

COMPONENTS OF INVENTORY CHANGE: 2009–2011



American Housing Survey

Components of Inventory Change: 2009–2011

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Components of Inventory Change: 2009–2011

Executive Summary

Components of Inventory Change (CINCH) is a tool used by housing analysts to study how the housing inventory changes over time. One typically thinks of the housing stock evolving through two mechanisms—the construction of new units and demolition of old units. While new construction and losses through demolition and natural disasters are the primary means by which the housing stock changes, CINCH shows that there are other important engines of change.

Between 2009 and 2011, 1,699,000 units left the housing stock (Table 1). Of these, 861,000 are clearly permanent losses—the original unit is gone, and major construction would be required to replace it with a new unit. Demolitions and natural disasters accounted for 519,000 of the permanent losses, while the movement of mobile homes contributed another 242,000 permanent losses. There were 466,000 temporary losses—the original unit needs repairs or is being used for other purposes. These units may or may not return to the housing stock. Finally, there were 371,000 units that left the housing either permanently or temporarily for “other” reasons, a category that encompasses a wide variety of situations.

The number of permanent losses (861,000) between 2009 and 2011 was substantially lower than the numbers recorded before and during the financial crisis and recession: 1,315,000 between 2003 and 2005 and 1,095,000 between 2007 and 2009. (See Table 3.)

Some components of the housing stock experience very high loss rates. Units that were vacant or seasonal in 2009 lost approximately 5 percent of their units by 2011. The loss rate for mobile homes also approached 5 percent; exactly half of these losses came from the mobile home move-outs. Unit size has a very clear relationship to losses. Small units, whether measured in terms of number of rooms or number of bedrooms, have loss rates that are several times that of the overall stock. Among occupied units, quality affects loss rates. Units without complete kitchens and units with moderate problems of various types have higher-than-average (for occupied units) loss rates. Units with severe problems also have abnormally high loss rates, but these rates just failed to be significant at the 1-percent level. Finally, income, combined with tenure, has a small effect on loss rates. The lowest income renters and rental units with the lowest rents had high loss rates, while the highest income homeowners and those homes with the highest housing costs had the lowest loss rates. (See Table 5.)

Between 2009 and 2011, 2,846,000 units were added to the housing stock (Table 2). Of these, 2,303,000 were new or reconstructed units. New construction added 2,057,000 units, while the movement of mobile homes accounted for another 173,000. Units created through splits and mergers accounted for the remaining 73,000 new or reconstructed units. In the same period, 409,000 units that had at one time been residential units returned to the stock—183,000 from nonresidential use and 226,000 that were not inhabitable in 2009. Finally, 134,000 units entered the stock by other (unspecified) means.

The number of additions between 2009 and 2011 was substantially lower than the numbers recorded before and during the financial crisis and recession, 5,053,000 between 2003 and 2005

and 3,795,000 between 2007 and 2009. (See Table 4.) The fall-off in new construction was even sharper, 2,057,000 between 2009 and 2011 compared to 3,601,000 between 2003 and 2005 and 2,547,000 between 2007 and 2009. The post-recession period has seen very modest creation of new housing.

While the overall housing stock had a modest (2.1 percent) rate of gain through new additions, certain segments grew significantly faster. The faster growing sectors included single-family attached units, units in large buildings (buildings with 50+ units or with 4 to 6 stories), and small units (two-room units and zero-bedroom units). See Table 6.

Components of Inventory Change: 2009–2011

I. Introduction

The U.S. Department of Housing and Urban Development (HUD) and the Census Bureau conduct an extensive survey of the American housing stock called the American Housing Survey (AHS). The AHS drew a sample of approximately 50,000 housing units in 1985 and has been interviewing these units at 2-year intervals. New units have been added to the AHS every 2 years to account for new construction or other additions to the housing stock, and these units have also been interviewed every 2 years. The consistent tracking of the same housing units makes it possible to provide a detailed picture of how the American housing stock evolves.

For a number of years, HUD has conducted components of inventory change (CINCH) studies to detail the survey-to-survey changes in the American housing stock. This paper continues the CINCH series by describing how the housing stock evolved between 2009 and 2011.

While this paper repeats the analysis contained in previous CINCH studies, its organization differs from that of previous reports.¹

- Section II explains the changes in the housing stock between 2009 and 2011 in terms of losses to the housing stock through demolitions or the other ways units can leave the housing stock and new construction and other ways units can enter the housing stock.
- Section III compares the pattern of changes between 2009 and 2011 to the pattern of changes in previous 2-year periods with an eye on the effects of the recent financial crisis and severe recession.
- Section IV looks at components of the housing stock that experienced losses or additions that were markedly different than the overall patterns of losses or additions.

The paper concludes with a series of appendices that contain analysis and data found in previous CINCH reports.

