



# A Baseline Model to Quantify the Levels of Affordable Housing Need and Supply in Broward County and its Municipalities

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PREPARED FOR  
BROWARD COUNTY, FLORIDA

**FIU**

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## Background

The purpose of the “Affordable Housing Supply and Demand Analysis Model,” utilized in the *2018 Broward Housing Needs Assessment* (see Appendix B), is to provide a baseline data source for quantifying the level of affordable housing need within the County and each municipality. The Affordable Housing Supply and Demand Analysis determines the supply and demand levels of affordable housing in the County and municipalities, using U.S. Census, American Community Survey (ACS) data which measures annually household income and the housing values of all owner- and renter-occupied housing units. The baseline data analysis also serves as a tool for monitoring change in affordable housing supply and demand on an annual basis.

## Methodology and Data Sources

Using U.S. Census ACS 5-year estimates, an owner and renter housing supply/demand analysis is performed for each of the following household income categories established by Broward County:

**Extremely Low Income:** households earning less than 30 percent of the County’s median household income;

**Very Low Income:** households earning from 31 percent to 50 percent of the County’s median household income;

**Low Income:** households earning from 51 percent to 80 percent of the County’s median household income; and

**Moderate Income:** households earning from 81 percent to 120 percent of the County’s median household income.

For owner units, affordability of home purchase is calculated using the standard 3:1 home value-to-household income ratio. Housing values are obtained from Table B25077, 2013-2017 ACS estimates. The affordable supply and demand analysis for owner housing includes households in the “Low” to “Moderate” household income categories earning from 51 to 120 percent of Broward County’s median household income. A separate owner calculation of housing supply and demand includes both “Moderate” income owners **and** renters. In this analysis, “Moderate” income renters are viewed as potential owners as most local housing programs include first time homebuyer programs targeting moderate income renters.

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The total owner household demand is derived by extracting the number of owner-occupied housing units from ACS Table S2503 within each household income category. Due to the rounded ranges provided by ASC estimates, a three (3) step calculation is applied:

- 1) Calculation of the percentage of units inside the ACS household income range utilizing the following formula:

**% =  $[1 - (X - \text{MIN})/(\text{MAX} - \text{MIN})] \times 100$**  for the beginning income point and  
**% =  $[(X - \text{MIN})/(\text{MAX} - \text{MIN})] \times 100$**  for the ending income point, where 'X' is an income point for each household income category and 'MIN/MAX' are established income ranges in the Table S2503;

- 2) Multiplication of derived percentage by the number of owner-occupied units available within a selected income range;
- 3) Summary of total owner-occupied housing units available should a household income category overlap with other income ranges from ACS Table S2503.

Example: Broward County (Individual municipalities will use same ACS tables and calculations)

Step 1: Using Broward County's 2017 median household income (\$54,895) as the starting point, the "Low" (51-80%) owner household income range is established (\$27,996 to \$43,916). This range overlaps within two income ranges in ACS Table S2503: \$25,000 to \$34,999 and \$35,000 to \$49,999.

Based on Broward County's median household income of \$54,895, the beginning income point for low income owners is \$27,996 ('X'), which falls within the \$25,000 ('MIN') to \$34,999 ('MAX') income range. To determine what percentage of low income owner households are included within the ACS range, the formula  $[1 - (27,996 - 25,000)/(34,999 - 25,000)] \times 100 = 70.03\%$  is applied. As noted above, \$43,916 ('X') is the end income point for low income owners, which falls into \$35,000 ('MIN') to \$49,999 ('MAX') income range. To calculate the percentage portion of the income range, the formula  $[(43,916 - 35,000)/(49,999 - 35,000)] \times 100 = 59.44\%$  is applied.

Step 2: First, based on ACS Table S2503, there are a total of 35,727 owner-occupied housing units available within the \$25,000 to \$34,999 income range. Multiplying 35,727 by 70.03% (percentage derived in step 1) results in a supply of 25,021 owner-occupied units. Next, based on ACS Table S2503, there are a total of 49,127 owner-occupied housing units within the \$35,000 to \$49,999 income range. Following the same calculation described above, there are 29,203 owner-occupied units within the \$35,000 to \$49,999 income range.

Step 3: Adding both derived numbers above (25,021 and 29,203 owner-occupied units) results in 54,224 total owner-occupied units available for low income owners.

