



Apartments: *A \$1.3 Trillion Market*

A Research Report from the
National Multi Housing Council

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This research was supported in part
by a grant from Fannie Mae.

Revised, November 2001.

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About the National Multi Housing Council

Based in Washington, DC, the **National Multi Housing Council (NMHC)** represents the interests of the nation's largest and most prominent firms in the apartment industry. NMHC members are engaged in all aspects of the development and operation of multifamily housing, including ownership, construction, management, and financing of rental properties.

The Council was established in 1978 as a national association to advocate for rental housing and to provide vital information to the leadership of the multifamily housing industry. Over the years, NMHC has evolved into the industry's leading national voice. The association concentrates on public policies of strategic importance to the industry, particularly in the areas of finance, taxation, property management, technology, the environment, and building codes. NMHC benefits from a focused agenda and a membership that includes the principal officers of the most distinguished real estate organizations in the United States. For more information on joining NMHC, contact the Council at 202/974-2300 or www.nmhc.org.

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Apartments: A \$1.3 Trillion Market

Executive Summary

This study estimates the value of the apartment market both for the United States as a whole and for selected major U.S. metropolitan areas. The research was undertaken for several reasons. First, it enables lenders and equity holders to determine the proportion of the market they represent and to evaluate their exposure, and it allows industry suppliers to better measure the depth of the market. It also allows the overall industry to flex its political “muscle” by showing the size and value of the industry. Finally, when markets are coupled with existing data of multifamily mortgage debt outstanding, the overall equity in apartments can be estimated.

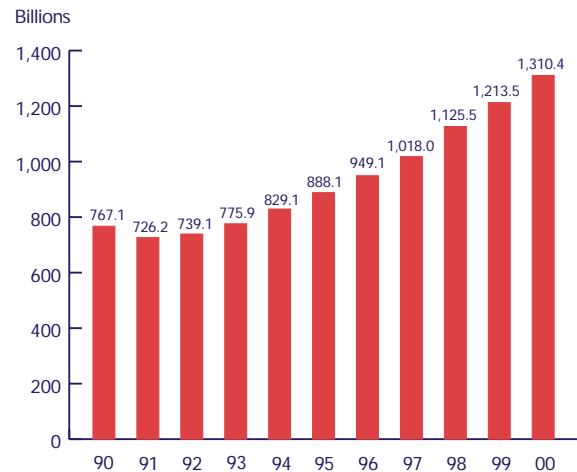
After considering several potential methods to accomplish our goal, we used a “top-down” approach to estimate the value for the overall United States and a metropolitan area-level “bottom-up” approach to estimate the value for individual metropolitan areas. For both the United States and individual metropolitan areas, we calculated an average net operating income (NOI) per square foot. This NOI was multiplied by the average square feet per unit and by the estimate of units. It was then capitalized to determine the apartment value.

The table below summarizes the results of our analysis. The 16.1 million apartment units in the United States in

buildings of more than five units are valued at \$1.310 trillion in 2000. This value has increased from an estimated value of \$767.1 billion in 1990, representing an average annual increase in value of 5.5% during the decade.

As part of the analysis, we also aggregated the values of apartment stocks in 71 of the largest U.S. metropolitan areas. These 71 markets represented just more than 12.8 million units, or 80% of the U.S. total in 2000. Their value was \$1.238 billion, or 94.5% of the total value. Implicitly, the remaining U.S. markets comprise 20% of the stock and 5.5% of the value.