- Appendix A explains the CINCH methodology in detail and explains why the forward-looking and backward-looking analyses are not 100-percent consistent.
- Appendix B contains the four forward-looking tables and the four backward-looking tables found in previous reports.
- Appendix C discusses the consistency checks applied to the data and gives an overview of the weighting techniques used in CINCH analysis.

¹ For previous CINCH studies, see <http://www.huduser.org/portal/datasets/cinch.html>.

Econometrica, Inc., completed this report in two stages. CINCH reports normally present both forward-looking analysis (what happened to the 2009 units by 2011) and backward-looking analysis (where did the 2011 units come from in terms of 2009). The initial 2011 public use file (PUF) available for analysis contained incomplete and inaccurate information on other additions, making it impossible to perform the backward-looking analysis.² The forward-looking analysis was presented to HUD in December 2013; the backward-looking analysis was added in 2015.

II. Overall Changes in the Housing Stock: 2009–2011

One typically thinks of the housing stock evolving through two mechanisms—the construction of new units and demolition of old units. While new construction and losses through demolition and natural disasters are the primary means by which the housing stock changes, CINCH shows that there are other important engines of change.

Table 1: Disposition of 2009 Housing Units in 2011³

| | |
|--|------------------|
| Present in 2009 | 130,112,000 |
| 2009 units present in 2011 | 128,413,000 |
| Units no longer in the stock | 1,699,000 |
| 2009 units lost due to conversion/merger | 100,000 |
| 2009 house or mobile home moved out | 242,000 |
| 2009 units lost through demolition or disaster | 519,000 |
| Permanent losses | 861,000 |
| 2009 units changed to nonresidential use | 255,000 |
| 2009 units badly damaged or condemned | 211,000 |
| Temporary losses | 466,000 |
| 2009 units lost in other ways | 371,000 |

Between 2009 and 2011, 1,699,000 units left the housing stock (Table 1). Of these, 861,000 are clearly permanent losses—the original unit is gone, and major construction would be required to replace it with a new unit. Another 466,000 are temporary losses—the original unit needs repairs or is being used for other purposes. These units may or may not return to the housing stock. Finally, there were 371,000 units that left the housing either permanently or temporarily for “other” reasons, a category that encompasses a wide variety of situations.

Demolition and disasters were the most important causes of losses to the stock, but these causes accounted for less than a third of all losses. Another important source of permanent losses was the movement from one location to another of mobile homes or occasionally houses. The movement of a mobile home or house is considered a permanent loss because a housing unit is the combination of land and capital. While movement preserves the capital, it dissolves the union

² HUD released a new version of the 2011 PUF on November 19, 2013, 7 weeks after the allowed period of performance for the contracted work.

³ Numbers may not add consistently due to rounding.

of capital and land that formed the original unit. “Conversion” is the terminology used in the AHS for the splitting of a unit into two or more units.

Sometimes houses are used for business purposes. These commercial uses or the use of a house for a group home is considered a change to a nonresidential use. Badly damaged units may be repaired, left in an unusable state, or demolished. Conversions involve the splitting of one unit into two or more units, while mergers involve the combining of two or more units into one unit.

Table 2 describes how the 2011 housing stock evolved from 2009. In the period between the 2009 and the 2011 AHS surveys, 2,846,000 units were added to the housing stock. Eighty-one percent of these additions were either new constructed units (2,057,000—72 percent) or other additions that involved relocation or reconfiguration of residential units. Approximately 173,000 mobile homes were moved to new locations, creating a new union of capital and land. Changes in how Census Bureau field staff reported the movement of mobile homes into new sites may have resulted in an underestimate of these movements.⁴ Another 73,000 of the new or reconstructed units resulted from the merger of two or more units or the split of a unit into two or more units.

Table 2: Sources for the 2011 Housing Stock

| | |
|-------------------------------------|------------------|
| 2011 housing stock | 132,419,000 |
| 2011 units present in 2009 | 129,573,000 |
| Total additions to stock | 2,846,000 |
| Units added by new construction | 2,057,000 |
| House or mobile home moved in | 173,000 |
| Units added by conversion/merger | 73,000 |
| New or reconstructed units | 2,303,000 |
| Units added from nonresidential use | 183,000 |
| Units added from temporary losses | 226,000 |
| Recovered units | 409,000 |
| Units added in other ways | 134,000 |

We classified 409,000 units as recovered because these units had been in the housing stock at some point but were classified in 2009 as either nonresidential or temporary losses. Of these, 183,000 were used for either commercial purposes or for institutional housing in 2009, and 226,000 units were listed in 2009 as temporary losses because occupancy had been prohibited or the unit was open to the elements. Finally, 134,000 units were added in other unclassified ways.