The calculations for owner supply follow the same basic methodology as housing demand. To determine housing supply, the number of owner-occupied housing units by housing values corresponding to affordable housing price levels for each household income

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category (ACS Table B25075) is calculated. Due to rounded ranges provided by ASC estimates, the same basic three step calculation is applied:

- 1) Calculation of the percentage of owner units within the ACS housing value ranges utilizing the formula:

**% = [1 - (Y - MIN)/(MAX - MIN)] x 100** for the beginning housing value price point and  
**% = [(Y - MIN)/(MAX - MIN)] x 100** for the ending housing value price point, where 'Y' is an affordable housing price level for each household income category and 'MIN/MAX' are established housing value ranges in ACS Table B25075;

- 2) Multiplication of derived percentage by the number of owner-occupied units available within selected housing value ranges;
- 3) Summary of total owner-occupied housing units available in instances where housing values overlap within the housing value ranges from ACS Table B25075.

Based on the above calculations, there are 50,309 of owner-occupied housing units available within the affordable price range for low income households. By subtracting the existing demand (54,225 of housing units) from existing supply (50,309 of housing units), the supply and demand analysis shows a gap of 3,914 affordable housing units for low income owners in Broward County (see table below).

### Existing Owner Supply/Demand Analysis

	HH Income Category	Total Households (Demand)	Home Purchase at Affordable Price Levels		Number of Owner Units Within Affordable Price Range (Supply)	Surplus/Gap within Affordable Price Range
			51% Median	80% Median		
<b>Low Income Owners</b>	51-80% Median	54,224	51% Median	80% Median	50,309	3,914
	\$27,996 - \$43,916		\$83,989	\$131,748		
<b>Moderate Income Owners</b>	81-120% Median	66,528	81% Median	120% Median	71,879	5,351
	\$43,917 - \$65,874		\$131,749	\$197,622		
<b>Moderate Income Owners &amp; Renters</b>	81-120% Median	114,635	81% Median	120% Median	71,879	42,756
	\$43,917 - \$65,874		\$131,749	\$197,622		

Source: U.S. Census, 2017 ACS 5-Year Estimates; analysis and table prepared by FIU Metropolitan Center

For renter units, affordability is calculated using the <30 percent of household income/housing cost standard. In the supply/demand analysis for renter units only existing renters/renter units are included.

Following similar steps as above for owners, the total renter household demand is derived from ACS Table S2503 by extracting the number of renter-occupied housing units within each household income category. Due to rounded ranges, provided by ASC estimates, a three step calculation is applied:

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- 1) Calculation of the percentage of units inside the ACS household income range utilizing the following formula:

$\% = [1 - (X - \text{MIN})/(\text{MAX} - \text{MIN})] \times 100$  for the beginning income point and  
 $\% = [(X - \text{MIN})/(\text{MAX} - \text{MIN})] \times 100$  for the ending income point, where 'X' is an income point for each household income category and 'MIN/MAX' are established income ranges in the Table S2503;

- 1) Multiplication of derived percentage by the number of renter-occupied units available within selected income range;
- 2) Summary of total renter-occupied housing units available should a household income category overlap with other income ranges from Table S2503.

Example: Broward County (Individual municipalities will use same ACS tables and calculations)

Step 1: Using Broward County's 2017 median renter household income (\$40,863) as the starting point, the "Low" (51-80%) renter household income range is established (\$20,432 to \$32,690). This range overlaps within two income ranges in ACS Table S2503: \$20,000 to \$24,999 and \$25,000 to \$34,999.

Based on Broward County's median renter household income of \$40,863, the beginning income point for low income renters is \$20,432 ('X'), which falls within the \$20,000 ('MIN') to \$24,999 ('MAX') income range. To determine what percentage of low income renter households are included within the ACS range, the formula  $[1 - (20,432 - 20,000)/(24,999 - 20,000)] \times 100 = 91.37\%$  is applied. \$32,690 ('X') is an ending income point for low income renters, which falls within the \$25,000 ('MIN') to \$34,999 ('MAX') income range. To calculate the bottom portion of the income range, the formula  $[(32,690 - 25,000)/(34,999 - 25,000)] \times 100 = 76.91\%$  is applied.

Step 2: First, based on ACS Table S2503, there are 17,990 renter-occupied housing units available within the \$20,000 to \$24,999 income range. Multiplying 17,900 by 91.37% (percentage derived in step 1) results in 16,437 renter-occupied units within the income range. Next, based on ACS Table S2503, there are 32,789 renter-occupied housing units available within the \$25,000 to \$34,999 income range. Following the same calculation as above, 25,219 renter-occupied units are included in the renter income range.

Step 3: Adding both derived numbers (16,437 and 25,219 renter-occupied units) results in 41,656 total renter-occupied units available for low income renters.