U.S. Total Apartment Valuation



Apartment Values

| | U.S. Inventory (5+ Units) (Units 000) | U.S. Total Valuation (\$ millions) | 71-MSA Inventory (Units 000) | 71-MSA Total Valuation (\$ millions) | Rest of U.S. Inventory (Units 000) | Rest of U.S. Total Valuation (\$ millions) |
|------|---------------------------------------|------------------------------------|------------------------------|--------------------------------------|------------------------------------|--------------------------------------------|
| 1990 | 15,437 | \$ 767,095.5 | 12,368.0 | \$ 632,290.9 | 3,069.0 | \$ 134,804.6 |
| 1991 | 15,378 | \$ 726,183.2 | 12,407.0 | \$ 659,349.6 | 2,971.0 | \$ 66,833.6 |
| 1992 | 15,508 | \$ 739,065.0 | 12,394.0 | \$ 582,409.4 | 3,114.0 | \$ 156,655.6 |
| 1993 | 15,638 | \$ 775,915.2 | 12,376.1 | \$ 609,234.9 | 3,261.9 | \$ 166,680.2 |
| 1994 | 15,724 | \$ 829,099.8 | 12,377.5 | \$ 649,097.6 | 3,346.5 | \$ 180,022.2 |
| 1995 | 15,809 | \$ 888,134.4 | 12,418.2 | \$ 704,396.8 | 3,390.8 | \$ 183,737.6 |
| 1996 | 15,906 | \$ 949,135.1 | 12,475.1 | \$ 802,746.4 | 3,430.9 | \$ 146,388.7 |
| 1997 | 16,003 | \$ 1,018,009.2 | 12,542.3 | \$ 895,440.2 | 3,460.7 | \$ 122,569.0 |
| 1998 | 15,929 | \$ 1,125,525.9 | 12,625.7 | \$ 1,016,527.4 | 3,303.3 | \$ 108,998.5 |
| 1999 | 15,854 | \$ 1,213,539.6 | 12,726.9 | \$ 1,128,399.1 | 3,127.1 | \$ 85,140.5 |
| 2000 | 16,099 | \$ 1,310,415.8 | 12,827.7 | \$ 1,237,760.1 | 3,271.3 | \$ 72,655.8 |

Source: NMHC M/PF Research, NREI, U.S. Census Bureau, IREM, RCG

Project Description

This effort to quantify the size of the apartment market was undertaken for several reasons. It enables lenders and equity holders, including REITs, to determine the proportion of the market they represent and to more accurately evaluate their exposure. It also enables industry suppliers to better measure the depth of the market. Further, it allows the overall industry to flex its political “muscle,” by showing the size and value of the industry. Finally, coupled with existing data on multifamily mortgage debt outstanding, it permits estimates of the overall equity in apartment markets.

In this paper, Rosen Consulting Group (RCG) estimates the value of the U.S. apartment stock—defined here as rental units in buildings with at least five units. This paper also estimates the value of the apartment stock in selected major U.S. metropolitan areas. Specifically, the purpose of the research was to establish a baseline value for the year 2000 and a historical time series. The method we created can also be used for future updates.

We know of only one previous attempt to place a value on the apartment stock. Miles and Tolleson, using a methodology aimed at valuing all commercial real estate, came up with a figure of \$996 billion for the apartment stock in 1996.¹ While our approach may not be useful in examining other kinds of real estate, it should produce more accurate results for the apartment sector.

Methodology

Several ways exist by which the apartment stock and value can be measured. Each of the following methods was considered, but only one proved to be a feasible and realistic way to value the U.S. apartment stock.

Transaction Analysis: The ideal way to perform the measurement would be to add the value of each apartment project throughout the country. The value is most accurately determined by sales price. Theoretically, this could be accomplished by summing data from individual sales transactions. In reality, projects do not continually change hands. Additionally, not all details of sales transactions are

Comparison of REIT-Owned Units in Selected Markets to Total Stock

| | 2000 SNL REIT- Owned Units | 2000 Total Stock* |
|----------------------|-------------------------------------|----------------------|
| United States | 1,158,266 | 16,099,000 |
| 1 Albuquerque, NM | 5,919 | 41,700 |
| 2 Atlanta, GA | 65,472 | 313,500 |
| 3 Chicago, IL | 26,190 | 707,700 |
| 4 Cleveland, OH | 4,150 | 181,200 |
| 5 Dallas, TX | 56,278 | 349,600 |
| 6 Detroit, MI | 10,992 | 285,800 |
| 7 Las Vegas, NV | 17,684 | 135,800 |
| 8 Los Angeles, CA | 15,330 | 905,600 |
| 9 New York, NY | 5,950 | 1,717,800 |
| 10 Oakland, CA | 12,612 | 184,300 |
| 11 Orange County, CA | 13,922 | 217,800 |
| 12 Orlando, FL | 27,653 | 126,600 |
| 13 Phoenix, AZ | 36,801 | 241,600 |
| 14 Sacramento, CA | 4,518 | 107,400 |
| 15 Seattle, WA | 22,275 | 228,300 |

Sources: SNL Securities, RCG

* RCG calculations based on 1990 Census

made publicly available. The limited number of transactions, the lack of thorough records, and the difficulty compiling the information make this an ineffective way to value the apartment stock.

