages were multiplied by the numbers in Figure 11 to determine household size by household income ranges.

Annual Household Income	One-Person Efficiencies	One-Person One-Bedrooms	One-Person Two-Bedrooms	One-Person Three-Bedrooms	One Person Four-Plus Bedrooms	TOTAL
Less than \$30,000	1*12=12	.68*169=114	.34*227=77	.21*167=35	.09*44=4	12+114+77+35+4=242
\$30,000 to \$59,999	1*255= 255	.68*2,988= 2,032	.34*3,460= 1,176	.21*1,237= 260	.09*386= 35	255+2,032+1,176+260+35= 3,758
\$60,000 to \$89,999	1*597=597	.68*9,319= 6,337	.34*14,184= 4,823	.21*15,981= 3,356	.09*8,256= 743	597+6,337+4,823+3,356+743= 15,856
\$90,000 to \$119,000	1*240=240	.68*5,401= 3,673	.34*11,281= 3,836	.21*24,578= 5,161	.09*23,291 = 2,096	240+3,673+3,836+5,161+2,096= 15,006
\$120 to \$149,000	1*103=103	.68*2,449= 1,665	.34*6,064= 2,062	.21*17,556= 3,687	.09*20,912= 1,882	103+1,665+2,062+3,687+1,882= 9,399
\$150,000 and above	1*77=77	.68*3,111= 2,116	.34*9,996= 3,399	.21*35,342= 7,422	.09*44,770= 4,029	77+2,116+3,399+7,422+4,029= 17,043
Total	1,284	15,937	15,373	19,921	8,789	61,304

**Figure 13****Distribution of Owner-Occupied Housing Supply by Household Size, Household Income, and Assessment Value (2005)**

Annual Household Income	Affordable Monthly Housing Cost	Housing Assessment	Number of Persons in Households				Total
			1	2	3	4+	
Less than \$30,000	Less than \$749	Less than \$108,000	244	192	86	98	619
\$30,000 to \$59,999	\$750 to \$1,499	\$108,000 to \$219,999	3,758	2,528	1,038	1,002	8,325
\$60,000 to \$89,999	\$1,500 to \$2,249	\$220,000 to \$334,999	15,856	14,887	7,317	10,277	48,337
\$90,000 to \$119,000	\$2,250 to \$2,999	\$335,000 to \$449,999	15,006	19,503	10,817	19,464	64,790
\$120 to \$149,000	\$3,000 to \$3,749	\$450,000 to \$569,999	9,399	13,947	8,044	15,694	47,083
\$150,000 and above	\$3,750 and above	\$570,000 and above	17,042	27,495	16,181	32,578	93,296
Total			61,304	78,552	43,483	79,113	262,451

## RENTER OCCUPIED HOUSING

### STEP NINE: APPLY PERCENT DISTRIBUTION OF RENTS (2005) TO NUMBER OF RENTER HOUSEHOLDS

The rental supply was determined through percent distribution of rents collected in the 2005 Census Update Survey. Renter households were used as a proxy for number of rental units, as the apartment vacancy rate is low – 4.7%.<sup>3</sup>

**Figure 14**

Percent Distribution of Rents, 2005

Affordable Monthly Housing Cost	Percent of Units
Less than \$749	13.9%
\$750 to \$1,499	66.6%
\$1,500 to \$2,249	15.2%
\$2,250 to \$2,999	2.6%
\$3,000 to \$3,749	1.0%
\$3,750 and above	0.7%

This percent distribution was then applied to the number of rental units identified by the 2005 Census Update Survey (90,000 rental units or households).

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<sup>3</sup> Rental Apartment Vacancy Report, 2007, Montgomery County Department of Housing and Community Affairs, Page 7.