The total renter household supply is derived from ACS Table B25063 by extracting the number of renter-occupied housing units by gross rent values corresponding to affordable rent levels for each household income category. Due to the rounded ranges provided by ASC estimates, a three step calculation is applied:

- 1) Calculation of the percentage of rental units within the ACS gross rent ranges utilizing the formula:

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$\% = [1 - (Y - \text{MIN})/(\text{MAX} - \text{MIN})] \times 100$  for the beginning rent point and  
 $\% = [(Y - \text{MIN})/(\text{MAX} - \text{MIN})] \times 100$  for the ending rent point, where 'Y' is an affordable rent level for each household income category and 'MIN/MAX' are established gross rent ranges in the Table B25063;

- 1) Multiplication of derived percentage by the number of renter-occupied units available within selected gross rent range;
- 2) Summary of total renter-occupied housing units available in instances where rent levels overlap within the gross rent ranges from ACS Table B25063.

Based on the above calculations, there are 50,309 of renter-occupied housing units available within the affordable price range for low income households. By subtracting the existing demand (41,656 units) from the existing supply (19,287 housing units), the supply and demand analysis shows a gap of 22,369 affordable housing units for low income renters in Broward County (see table below).

### Existing Renter Supply/Demand Analysis

	HH Income Category	Number of Renter Households (Demand)	Affordable Rent Levels		Number of Renter Units Within Affordable Price Range (Supply)	Surplus/Gap with Affordable Price Range
Extremely Low Income Renters	0-30% Median		0% Median	30% Median	0-30% Median	
	\$0 - \$12,259	32,481	\$0	\$306	3,737	28,744
Very Low Income Renters	31-50% Median		31% Median	50% Median	31-50% Median	
	\$12,260 - \$20,431	26,972	\$306	\$511	3,912	23,060
Low Income Renters	51-80% Median		51% Median	80% Median	51-80% Median	
	\$20,432 - \$32,690	41,656	\$511	\$817	19,287	22,369
Moderate Income Renters	81-120% Median		81% Median	120% Median	81-120% Median	
	\$32,691 - \$49,036	48,998	\$817	\$1,226	87,499	38,501

Source: U.S. Census, 2017 ACS 5-Year Estimates; analysis and table prepared by FIU Metropolitan Center

# Data Extraction References

The following tables extracted from American FactFinder (AFF) are used to perform the supply and demand calculations:

## Table S2503 – Financial Characteristics



American FactFinder (AFF) will be taken offline on March 31, 2020.

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S2503 FINANCIAL CHARACTERISTICS 2013-2017 American Community Survey 5-Year Estimates

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Subject	Broward County, Florida											
	Occupied housing units		Percent occupied housing units		Owner-occupied housing units		Percent owner-occupied housing units		Renter-occupied housing units		Percent renter-occupied housing units	
	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
Occupied housing units	675,828	+/-3,153	675,828	+/-3,153	420,780	+/-3,734	420,780	+/-3,734	255,048	+/-3,353	255,048	+/-3,353
HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2017 INFLATION-ADJUSTED DOLLARS)												
Less than \$5,000	24,955	+/-1,188	3.7%	+/-0.2	12,259	+/-831	2.9%	+/-0.2	12,696	+/-821	5.0%	+/-0.3
\$5,000 to \$9,999	20,792	+/-1,066	3.1%	+/-0.2	8,152	+/-544	1.9%	+/-0.1	12,640	+/-863	5.0%	+/-0.3
\$10,000 to \$14,999	31,525	+/-1,459	4.7%	+/-0.2	15,713	+/-897	3.7%	+/-0.2	15,812	+/-943	6.2%	+/-0.3
\$15,000 to \$19,999	34,566	+/-1,398	5.1%	+/-0.2	17,814	+/-886	4.2%	+/-0.2	16,752	+/-1,201	6.6%	+/-0.5
\$20,000 to \$24,999	35,711	+/-1,372	5.3%	+/-0.2	17,721	+/-938	4.2%	+/-0.2	17,990	+/-1,018	7.1%	+/-0.4
\$25,000 to \$34,999	68,516	+/-2,069	10.1%	+/-0.3	35,727	+/-1,628	8.5%	+/-0.4	32,789	+/-1,299	12.9%	+/-0.5
\$35,000 to \$49,999	93,402	+/-2,324	13.8%	+/-0.3	49,127	+/-1,420	11.7%	+/-0.3	44,275	+/-1,768	17.4%	+/-0.7
\$50,000 to \$74,999	120,886	+/-2,540	17.9%	+/-0.4	73,399	+/-1,914	17.4%	+/-0.4	47,487	+/-1,958	18.6%	+/-0.7
\$75,000 to \$99,999	80,405	+/-2,009	11.9%	+/-0.3	55,152	+/-1,518	13.1%	+/-0.3	25,253	+/-1,267	9.9%	+/-0.5
\$100,000 to \$149,999	89,188	+/-2,192	13.2%	+/-0.3	68,834	+/-1,864	16.4%	+/-0.4	20,354	+/-1,153	8.0%	+/-0.4
\$150,000 or more	75,882	+/-1,532	11.2%	+/-0.2	66,882	+/-1,509	15.9%	+/-0.3	9,000	+/-726	3.5%	+/-0.3
Median household income (dollars)	54,895	+/-644	54,895	+/-644	67,225	+/-859	67,225	+/-859	40,863	+/-531	40,863	+/-531