Valuation of REIT Holdings: Alternatively, some data are generally available on a project-by-project basis for units held by REITs. Most REITs file a Schedule 3 that lists their individual properties with information such as purchase/construction price, improvements and depreciation. Some REITs may also report more detailed property-level information. However, REIT ownership represents a relatively small proportion of the market. SNL Securities reports a total of 1.16 million apartments in its REIT-owned database, representing less than 10% of renter-occupied housing units in buildings of 5 or more units as reported by the U.S. Census Bureau. Among a sample of metropolitan areas throughout the country, the number of units owned by REITs in each case measures less than one-fourth of the total apartment stock as measured through U.S. Census data.

¹ Miles, Michael, and Tolleson, Nancy, “A Revised Look at How Real Estate Compares with Other Major Components of Domestic Investment Universe,” *Real Estate Finance*, Spring 1997, pp. 11-20. This paper also cites earlier work by Miles and others which values commercial real estate in 1990.

Additionally, REIT holdings tend to be skewed to higher-end, investment grade properties. Thus, we feel that the sample size is so small as to make valuing REIT holdings an ineffective way to value apartment stock.

While valuation of REIT holdings is not a good method for valuing the entire apartment stock, establishing the value of REIT-owned apartment stock is useful information. It allows REITs to measure their physical share of the apartment market in terms of units, as well as their share of the value of the stock. This REIT analysis can be compared on both a local and national level.

Property Tax Roll Assessment: This method would involve adding the property tax assessment values for apartments in regions throughout the country. Once again, the data collected would be dated and inaccurate. While building valuations are reassessed at sale, most tax districts increase individual property values by the rate of inflation during interim periods. In places such as California, the potential increase in value for property tax purposes is capped by Proposition 13. Additionally, owners have incentive to minimize the value of their properties for tax purposes. Thus, the values on the tax rolls would not reflect true market value for the majority of properties. In addition to the poor quality of the data, the information would be difficult to collect, causing us to reject this as a possible method for valuing the U.S. apartment stock.

Net Operating Income (NOI) Evaluation: The NOI Evaluation method involves calculating average NOI from rent, occupancy rates, and operating expenses. The NOI is then capitalized to establish a value at both the national and metropolitan area levels. It is both a top-down and bottom-up approach. In the top-down portion of the analysis, we use U.S. summary statistics. We capitalize an average U.S. net operating income to obtain a current per unit value, then apply this to the apartment stock. The bottom-up approach involves aggregating MSA level data. We start at the MSA level, capitalizing average NOI in MSAs for which the data are available. The difference between the two estimates provides an estimate for the rest of the United States.

This method is particularly attractive because, unlike the other methods, the data needed to perform the analysis is

available and of better quality than some of the data for the other methods. Thus, after rejecting each of the previous methods, we concluded that the most effective way to value the apartment stock would be through an NOI evaluation.

Analysis

The NOI Evaluation appears to be very straightforward, but is actually more challenging than might be expected. The process requires gathering several key pieces of data for multiple markets. In some cases, data had to be pieced together to represent a consistent geographic area. Some assumptions were necessary, but the end result is the best estimate feasible of apartment stock and value.

Calculating Average Per Unit Value

The first part of the analysis involved creating a method by which an average per-unit value for apartments can be obtained. The value of real estate is determined by capitalizing a project's net operating income. In this case, we applied metropolitan area averages to capitalize NOI for individual markets and the nation as a whole. The following equation was used to determine the per unit value for apartments for each year from 1990 to 2000:

$$\text{Avg. Per Unit Value} = ((\text{Rent} * (\text{Occupancy Rate}) - \text{Op. Exp.}) / \text{Cap. Rate}) * \text{SF per Unit}$$

Following are the inputs used in the analysis and a description of sources used:

- **Apartment Rent:** Apartment rents per square foot were obtained from data provided in the *M/PF U.S. Apartment Market Report* and the National Real Estate Index (NREI) *Market Monitor*. Both sources provide quarterly information on the multifamily market. *M/PF's U.S. Apartment Market Report* measures the performance of institutional grade garden-style rental properties in 57 U.S. metropolitan areas. The *NREI Market Monitor* covers large income-producing properties nationwide. The apartments it covers are usually garden-style, of 100 to 300 units with amenities that could include covered parking and pools. Both sources are biased toward higher-quality, more expensive units.

For this analysis, an average of rents reported during the four quarters of each year was taken for markets where M/PF Research data were available. In other markets, quarterly rents reported by NREI were used.