**Figure 15**

**Renter Household Income by Household Size (2005)**

Source: 2005 Census Update Survey

	1	%	2	%	3+	%	Total	%
< \$14,999	5,939	18.3%	2,228	8.5%	2,255	7.2%	10,422	11.6%
\$15,000- 24,999	2,726	8.4%	1,970	7.5%	3,928	12.5%	8,624	9.6%
\$25,000- 29,999	1,485	4.6%	1,475	5.6%	2,532	8.1%	5,492	6.1%
\$30,000- 34,999	2,376	7.3%	1,677	6.4%	2,117	6.8%	6,171	6.9%
\$35,000- 39,999	3,077	9.5%	1,192	4.5%	2,109	6.7%	6,378	7.1%
\$40,000- 44,999	2,685	8.3%	1,332	5.1%	2,244	7.2%	6,260	7.0%
\$45,000- 49,999	2,280	7.0%	1,350	5.1%	2,012	6.4%	5,642	6.3%
\$50,000- 54,999	2,322	7.2%	1,512	5.8%	1,761	5.6%	5,595	6.2%
\$55,000- 59,999	1,612	5.0%	983	3.7%	1,149	3.7%	3,744	4.2%
\$60,000- 64,999	1,137	3.5%	1,229	4.7%	1,633	5.2%	3,999	4.4%
\$65,000- 69,999	774	2.4%	1,410	5.4%	812	2.6%	2,996	3.3%
\$70,000- 74,999	1,050	3.2%	912	3.5%	909	2.9%	2,871	3.2%
\$75,000- 79,999	740	2.3%	1,238	4.7%	702	2.2%	2,680	3.0%
\$80,000- 89,999	989	3.1%	1,409	5.4%	1,393	4.4%	3,792	4.2%
\$90,000- 99,999	842	2.6%	1,737	6.6%	1,285	4.1%	3,863	4.3%
\$100,000- 124,999	1,715	5.3%	2,558	9.8%	2,473	7.9%	6,747	7.5%
\$125,000+	651	2.0%	2,019	7.7%	2,053	6.5%	4,723	5.2%
Total households	32,400	100.0%	26,232	100.0%	31,368	100.0%	90,000	100.0%

Staff calculated the number of units in each rent range using the data in Figure 14.<sup>4</sup> The number of units in each rent range is shown in Figure 16 below.

**Figure 16**

Number of Rental Units by Rent Range, 2005

Affordable Monthly Housing Cost	Number of Units
Less than \$749	12,510
\$750 to \$1,499	59,940
\$1,500 to \$2,249	13,680
\$2,250 to \$2,999	2,340
\$3,000 to \$3,749	900
\$3,750 and above	630
Total	90,000

<sup>4</sup> For example: 90,000\*13.9% = 12,510. There are 12,510 rental units under \$750.



## STEP TEN: CALCULATE PERCENT DISTRIBUTION OF RENTAL UNITS BY MONTHLY RENT RANGE

The distribution of renters by household size by rent range was calculated looking at the distribution collected by DHCA in their Rental Apartment Vacancy Report, 2007.

Figure 17

### Number of Rental Units by Household Size by Monthly Rent, 2007

Source: DHCA 2007 Rental Apartment Vacancy Report

Monthly Rent Range	Persons in Household				Total
	1	2	3	4+	
< \$750	741	268	70	47	1,126
\$750 - \$1,499	21,874	12,865	4,718	3,242	42,699
\$1,500 - \$2,249	3,363	2,990	1,331	1,146	8,830
\$2,250 - \$3,124	373	389	179	99	1,040
\$3,125-\$3,749	267	279	128	99	773
>\$3,750	105	111	51	99	366
<b>Total</b>	<b>26,724</b>	<b>16,901</b>	<b>6,477</b>	<b>4,733</b>	<b>54,835</b>

The percentage distribution of persons in household by rent range was calculated.<sup>5</sup> The following distribution was calculated.

Figure 18

### Percent Distribution of Rental Units Within Monthly Rent Ranges by Household Size

Source: DHCA 2007 Rental Apartment Vacancy Report

Monthly Rent Range	Persons in Household				Total
	1	2	3	4+	
< \$750	65.8%	23.8%	6.2%	4.2%	100.0%
\$750 - \$1,499	51.2%	30.1%	11.0%	7.6%	100.0%
\$1,500 - \$2,249	38.1%	33.9%	15.1%	13.0%	100.0%
\$2,250 - \$3,124	35.9%	37.4%	17.2%	9.5%	100.0%
\$3,125-\$3,749	34.6%	36.1%	16.6%	12.8%	100.0%
>\$3,750	28.7%	30.3%	13.9%	27.1%	100.0%

<sup>5</sup> For example, the percentage of rental units for one person households under \$750 per month was calculated by dividing 741 over 1,126. This yields 65.8%, which is the percent of units under \$750 renting to one-person households.

## STEP ELEVEN: CALCULATE THE SUPPLY OF RENTAL UNITS (2005)

The percentages calculated in Figure 18 were applied to the numbers of rental units in Figure 16.<sup>6</sup> The full breakout is shown in Figure 19, which is the supply of rental units, 2005.

Figure 19

### Supply of Rental Units, 2005

Source: DHCA 2007 Rental Apartment Vacancy Report; M-NCPPC 2005 Census Update Survey

	Persons in Household				Total
	1	2	3	4+	
<b>Monthly Rent Range</b>					
< \$750	8,234	2,973	776	527	12,510
\$750 - \$1,499	30,707	18,059	6,622	4,552	59,940
\$1,500 - \$2,249	5,210	4,633	2,062	1,775	13,680
\$2,250 - \$3,124	839	875	403	223	2,340
\$3,125-\$3,749	311	324	149	115	900
>\$3,750	181	191	88	170	630
<b>TOTAL</b>	<b>45,482</b>	<b>27,055</b>	<b>10,100</b>	<b>7,362</b>	<b>90,000</b>

<sup>6</sup> For example, there are 12,510 units that have rents under \$750/month. So 12,510 was multiplied by 65.8% to determine the number of units aimed at one-person households (8,232), 23.8% was multiplied by 12,510 to calculate two-person rental units (2,977), 6.2% was multiplied by 12,510 to determine the number of three-person rental units (776), and 4.2% was multiplied by 12,510 to calculate the number of 4+ rental households (525).