⁴ In the 2011 AHS, the Census Bureau classified only 59 units as REUAD = 4 (mobile home move-in) and no units as REUAD = 5, house moved in. In the 2009 AHS, 149 sample units were REUAD = 4 or 5. The 173,000 count in Table 2 is a weighted combination of units where REUAD = 4 and units on land that was classified as a vacant mobile pad in 2009.

III. Comparison With Recent CINCH Analyses

The economy in general and the housing market in particular have experienced turbulence over the last several years. Analysts talk about the financial crisis of 2007–2009. Troubles with subprime and nontraditional mortgage products began as early as 2006 and grew in volume and spread to other financial markets. The first of several crescendos broke on July 31, 2007, when two of Bear Stearns’ hedge funds filed for bankruptcy. A severe recession followed shortly afterward. The official dating of the business cycle by the National Bureau of Economic Research places the peak of the previous expansion at December 2007 and the trough of the recession at June 2009.

Table 3 presents information on losses to the stock from this CINCH report and the previous three CINCH reports to see if the financial crisis or recession had any effect on the pattern of losses between surveys. Table 3 uses the same permanent, temporary, and other classification of losses as Table 1. These distinctions help identify the effects of the conditions in the economy and the housing market.

Table 3: Comparison of Losses Between Surveys, 2003–2011

| Losses between surveys | Base year count (in thousands) | | | | Percent of base year stock | | | |
|---|--------------------------------|--------------|--------------|--------------|----------------------------|-------------|-------------|-------------|
| | 2003 | 2005 | 2007 | 2009 | 2003 | 2005 | 2007 | 2009 |
| Present in base year | 120,777 | 124,376 | 128,203 | 130,108 | 100% | 100% | 100% | 100% |
| Losses between surveys | 1,884 | 2,282 | 2,084 | 1,698 | 1.6% | 1.8% | 1.6% | 1.3% |
| Units lost due to conversion/merger | 146 | 275 | 193 | 100 | 0.1% | 0.2% | 0.2% | 0.1% |
| House or mobile home moved out | 245 | 405 | 411 | 242 | 0.2% | 0.3% | 0.3% | 0.2% |
| Units lost through demolition or disaster | 399 | 635 | 491 | 519 | 0.3% | 0.5% | 0.4% | 0.4% |
| Permanent losses | 790 | 1,315 | 1,095 | 861 | 0.7% | 1.1% | 0.9% | 0.7% |
| Units changed to nonresidential use | 278 | 262 | 288 | 255 | 0.2% | 0.2% | 0.2% | 0.2% |
| Units badly damaged or condemned | 274 | 318 | 302 | 211 | 0.2% | 0.3% | 0.2% | 0.2% |
| Temporary losses | 552 | 580 | 590 | 466 | 0.5% | 0.5% | 0.5% | 0.4% |
| Units lost in other ways | 543 | 387 | 400 | 371 | 0.4% | 0.3% | 0.3% | 0.3% |

Permanent losses increased during the financial crisis (2005–2009) and did not fall back to a more normal level until the 2009 to 2011 period. Temporary losses and other losses were fairly level over the period, although both increased somewhat from the first period (2003–2005) and then fell somewhat in the last period (2009–2011). Total losses, both in the number of units and as a percentage of the housing stock, were at their lowest levels in the 2009–2011 period.

Table 4 presents information on additions to the stock from this CINCH report and the previous three CINCH reports. Total additions fell off sharply during the 2008–2009 recession and have remained at low levels during the recovery.

Table 4: Comparison of Additions Between Surveys, 2003–2011

| Additions between surveys | End year count (in thousands) | | | | Percent of end year stock | | | |
|-------------------------------------|-------------------------------|--------------|--------------|--------------|---------------------------|-------------|-------------|-------------|
| | 2005 | 2007 | 2009 | 2011 | 2005 | 2007 | 2009 | 2011 |
| End year units | 124,376 | 128,203 | 130,112 | 132,419 | 100.0% | 100.0% | 100.0% | 100.0% |
| Total additions to stock | 5,053 | 5,195 | 3,795 | 2,846 | 4.1% | 4.1% | 2.9% | 2.1% |
| New construction | 3,601 | 3,250 | 2,547 | 2,057 | 2.9% | 2.5% | 2.0% | 1.6% |
| House or mobile home moved in | 442 | 840 | 470 | 174 | 0.4% | 0.7% | 0.4% | 0.1% |
| Units added by conversion/merger | 43 | 146 | 287 | 73 | 0.0% | 0.1% | 0.2% | 0.1% |
| New or reconstructed units | 4,086 | 4,236 | 3,304 | 2,303 | 3.3% | 3.3% | 2.5% | 1.7% |
| Units added from nonresidential use | 395 | 279 | 261 | 183 | 0.3% | 0.2% | 0.2% | 0.1% |
| Units added from temporary losses | | 150 | 168 | 226 | | 0.1% | 0.1% | 0.2% |
| Recovered units | | 429 | 429 | 409 | | 0.3% | 0.3% | 0.3% |
| Units added in other ways | 572 | 530 | 62 | 134 | 0.5% | 0.4% | 0.0% | 0.1% |

New construction composed 71 percent of all additions to the 2005 stock; this share fell to 63 percent in 2007 when the financial crisis hit. The new construction share was 67 percent in 2009 and 72 percent in 2011, the end year with the smallest number of total additions. Conversions and mergers peaked between 2005 and 2009, that is, during the financial crisis and the recession.