- **Occupancy Rate:** To calculate net operating income, average rent per unit was adjusted for apartment occupancies. The occupancy rate is (1 – the vacancy rate). The vacancy rates in the analysis represent a simple average of the four quarters as reported each year by M/PF Research for those markets where their data are available. Alternatively, annual average vacancy rates as reported by the U.S. Census Bureau were used for markets where no M/PF Research data are available. Once again, the M/PF data are biased toward higher-quality product in larger projects, while the Census Bureau data include projects of varying degrees of quality in buildings of as few as two units. The Census Bureau relies on a very small sample at the market level, and its series tends to be volatile. Consequently, we feel that M/PF Research, where available, is the better source.
- **Operating Expenses:** For the purposes of this analysis, operating expenses were taken from the 2000 edition of the Institute of Real Estate Management’s (IREM) *Income/Expense Analysis for Conventional Apartments*. Among the data contained in the IREM report is operating costs for selected metropolitan areas.

The data are further broken out by type of apartment project, including garden style, elevator buildings, and low-rise but more than 24 units. RCG uses a weighted average of the different types of apartment projects. The expenses are then moved backward by inflation.

- **Inflation:** Annual inflation statistics are reported by the U.S. Bureau of Labor Statistics. These statistics are nationally-based. National inflation statistics are used to adjust operating expenses for each metropolitan area from 2000 back annually to 1990.
- **Capitalization Rates:** The National Real Estate Index reports capitalization rates on a quarterly basis as part of its *Market Monitor*, which covers large income-producing properties nationwide. The apartments it covers are usually garden-style, of 100 to 300 units with amenities that could include covered parking and pools. Rosen Consulting Group uses a simple average of the four quarters each year to obtain the annual average cap rate.
- **Square Feet per Unit:** Average square feet per unit were calculated from data provided in the M/PF U.S. *Apartment Market Report*. For this analysis, total apartment rent was divided by rent per square foot to obtain square feet per unit. The average unit size varies slightly from quarter to quarter in the M/PF Research report, but for this analysis, we used the fourth quarter 2000

U.S. Apartment Value Calculation

| | Apartment Inventory (5+ Units) (Units 000) | SF/Unit (4Q00) | Rent/SF | Vacancy Rate | Operating Expenses | Value per Square Foot | Total Valuation (millions) |
|-------------|--------------------------------------------|----------------|----------------|--------------|--------------------|-----------------------|----------------------------|
| 1990 | 15,437 | 861 | \$ 8.33 | 5.78% | \$2.82 | \$57.72 | \$ 767,095.5 |
| 1991 | 15,378 | 861 | \$ 8.39 | 6.26% | \$2.94 | \$54.85 | \$ 726,183.2 |
| 1992 | 15,508 | 861 | \$ 8.62 | 6.08% | \$3.03 | \$55.35 | \$ 739,065.0 |
| 1993 | 15,638 | 861 | \$ 8.93 | 6.20% | \$3.12 | \$57.63 | \$ 775,915.2 |
| 1994 | 15,724 | 861 | \$ 9.29 | 5.90% | \$3.20 | \$61.24 | \$ 829,099.8 |
| 1995 | 15,809 | 861 | \$ 9.76 | 6.05% | \$3.29 | \$65.25 | \$ 888,134.4 |
| 1996 | 15,906 | 861 | \$10.12 | 5.58% | \$3.39 | \$69.31 | \$ 949,135.2 |
| 1997 | 16,003 | 861 | \$10.51 | 5.15% | \$3.47 | \$73.89 | \$1,018,009.2 |
| 1998 | 15,929 | 861 | \$11.28 | 4.73% | \$3.52 | \$82.07 | \$1,125,525.9 |
| 1999 | 15,854 | 861 | \$11.71 | 4.70% | \$3.60 | \$88.91 | \$1,213,539.6 |
| 2000 | 16,099 | 861 | \$12.42 | 3.85% | \$3.72 | \$94.54 | \$1,310,415.8 |

Sources: NMHC, M/PF Research, NREI, U.S. Census Bureau, IREM, RCG

report. Additionally, we assumed that average size would be relatively consistent over time and applied the same square footage to previous years. Even though new units tend to be larger than existing apartments, because the existing stock is so large relative to the new units added, this approximation is reasonable.

- **Proxy in Areas with a Lack of Data Availability:** Occasionally, a complete set of data specific to a given market was not available. In those cases, RCG staff selected a market similar to the one in question in both geographic region and size. The missing data were then applied from the proxy market.