## **HOUSING SUPPLY – 2030**

Staff assumed that housing prices would not appreciate above inflation. This assumption was made because of the extreme price appreciation that occurred during the early 2000s. Currently, there is a market correction occurring, which will reduce housing values below current assessment values. Over the long run, home prices are predicted to increase back to the levels at the peak of the housing market boom in 2005.

### **STEP TWELVE: CALCULATE THE NUMBER OF RENTER AND OWNER OCCUPIED UNITS TO BE BUILT (2005-2030)**

To determine housing supply in the future, staff calculated the new housing units projected to be developed in the County between 2005 and 2030 based off of MWCOG projections. The tenure for the housing units was calculated based off the owner-rental split by product type (single-family versus multi-family) from the 2005 Census Update Survey.

**Figure 20**

Household Projections by Product Type and Tenure, 2005-2030

	Net Change 2005-2030	% Owner Occupied	% Renter Occupied	Owner Occupied	Renter Occupied
Single Family	26,202	92%	8%	24,106	2,096
Multi-Family	68,098	30%	70%	20,429	47,669
Total	94,300			44,535	49,765

## OWNER-OCCUPIED HOUSING

### STEP THIRTEEN: COLLECT ASSESSMENT VALUES BY PRODUCT TYPE FOR HOMES BUILT 1995 ON

The distribution of owner occupied housing was split into existing units and units to be built. The existing units remained in the same distribution as before (household size by household income/affordability). The new units were distributed slightly differently. Assessment values were collected for homes built from 1995 on, to capture recent pricing trends.

**Figure 21**

**Distribution of Housing Units Built From 1995 On by Affordability and Product Type**

Annual Household Income	Multi-Family Assessment	Single-Family Assessment	Single Family Detached	Single Family Attached	Multi-Family	Total
Less than \$30,000	Less than \$100,000	Less than \$108,000	0	150	196	346
\$30,000 to \$59,999	\$100,000 to \$201,999	\$108,000 to \$219,999	189	841	607	1,637
\$60,000 to \$89,999	\$202,000 to \$304,999	\$220,000 to \$334,999	25	617	1,015	1,657
\$90,000 to \$119,000	\$305,000 to \$405,999	\$335,000 to \$449,999	134	3,009	969	4,112
\$120,000 to \$149,000	\$406,000 to \$509,999	\$450,000 to \$569,999	1,899	2,581	684	5,164
\$150,000 and above	\$510,000 and above	\$570,000 and above	1,860	2,645	329	4,834
Total			4,107	9,843	3,800	17,750

### STEP FOURTEEN: DISTRIBUTE ASSESSMENT VALUES BY PRODUCT TYPE INTO NUMBER OF BEDROOMS

The distribution of units built from 1995 on, was then turned into bedroom type using Figure 10's distribution. The following distribution of bedroom type by assessment level was calculated. This calculation is explained following Figure 10.

**Figure 22**

**Distribution of Housing Units Built From 1995 On by Affordability and Number of Bedrooms**

Annual Household Income	Affordable Monthly Housing Cost	Housing Assessment	Efficiency	Number of Bedrooms				Total
				1	2	3	4+	
Less than \$30,000	Less than \$749	Less than \$108,000	8	103	133	83	20	346
\$30,000 to \$59,999	\$750 to \$1,499	\$108,000 to \$219,999	24	363	529	514	206	1,637
\$60,000 to \$89,999	\$1,500 to \$2,249	\$220,000 to \$334,999	41	515	646	363	93	1,657
\$90,000 to \$119,000	\$2,250 to \$2,999	\$335,000 to \$449,999	39	760	1,280	1,574	460	4,112
\$120 to \$149,000	\$3,000 to \$3,749	\$450,000 to \$569,999	27	623	1,189	2,021	1,304	5,164
\$150,000 and above	\$3,750 and above	\$570,000 and above	13	473	1,036	2,019	1,292	4,834
Total			152	2,837	4,813	6,574	3,374	17,750

## STEP FIFTEEN: DISTRIBUTE BEDROOM TYPE INTO HOUSEHOLD SIZE

The bedroom distribution was calculated into household size using Figure 12’s distribution of number of bedrooms by household size (also explained in detail following Figure 12).