# A Baseline Model to Quantify the Levels of Affordable Housing Need and Supply in Broward County



## Table B25075 – Value

United States Census Bureau **American FactFinder** MISSOURI KENTUCKY VIRGINIA NORTH

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B25075 VALUE  
Universe: Owner-occupied housing units  
2013-2017 American Community Survey 5-Year Estimates

Table View

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Versions of this table are available for the following years:	Broward County, Florida		
	Estimate	Margin of Error	
2017	420,780	+/-3,734	Total:
2016	7,585	+/-598	Less than \$10,000
2015	2,037	+/-268	\$10,000 to \$14,999
2014	2,231	+/-298	\$15,000 to \$19,999
2013	2,521	+/-357	\$20,000 to \$24,999
2012	2,643	+/-329	\$25,000 to \$29,999
2011	3,592	+/-366	\$30,000 to \$34,999
2010	2,950	+/-389	\$35,000 to \$39,999
2009	7,197	+/-642	\$40,000 to \$49,999
	8,872	+/-674	\$50,000 to \$59,999
	10,212	+/-765	\$60,000 to \$69,999
	10,302	+/-877	\$70,000 to \$79,999
	11,565	+/-740	\$80,000 to \$89,999
	9,658	+/-694	\$90,000 to \$99,999
	27,594	+/-1,084	\$100,000 to \$124,999
	22,622	+/-1,120	\$125,000 to \$149,999
	33,582	+/-1,253	\$150,000 to \$174,999
	24,071	+/-1,180	\$175,000 to \$199,999
	45,621	+/-1,443	\$200,000 to \$249,999
	39,753	+/-1,404	\$250,000 to \$299,999
	63,947	+/-1,798	\$300,000 to \$399,999
	33,118	+/-1,206	\$400,000 to \$499,999
	29,348	+/-1,047	\$500,000 to \$749,999
	9,883	+/-642	\$750,000 to \$999,999
	5,883	+/-500	\$1,000,000 to \$1,499,999
	1,694	+/-256	\$1,500,000 to \$1,999,999
	2,509	+/-328	\$2,000,000 or more



# A Baseline Model to Quantify the Levels of Affordable Housing Need and Supply in Broward County



## Table B25063 – Gross Rent

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B25063

**GROSS RENT**

Universe: Renter-occupied housing units

2013-2017 American Community Survey 5-Year Estimates

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	Broward County, Florida	
	Estimate	Margin of Error
Total:	255,048	+/-3,353
With cash rent:	246,662	+/-3,374
Less than \$100	170	+/-101
\$100 to \$149	152	+/-92
\$150 to \$199	615	+/-177
\$200 to \$249	1,757	+/-334
\$250 to \$299	905	+/-221
\$300 to \$349	1,042	+/-241
\$350 to \$399	1,045	+/-249
\$400 to \$449	835	+/-214
\$450 to \$499	839	+/-246
\$500 to \$549	1,329	+/-258
\$550 to \$599	1,471	+/-268
\$600 to \$649	2,231	+/-346
\$650 to \$699	2,345	+/-381
\$700 to \$749	4,084	+/-490
\$750 to \$799	5,371	+/-507
\$800 to \$899	16,018	+/-1,024
\$900 to \$999	21,938	+/-1,168
\$1,000 to \$1,249	97,644	+/-4,816
\$1,250 to \$1,499	44,675	+/-1,571
\$1,500 to \$1,999	53,143	+/-1,808
\$2,000 to \$2,499	17,669	+/-1,051
\$2,500 to \$2,999	6,060	+/-335
\$3,000 to \$3,499	3,063	+/-147
\$3,500 or more	2,537	+/-101
No cash rent:	8,088	+/-636