Determining the Number of Apartments

Once an average per-unit value was obtained, the next step is to multiply the value by the number of apartments, both on a national and metropolitan area level. Obtaining the national and metropolitan area level inventory of apartments was one of the most challenging parts of the analysis. Several potential sources of the apartment stock exist, including the 1990 Census, which is outdated, the 2000 Census, which is not yet available, or NMHC research,

which is good at the U.S. level, but which only covers a limited number of metropolitan areas.

While NMHC data for projects of five or more units were used for the United States in the top-down analysis, we based our metropolitan area level apartment inventories for 2000 on renter occupied units in projects of more than five units from the 1990 Census. To account for vacancy, the inventory also included vacant housing units in projects of more than five units.

The next task involved bringing the 1990 inventory forward to 2000. Each year, we reduced the stock by 0.75% to reflect removal of units from stock through obsolescence, demolition, and net conversion to nonresidential use. Multifamily permits were used as a proxy for new construction to grow the stock with the following adjustments:

- We assume that 75% of the multifamily permits issued in the previous year will be completed in the current year, along with 25% of the permits issued in the current year.
- We also make an adjustment for the portion of multifamily permits that are developed into condominiums

Apartment Markets: Value Comparison



rather than rental units. This adjustment amount, obtained from NMHC, varied by region.

- In the Northeast, almost 30% of multifamily permits are developed into condominiums.
- In the West, 20.6% of permits are estimated to be for condominiums.
- In the South, the percentage is 15.1%.
- The Midwest has the smallest proportion of condominium development, at 13.6%.
- A final adjustment was used to reflect both permits taken out where construction is never completed, as well as reporting errors.

While we believe these are the most accurate estimate of the number of units in the apartment stock both for the U.S. as a whole, and for the metro areas we have examined, other researchers may come up with different estimates. The methodology we have employed can still be applied to these alternative physical stock estimates to produce estimates of the value of the apartment stock.

This methodology is the best, most comprehensive way to establish the U.S. apartment value. Even so, it has some drawbacks. Most importantly, it relies on market averages rather than data from individual properties. To the extent that the stock surveyed for rents, vacancies, operating expenses, or cap rates in any particular market is different than the true market distribution, a bias is introduced to the results. For example, because most data are from sources that survey institutional grade and/or professionally managed units, the results of the analysis may be skewed to the upper end of the range.

Results

The analysis resulted in a U.S. apartment market valuation of \$1.310 trillion, based on an inventory of 16.1 million apartments nationwide. This value has increased from an estimated value of \$767.1 billion in 1990, representing an average annual increase in value of 5.5%.

The aggregated value of 12.8 million units in the 71 markets used in the analysis is \$1.238 billion. The value of these markets has increased an average of 6.9% per year from \$632.3 billion in 1990. These markets represent 80% of the total units and 94.5% of the total value in 2000,

Top 10 Apartment Markets in Terms of Total Value

| Metropolitan Area | Stock (000s) | Value (\$/SF) | Total Valuation (\$ millions) |
|----------------------|--------------|---------------|-------------------------------|
| 1 New York, NY | 1761.0 | \$194.95 | \$ 293,598.2 |
| 2 Los Angeles, CA | 928.2 | \$144.11 | \$ 111,975.1 |
| 3 Boston, MA | 316.3 | \$203.33 | \$ 56,312.4 |
| 4 San Francisco, CA | 225.7 | \$281.16 | \$ 51,188.1 |
| 5 Chicago, IL | 724.9 | \$ 79.94 | \$ 47,833.5 |
| 6 Washington, DC | 438.7 | \$123.12 | \$ 46,660.9 |
| 7 San Diego, CA | 250.8 | \$154.25 | \$ 32,691.1 |
| 8 San Jose, CA | 124.8 | \$301.52 | \$ 32,493.3 |
| 9 Oakland, CA | 188.8 | \$193.98 | \$ 30,426.7 |
| 10 Orange County, CA | 223.0 | \$153.74 | \$ 30,215.7 |