**Figure 23**

**Distribution of Housing Units Built From 1995 On by Affordability and Household Size**

Annual Household Income	Affordable Monthly Housing Cost	Housing Assessment	Number of Persons in Household				Total
			1	2	3	4+	
Less than \$30,000	Less than \$749	Less than \$108,000	142	107	47	50	346
\$30,000 to \$59,999	\$750 to \$1,499	\$108,000 to \$219,999	578	506	241	313	1,638
\$60,000 to \$89,999	\$1,500 to \$2,249	\$220,000 to \$334,999	695	509	220	233	1,657
\$90,000 to \$119,000	\$2,250 to \$2,999	\$335,000 to \$449,999	1,364	1,290	633	827	4,114
\$120 to \$149,000	\$3,000 to \$3,749	\$450,000 to \$569,999	1,399	1,582	839	1,346	5,166
\$150,000 and above	\$3,750 and above	\$570,000 and above	1,230	1,484	803	1,319	4,836
Total			5,409	5,477	2,783	4,088	17,757

**Figure 24 Distribution of Housing Units Built from 1995 On by Affordability and Household Size**

## STEP SIXTEEN: CALCULATE THE PERCENT DISTRIBUTION OF FOR SALE HOUSING BUILT FROM 1995 ON BY AFFORDABILITY

A percent distribution of housing units by affordability and household size was calculated. This shows the percent of housing units if 30% of household income was spent on housing.<sup>7</sup>

<sup>7</sup> To get the percent distribution, we multiplied the number of units in an income range and specific household size by the total number of units. For example, the 142 units assessed at less than \$108,000 and occupied by a 1-person household were divided by the total number of units 17,757. The end result was 0.8% of total units were single-family households and assessed at less than \$108,000 for a single family home (\$100,000 for a condo). This process was applied to all of the household size by income range categories.

**Figure 25**

Percent Distribution of Units Built 1995 On By Affordability (30% of Income Spent on Housing) and Household Size

Annual Household Income	Housing Assessment	Number of Persons in Household				Total
		1	2	3	4+	
Less than \$30,000	Less than \$108,000	0.8%	0.6%	0.3%	0.3%	1.9%
\$30,000 to \$59,999	\$108,000 to \$219,999	3.3%	2.8%	1.4%	1.8%	9.2%
\$60,000 to \$89,999	\$220,000 to \$334,999	3.9%	2.9%	1.2%	1.3%	9.3%
\$90,000 to \$119,000	\$335,000 to \$449,999	7.7%	7.3%	3.6%	4.7%	23.2%
\$120 to \$149,000	\$450,000 to \$569,999	7.9%	8.9%	4.7%	7.6%	29.1%
\$150,000 and above	\$570,000 and above	6.9%	8.4%	4.5%	7.4%	27.2%
Total		30.5%	30.8%	15.7%	23.0%	100.0%

### STEP SEVENTEEN: APPLY PERCENT DISTRIBUTION OF NEW HOUSING BY AFFORDABILITY TO PROJECTED NEW UNITS

The distribution in Figure 19 was applied to the number of owner-occupied units projected to be developed in Montgomery County between 2005 and 2030. (Shown in Figure 15)

The supply of new housing units by household income and household size was calculated. The supply of new owner-occupied housing units projected to be built between 2005 and 2030 is 44,535 units (Figure 15). To apply the distribution we multiplied the total new unit count by the percent distribution calculated in Figure 19 for each income range and household size category.<sup>8</sup>

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<sup>8</sup> For example, 0.8% of units built were for one-person households earning less than \$30,000 per year. So 0.8% was multiplied by 44,535 yields 356 units.

**Figure 26**

Distribution of New Household Units by Affordability and Household Size (2005-2030)

Annual Household Income	Housing Assessment	Number of Persons in Household				Total
		1	2	3	4+	
Less than \$30,000	Less than \$108,000	356	268	117	126	868
\$30,000 to \$59,999	\$108,000 to \$219,999	1,451	1,268	604	784	4,107
\$60,000 to \$89,999	\$220,000 to \$334,999	1,744	1,276	552	584	4,157
\$90,000 to \$119,000	\$335,000 to \$449,999	3,422	3,235	1,587	2,073	10,317
\$120 to \$149,000	\$450,000 to \$569,999	3,509	3,967	2,104	3,377	12,957
\$150,000 and above	\$570,000 and above	3,084	3,723	2,014	3,308	12,129
Total		13,566	13,737	6,979	10,253	44,535

**STEP EIGHTEEN: CALCULATE VACANCY FOR ALL UNITS**

There was a 1.5% vacancy rate in 2005. There were 352,451 rental and owner occupied units, for 347,000 households. This yielded 5,451 extra units or 1.5%. Staff applied the same vacancy rate to 2030 supply. The vacancy rate of 1.5% in 2030 yielded an additional 6,620 units. Since 5,451 remained in the housing supply from the 2005 calculations, staff added in an additional 1,169 units. These units were added proportionally throughout supply and rental.