Sources: US Census Bureau, M/PF Research, NREI, IREM, RCG

Top 10 Apartment Markets in Terms of Number of Units

| Metropolitan Area | Stock (000s) | Value (\$/SF) | Total Valuation (\$ millions) |
|--------------------|--------------|---------------|-------------------------------|
| 1 New York, NY | 1,761.0 | \$194.95 | \$ 293,598.2 |
| 2 Los Angeles, CA | 928.2 | \$144.11 | \$ 111,975.1 |
| 3 Chicago, IL | 724.9 | \$ 79.94 | \$ 47,833.5 |
| 4 Houston, TX | 447.1 | \$ 59.81 | \$ 22,388.3 |
| 5 Washington, DC | 438.7 | \$123.12 | \$ 46,660.9 |
| 6 Dallas, TX | 357.3 | \$ 63.22 | \$ 18,681.4 |
| 7 Atlanta, GA | 320.5 | \$ 92.29 | \$ 30,103.4 |
| 8 Boston, MA | 316.3 | \$203.33 | \$ 56,312.4 |
| 9 Philadelphia, PA | 294.9 | \$105.84 | \$ 27,689.0 |
| 10 Detroit, MI | 292.8 | \$ 69.97 | \$ 18,245.6 |

Sources: U.S. Census Bureau, RCG

which is consistent with expectations. Because these markets include the largest U.S. markets with the highest rents, we expect them to have a disproportionately high percentage of the overall U.S. value.

The remaining U.S. markets comprise 20% of the stock and 5.5% of the value. They have a collective value of \$72.7 billion.

As previously mentioned, these results may be biased to the high side, since the primary sources used, M/PF Research and the National Real Estate Index, tend to survey institutional-grade, higher-quality, professionally-managed apartments. However, because the stock used in the analysis includes projects of five or more units, the stock also contains a similar bias toward institutional grade assets. Consequently, we believe that these results offer as good an estimate as can be made with the available data.