**Figure 27**

Percent Distribution of Vacancy Rate - Owner Occupied Units

Annual Household Income	Housing Assessment	Number of Persons in Household			
		1	2	3	4+
Less than \$30,000	Less than \$108,000	0.1%	0.1%	0.0%	0.1%
\$30,000 to \$59,999	\$108,000 to \$219,999	1.2%	0.8%	0.4%	0.4%
\$60,000 to \$89,999	\$220,000 to \$334,999	3.9%	3.6%	1.8%	2.4%
\$90,000 to \$119,000	\$335,000 to \$449,999	4.1%	5.1%	2.8%	4.8%
\$120 to \$149,000	\$450,000 to \$569,999	2.9%	4.0%	2.3%	4.3%
\$150,000 and above	\$570,000 and above	4.5%	7.0%	4.1%	8.0%

**Figure 28**

Percent Distribution of Vacancy Rate - Renter Occupied Units

Annual Household Income	Housing Assessment	Number of Persons in Household			
		1	2	3	4+
Less than \$30,000	Less than \$108,000	2.9%	1.0%	0.3%	0.2%
\$30,000 to \$59,999	\$108,000 to \$219,999	10.7%	6.3%	2.3%	1.6%
\$60,000 to \$89,999	\$220,000 to \$334,999	1.8%	1.6%	0.7%	0.6%
\$90,000 to \$119,000	\$335,000 to \$449,999	0.3%	0.3%	0.1%	0.1%
\$120 to \$149,000	\$450,000 to \$569,999	0.1%	0.1%	0.1%	0.0%
\$150,000 and above	\$570,000 and above	0.1%	0.1%	0.0%	0.1%

These percent distributions were applied to the outstanding 1,169 units to get the following distributions.

**Figure 29**

Distribution of Vacancy Rate - Owner Occupied Units

Annual Household Income	Housing Assessment	Number of Persons in Household			
		1	2	3	4+
Less than \$30,000	Less than \$108,000	2	1	1	1
\$30,000 to \$59,999	\$108,000 to \$219,999	14	10	4	5
\$60,000 to \$89,999	\$220,000 to \$334,999	46	42	21	28
\$90,000 to \$119,000	\$335,000 to \$449,999	48	59	32	56
\$120 to \$149,000	\$450,000 to \$569,999	34	47	27	50
\$150,000 and above	\$570,000 and above	53	82	48	94

**Figure 30**

Distribution of Vacancy Rate - Renter Occupied Units

Annual Household Income	Housing Assessment	Number of Persons in Household			
		1	2	3	4+
Less than \$30,000	Less than \$108,000	33	12	3	2
\$30,000 to \$59,999	\$108,000 to \$219,999	125	73	27	18
\$60,000 to \$89,999	\$220,000 to \$334,999	21	19	8	7
\$90,000 to \$119,000	\$335,000 to \$449,999	3	4	2	1
\$120 to \$149,000	\$450,000 to \$569,999	1	1	1	0
\$150,000 and above	\$570,000 and above	1	1	0	1



## STEP NINETEEN: CALCULATE OWNER OCCUPIED SUPPLY OF HOUSING, 2030

This distribution was added to the existing housing stock calculated by household size and household income for 2005 plus the outstanding vacant units. The total supply in 2030 is shown below.

**Figure31**

Owner Occupied Supply, 2030

Annual Household Income	Affordable Monthly Housing Cost	Number of Persons in Household				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	602	461	204	225	1,491
\$30,000 to \$59,999	\$750 to \$1,499	5,222	3,806	1,646	1,791	12,465
\$60,000 to \$89,999	\$1,500 to \$2,249	17,646	16,205	7,890	10,890	52,631
\$90,000 to \$119,000	\$2,250 to \$2,999	18,476	22,798	12,436	21,594	75,304
\$120 to \$149,000	\$3,000 to \$3,749	12,942	17,961	10,174	19,120	60,197
\$150,000 and above	\$3,750 and above	20,179	31,299	18,243	35,980	105,701
Total		75,066	92,530	50,594	89,600	307,789

## RENTER OCCUPIED HOUSING, 2030

Renter occupied housing was split into existing units and units to be built. The existing units were kept in the same rent and household size ranges (2004 dollars). The new units (those calculated in Figure 15 off of MWCOG projections and tenure split by the 2005 Census) were distributed according to the same percent distribution used in 2005. There is no historical data that shows changes in rent charged by newer buildings.

### STEP TWENTY: CALCULATE THE NUMBER OF NEW RENTAL UNITS, 2005-2030 BY HOUSEHOLD SIZE AND AFFORDABILITY

The number of new rental units was calculated in Figure 20. The same steps were used in projecting the supply of rental housing in 2030 that were used in determining the base supply breakout. (Figures 14-19).

**Figure 26**

New Rental Units, 2005-2030

Affordable Monthly Housing Cost	Number of Persons in Household				Total
	1	2	3	4+	
Less than \$749	4,553	1,644	429	291	6,917
\$750 to \$1,499	16,979	9,986	3,662	2,517	33,143
\$1,500 to \$2,249	2,881	2,562	1,140	982	7,564
\$2,250 to \$2,999	464	484	223	123	1,294
\$3,000 to \$3,749	172	179	83	64	498
\$3,750 and above	100	105	49	94	348
	25,149	14,960	5,585	4,071	49,765

### STEP TWENTY ONE: CALCULATE RENTAL HOUSING SUPPLY, 2030

The new rental units, existing rental units and new vacant units were added together to determine supply in 2030.

**Figure 27**

Rental Supply, 2030

Annual Household Income	Affordable Monthly Housing Cost	Number of Persons in Household				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	12,821	4,629	1,209	820	19,478
\$30,000 to \$59,999	\$750 to \$1,499	47,810	28,118	10,311	7,087	93,327
\$60,000 to \$89,999	\$1,500 to \$2,249	8,113	7,213	3,210	2,764	21,300
\$90,000 to \$119,000	\$2,250 to \$2,999	1,307	1,363	627	347	3,643
\$120 to \$149,000	\$3,000 to \$3,749	484	505	232	180	1,401
\$150,000 and above	\$3,750 and above	282	297	137	265	981
Total		70,816	42,125	15,726	11,463	140,130

## **GAP ANALYSIS**

### **STEP TWENTY TWO: CALCULATE GAP ANALYSIS, 2005 AND 2030**

A gap analysis was conducted to determine at which household size and household income ranges there is an imbalance in housing supply and demand. The housing supply in 2005 (owner occupied and renter occupied) was subtracted from demand to find the imbalances or gaps. These tables were calculated earlier in the analysis (Figures 6, 13, and 19). The gap analysis is subtracting the total supply (owner and renter occupied) from the demand.

### **2005 ANALYSIS**

The highlighted categories are those with excess demand (under supplied). The analysis shows that:

- There is an across the board need for additional housing for those households earning the least.
- One-person households have the least burden. This is due to the fact that they have smaller, more affordable options available to them than larger households do. These options include efficiencies, and the majority of one-bedroom units.
- Households earning less than \$90,000 face a severe shortage of housing.
- There is a need for affordable, family housing regardless of product type. (For example, four bedroom apartments/condos could fit the needs of a family as well as single family detached or attached housing.)
- If this housing shortage continues, Montgomery County may see a decrease in the number of households earning under \$90,000 per year, as those households migrate to areas (within and outside of the region) with more affordable housing options.
- There is an excess supply of large, expensive homes in the County.
- The shortage of housing in 2005 indicates that some households are:
  - Paying greater than 30% of their household income on housing;
  - Living in smaller than 'optimal' units, i.e., four persons in a one bedroom unit; or
  - Could not afford to purchase their home today (the assessed value is far greater than their mortgages).

## 2030 ANALYSIS

- Similar patterns were observed in 2030.
- In real terms, housing is projected to become even more unaffordable in the future.
- The housing shortage for households earning under \$30,000 is expected to worsen.
- The large share of rental apartments projected, is helping to provide housing opportunities for smaller households earning under \$60,000 per year.
- The housing shortage is projected to affect households of persons 3+ earning less than \$125,000 per year (2005 dollars). This is an increase, as the housing shortage in 2005 affected households earning less than \$90,000.
- The excess supply of large, expensive homes is not anticipated to increase.
- There is expected to be a surge in expensive, smaller housing due to the large number of luxury condos planned. (one and two person households.)

## Demand, 2005

Annual Household Income	Affordable Monthly Housing Cost	Number of Persons in Household				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	18,410	9,830	5,747	5,956	39,942
\$30,000 to \$59,999	\$750 to \$1,499	31,191	20,627	10,810	15,298	77,926
\$60,000 to \$89,999	\$1,500 to \$2,249	17,302	21,694	11,147	18,054	68,196
\$90,000 to \$119,000	\$2,250 to \$2,999	8,430	19,931	11,439	17,785	57,585
\$120 to \$149,000	\$3,000 to \$3,749	3,435	12,450	7,960	12,253	36,099
\$150,000 and above	\$3,750 and above	2,868	22,215	13,764	28,404	67,251
Total		81,636	106,747	60,866	97,750	347,000