MSA-Level Apartment Values for 2000

| Place | Inventory (Units 000) | Value per Sq.Foot | Total Valuation (\$ millions) | Place | Inventory (Units 000) | Value per Sq.Foot | Total Valuation (\$ millions) |
|---------------------------------|--------------------------|----------------------|----------------------------------|------------------------------|--------------------------|----------------------|----------------------------------|
| Albuquerque, NM | 42.7 | \$ 53.33 | \$ 1,917.80 | Modesto, CA | 14.6 | \$ 85.58 | \$ 1,046.10 |
| Atlanta, GA | 320.5 | \$ 92.29 | \$ 30,103.40 | Nashville, TN | 89.9 | \$ 62.19 | \$ 5,133.80 |
| Austin-San Marcos, TX | 116.1 | \$ 76.53 | \$ 7,172.60 | Nassau-Suffolk, NY | 79.1 | \$143.81 | \$ 9,727.30 |
| Bakersfield, CA | 21.4 | \$ 81.92 | \$ 1,468.40 | New Orleans, LA | 83.1 | \$ 46.54 | \$ 3,434.30 |
| Baltimore, MD | 164.0 | \$ 86.14 | \$ 12,679.80 | New York, NY | 1,761.0 | \$194.95 | \$293,598.20 |
| Bergen-Passaic, NJ | 107.8 | \$ 86.23 | \$ 7,947.10 | Newark, NJ | 160.6 | \$167.12 | \$ 21,057.50 |
| Birmingham, AL | 61.3 | \$ 36.87 | \$ 2,006.30 | Norfolk, VA-NC | 106.5 | \$ 68.59 | \$ 6,601.70 |
| Boston, MA | 316.3 | \$203.33 | \$ 56,312.40 | Oakland, CA | 188.8 | \$193.98 | \$ 30,426.70 |
| Charlotte- Gastonia, NC-SC | 87.6 | \$ 58.27 | \$ 4,807.30 | Orange County, CA | 223.0 | \$153.74 | \$ 30,215.70 |
| Chicago, IL | 724.9 | \$ 79.94 | \$ 47,833.50 | Orlando, FL | 129.1 | \$ 60.30 | \$ 7,331.00 |
| Cincinnati, OH-KY-IN | 142.9 | \$ 63.52 | \$ 8,270.30 | Philadelphia, PA-NJ | 294.9 | \$105.84 | \$ 27,689.00 |
| Cleveland- Lorain-Elyria, OH | 185.7 | \$ 64.13 | \$ 9,770.50 | Phoenix-Mesa, AZ | 246.9 | \$ 68.75 | \$ 14,026.40 |
| Colorado Springs, CO | 35.4 | \$ 92.15 | \$ 2,736.30 | Pittsburgh, PA | 119.4 | \$ 73.09 | \$ 7,240.90 |
| Columbus, OH | 127.5 | \$ 59.25 | \$ 6,608.90 | Portland, OR-WA | 141.9 | \$ 69.32 | \$ 8,776.00 |
| Dallas, TX | 357.3 | \$ 63.22 | \$ 18,681.40 | Raleigh-Durham, NC | 83.8 | \$ 74.95 | \$ 5,921.50 |
| Denver, CO | 207.7 | \$ 86.09 | \$ 15,202.60 | Richmond- Petersburg, VA | 62.7 | \$ 87.35 | \$ 4,742.90 |
| Detroit, MI | 292.8 | \$ 69.97 | \$ 18,245.60 | Riverside- San Bern., CA | 150.2 | \$ 74.18 | \$ 9,240.50 |
| El Paso, TX | 40.2 | \$ 44.18 | \$ 1,394.20 | Rochester, NY | 53.3 | \$ 69.73 | \$ 3,180.90 |
| Fort Worth- Arlington, TX | 135.9 | \$ 65.37 | \$ 7,249.50 | Sacramento, CA | 110.0 | \$ 74.75 | \$ 6,015.40 |
| Fresno, CA | 44.1 | \$ 85.17 | \$ 3,147.70 | Salt Lake City- Ogden, UT | 65.9 | \$ 56.36 | \$ 2,969.30 |
| Ft. Lauderdale, FL | 203.9 | \$ 68.26 | \$ 13,763.50 | San Antonio, TX | 107.1 | \$ 51.07 | \$ 4,507.00 |
| Greensboro, NC | 63.4 | \$ 62.55 | \$ 3,560.40 | San Diego, CA | 250.8 | \$154.25 | \$ 32,691.10 |
| Hartford, CT | 76.9 | \$ 86.77 | \$ 5,710.20 | San Francisco, CA | 225.7 | \$281.16 | \$ 51,188.10 |
| Honolulu, HI | 79.6 | \$107.57 | \$ 7,183.50 | San Jose, CA | 124.8 | \$301.52 | \$ 32,493.30 |
| Houston, TX | 447.1 | \$ 59.81 | \$ 22,388.30 | Seattle-Bellevue, WA | 233.4 | \$110.24 | \$ 22,090.00 |
| Indianapolis, IN | 113.4 | \$ 53.71 | \$ 5,265.70 | Spokane, WA | 26.9 | \$ 52.96 | \$ 1,195.10 |
| Jacksonville, FL | 76.0 | \$ 56.33 | \$ 3,999.40 | St. Louis, MO-IL | 138.5 | \$ 72.98 | \$ 9,115.80 |
| Kansas City, MO-KS | 123.1 | \$ 62.73 | \$ 6,975.20 | Stockton-Lodi, CA | 24.6 | \$ 74.19 | \$ 1,528.70 |
| Las Vegas, NV | 138.5 | \$ 63.21 | \$ 7,602.00 | Tacoma, WA | 46.8 | \$101.87 | \$ 4,001.10 |
| Los Angeles, CA | 928.2 | \$144.11 | \$111,975.10 | Tampa- St.Petersburg, FL | 199.0 | \$ 53.98 | \$ 9,556.10 |
| Louisville, KY-IN | 69.8 | \$ 57.73 | \$ 3,870.40 | Tucson, AZ | 66.3 | \$ 53.10 | \$ 2,916.30 |
| Memphis, TN-AR-MS | 80.6 | \$ 51.99 | \$ 3,937.10 | Tulsa, OK | 51.1 | \$ 46.71 | \$ 1,798.80 |
| Miami, FL | 235.7 | \$ 98.62 | \$ 21,084.20 | Washington, DC | 438.7 | \$123.12 | \$ 46,660.90 |
| Middlesex, NJ | 61.4 | \$ 87.70 | \$ 4,183.20 | West Palm Beach, FL | 106.8 | \$ 64.44 | \$ 7,089.30 |
| Milwaukee, WI | 125.3 | \$ 47.81 | \$ 5,210.40 | Wilmington- Newark, DE | 37.8 | \$ 80.29 | \$ 2,593.20 |
| Minneapolis- St. Paul, MN | 229.5 | \$ 87.94 | \$ 19,695.70 | | | | |
| | | | | Sum of 71 MSAs | 1,2827.7 | | \$1,237,760.10 |

Sources: NMHC, M/PP Research, NREI, U.S. Census Bureau, IREM, RCG

Published by:



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