## Owner-Occupied Housing Supply, 2005

Annual Household Income	Affordable Monthly Housing Cost	Number of Persons in Household				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	244	192	86	98	619
\$30,000 to \$59,999	\$750 to \$1,499	3,758	2,528	1,038	1,002	8,325
\$60,000 to \$89,999	\$1,500 to \$2,249	15,856	14,887	7,317	10,277	48,337
\$90,000 to \$119,000	\$2,250 to \$2,999	15,006	19,503	10,817	19,464	64,790
\$120 to \$149,000	\$3,000 to \$3,749	9,399	13,947	8,044	15,694	47,083
\$150,000 and above	\$3,750 and above	17,042	27,495	16,181	32,578	93,296
Total		61,304	78,552	43,483	79,113	262,451

## Renter-Occupied Housing Supply, 2005

Annual Household Income	Affordable Monthly Housing Cost	Number of Persons in Household				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	8,234	2,973	776	527	12,510
\$30,000 to \$59,999	\$750 to \$1,499	30,707	18,059	6,622	4,552	59,940
\$60,000 to \$89,999	\$1,500 to \$2,249	5,210	4,633	2,062	1,775	13,680
\$90,000 to \$119,000	\$2,250 to \$2,999	839	875	403	223	2,340
\$120 to \$149,000	\$3,000 to \$3,749	311	324	149	115	900
\$150,000 and above	\$3,750 and above	181	191	88	170	630
Total		45,482	27,055	10,100	7,362	90,000

## Surplus/Defecit, 2005

Annual Household Income	Affordable Monthly Housing Cost	Number of Persons in Household				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	(9,932)	(6,666)	(4,884)	(5,331)	(26,813)
\$30,000 to \$59,999	\$750 to \$1,499	3,273	(40)	(3,149)	(9,745)	(9,661)
\$60,000 to \$89,999	\$1,500 to \$2,249	3,765	(2,175)	(1,768)	(6,002)	(6,179)
\$90,000 to \$119,000	\$2,250 to \$2,999	7,414	448	(219)	1,902	9,545
\$120 to \$149,000	\$3,000 to \$3,749	6,275	1,821	233	3,556	11,884
\$150,000 and above	\$3,750 and above	14,356	5,471	2,505	4,344	26,676
Total		25,150	(1,141)	(7,283)	(11,275)	5,451

The same comparison was made for the projected demand and supply (owner occupied and renter occupied) in 2030. These tables were calculated in Figures 7, 31, and 33.

Demand, 2030

Annual Household Income	Affordable Monthly Housing Cost	Number of Persons in Household				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	23,413	12,502	7,308	7,574	50,797
\$30,000 to \$59,999	\$750 to \$1,499	39,668	26,233	13,748	19,455	99,104
\$60,000 to \$89,999	\$1,500 to \$2,249	22,003	27,590	14,176	22,960	86,729
\$90,000 to \$119,000	\$2,250 to \$2,999	10,721	25,348	14,548	22,618	73,234
\$120 to \$149,000	\$3,000 to \$3,749	4,369	15,834	10,124	15,583	45,909
\$150,000 and above	\$3,750 and above	3,647	28,252	17,504	36,123	85,527
Total		103,821	135,757	77,407	124,315	441,300

Owner-Occupied Housing Supply, 2030

Annual Household Income	Affordable Monthly Housing Cost	Number of Persons in Household				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	602	461	204	225	1,491
\$30,000 to \$59,999	\$750 to \$1,499	5,222	3,806	1,646	1,791	12,465
\$60,000 to \$89,999	\$1,500 to \$2,249	17,646	16,205	7,890	10,890	52,631
\$90,000 to \$119,000	\$2,250 to \$2,999	18,476	22,798	12,436	21,594	75,304
\$120 to \$149,000	\$3,000 to \$3,749	12,942	17,961	10,174	19,120	60,197
\$150,000 and above	\$3,750 and above	20,179	31,299	18,243	35,980	105,701
Total		75,066	92,530	50,594	89,600	307,789

Renter-Occupied Housing Supply, 2030

Annual Household Income	Affordable Monthly Housing Cost	Number of Persons in Household				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	12,821	4,629	1,209	820	19,478
\$30,000 to \$59,999	\$750 to \$1,499	47,810	28,118	10,311	7,087	93,327
\$60,000 to \$89,999	\$1,500 to \$2,249	8,113	7,213	3,210	2,764	21,300
\$90,000 to \$119,000	\$2,250 to \$2,999	1,307	1,363	627	347	3,643
\$120 to \$149,000	\$3,000 to \$3,749	484	505	232	180	1,401
\$150,000 and above	\$3,750 and above	282	297	137	265	981
Total		70,816	42,125	15,726	11,463	140,130

Surplus/Defecit, 2030

Annual Household Income	Affordable Monthly Housing Cost	Number of Persons in Household				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	(9,991)	(7,412)	(5,895)	(6,529)	(29,828)
\$30,000 to \$59,999	\$750 to \$1,499	13,364	5,692	(1,790)	(10,578)	6,688
\$60,000 to \$89,999	\$1,500 to \$2,249	3,755	(4,171)	(3,076)	(9,307)	(12,799)
\$90,000 to \$119,000	\$2,250 to \$2,999	9,061	(1,186)	(1,484)	(677)	5,713
\$120 to \$149,000	\$3,000 to \$3,749	9,057	2,632	283	3,717	15,689
\$150,000 and above	\$3,750 and above	16,814	3,344	875	122	21,156
Total		42,060	(1,102)	(11,087)	(23,252)	6,620

### ***STEP TWENTY THREE: COMPARE GAP ANALYSIS 2005 AND 2030***

The gap analysis was then compared to determine if there were certain demand segments that were seeing even reduced housing options or increasing housing options.

#### **COMPARISION ANALYSIS (2005-2030)**

- The only categories gaining supply are the small, moderate priced units (\$751-\$1,500 per month) and the small, expensive units, primarily smaller condos. This was due to the large number of rental apartments planned to come on the market, as well as a fair amount of planned luxury, condos.
- Otherwise, housing aimed at the households/families most in need of housing, as well, as those households/families earning moderate incomes faced the largest deficit in housing.

### Existing Housing Supply & Demand Conditions (2005)

Annual Household Income	Affordable Monthly Housing Cost	PERSONS IN HOUSEHOLD				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	(9,932)	(6,666)	(4,884)	(5,331)	<b>(26,813)</b>
\$30,000 to \$59,999	\$750 to \$1,499	3,273	(40)	(3,149)	(9,745)	<b>(9,661)</b>
\$60,000 to \$89,999	\$1,500 to \$2,249	3,765	(2,175)	(1,768)	(6,002)	<b>(6,179)</b>
\$90,000 to \$119,000	\$2,250 to \$2,999	7,414	448	(219)	1,902	<b>9,545</b>
\$120 to \$149,000	\$3,000 to \$3,749	6,275	1,821	233	3,556	<b>11,884</b>
\$150,000 and above	\$3,750 and above	14,356	5,471	2,505	4,344	<b>26,676</b>
<b>Net Surplus / (Deficit)</b>		<b>25,150</b>	<b>(1,141)</b>	<b>(7,283)</b>	<b>(11,275)</b>	<b>5,451</b>

### Projected Housing Supply & Demand Conditions (2030)

Annual Household Income	Affordable Monthly Housing Cost	PERSONS IN HOUSEHOLD				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	(9,991)	(7,412)	(5,895)	(6,529)	<b>(29,828)</b>
\$30,000 to \$59,999	\$750 to \$1,499	13,364	5,692	(1,790)	(10,578)	<b>6,688</b>
\$60,000 to \$89,999	\$1,500 to \$2,249	3,755	(4,171)	(3,076)	(9,307)	<b>(12,799)</b>
\$90,000 to \$119,000	\$2,250 to \$2,999	9,061	(1,186)	(1,484)	(677)	<b>5,713</b>
\$120 to \$149,000	\$3,000 to \$3,749	9,057	2,632	283	3,717	<b>15,689</b>
\$150,000 and above	\$3,750 and above	16,814	3,344	875	122	<b>21,156</b>
<b>Net Surplus / (Deficit)</b>		<b>42,060</b>	<b>(1,102)</b>	<b>(11,087)</b>	<b>(23,252)</b>	<b>6,620</b>

### Change in Housing Supply & Demand Conditions (2005 to 2030)

Annual Household Income	Affordable Monthly Housing Cost	PERSONS IN HOUSEHOLD				Total
		1	2	3	4+	
Less than \$30,000	Less than \$749	(59)	(747)	(1,011)	(1,198)	<b>(3,015)</b>
\$30,000 to \$59,999	\$750 to \$1,499	10,091	5,731	1,359	(833)	<b>16,349</b>
\$60,000 to \$89,999	\$1,500 to \$2,249	(10)	(1,997)	(1,308)	(3,305)	<b>(6,619)</b>
\$90,000 to \$119,000	\$2,250 to \$2,999	1,646	(1,634)	(1,265)	(2,579)	<b>(3,832)</b>
\$120 to \$149,000	\$3,000 to \$3,749	2,783	811	50	161	<b>3,805</b>
\$150,000 and above	\$3,750 and above	2,458	(2,127)	(1,630)	(4,222)	<b>(5,520)</b>
<b>Net Change in Surplus / (Deficit)</b>		<b>16,910</b>	<b>39</b>	<b>(3,804)</b>	<b>(11,977)</b>	<b>1,168</b>