The aforementioned concerns about the reporting of mobile home move-ins in the 2011 AHS make it difficult to interpret the impact of economy on this means for expanding the stock. Limitations in the 2005 data prevent separating the recovery of temporary losses from other additions to the stock. The decline in “other” additions after 2007 most likely reflects improvement by the Census Bureau in classifying additions.

IV. Components That Experienced Atypical Losses or Gains

While the entire housing stock experienced a loss rate of 1.3 percent between 2009 and 2011, the loss rate varied across sectors of the stock. For example, the occupied housing stock lost only 0.7 percent of its units between 2009 and 2011. This difference was statistically significant at the 1-percent level. Table 5 compiles a list of housing sectors whose loss rates were markedly higher or lower than the norm.

Where the AHS provides information on all units, Table 5 uses the loss rate of the overall stock (1.3 percent) as a point of comparison. For this group, noteworthy rates are those that are less than half or more than double that of the overall stock. For many variables, the AHS can only provide information on occupied units. For this group, noteworthy rates are those that are less than half or more than double that of all occupied units (0.7 percent). For both groups, statistical significance at the 1-percent level is required to be included in Table 5.

Some components of the housing stock experience very high loss rates. Units that were vacant or seasonal in 2009 lost approximately 5 percent of their units by 2011. The loss rate for mobile homes also approached 5 percent; exactly half of these losses came from the mobile home move-outs.

Unit size has a very clear relationship to losses. Small units, whether measured in terms of number of rooms or number of bedrooms, have loss rates that are several times that of the overall stock. By the same token, large units have significantly lower loss rates. Among units in multistoried structures, only those in structures with seven or more stories had loss rates notably different than the overall loss rate (in this case, lower than the overall rate).

Among occupied units, quality affects loss rates. Units without complete kitchens and units with moderate problems of various types have higher-than-average (for occupied units) loss rates. Units with severe problems also have abnormally high loss rates, but these rates just failed to be significant at the 1-percent level.

Table 5: Sectors Experiencing Atypical Loss Rates, 2009–2011⁵

| Characteristics | Present in 2009 | Total loss | Percent lost |
|-------------------------------------|------------------------|-------------------|---------------------|
| Total Housing Stock | 130,112,000 | 1,698,000 | 1.3% |
| <i>Occupancy status</i> | | | |
| Vacant | 13,688,000 | 615,000 | 4.5% |
| Seasonal | 4,618,000 | 254,000 | 5.5% |
| <i>Structure type</i> | | | |
| Mobile home/trailer | 8,769,000 | 414,000 | 4.7% |
| <i>Rooms</i> | | | |
| 1 room | 669,000 | 83,000 | 12.4% |
| 2 rooms | 1,410,000 | 67,000 | 4.8% |
| 8 rooms | 10,658,000 | 50,000 | 0.5% |
| 9 rooms | 4,673,000 | 19,000 | 0.4% |
| 10 rooms or more | 3,289,000 | 18,000 | 0.5% |
| <i>Bedrooms</i> | | | |
| None | 1,313,000 | 119,000 | 9.1% |
| 4 or more | 25,835,000 | 163,000 | 0.6% |
| <i>Stories in structure</i> | | | |
| 7 or more | 2,610,000 | 14,000 | 0.5% |
| Occupied Units | 111,806,000 | 830,000 | 0.7% |
| <i>Physical problems</i> | | | |
| Lacking complete kitchen facilities | 1,739,000 | 52,000 | 3.0% |
| <i>Moderate problems</i> | | | |
| Heating | 1,125,000 | 38,000 | 3.4% |
| Kitchen | 1,739,000 | 52,000 | 3.0% |
| Upkeep | 1,247,000 | 44,000 | 3.5% |
| <i>Income source</i> | | | |
| Dividend, interest, or rent | 30,760,000 | 89,000 | 0.3% |
| <i>Renter monthly housing costs</i> | | | |
| Less than \$350 | 3,110,000 | 72,000 | 2.3% |
| <i>Renter household income</i> | | | |
| Less than \$15,000 | 9,266,000 | 158,000 | 1.7% |
| <i>Owner monthly housing costs</i> | | | |
| \$1,250 or more | 30,946,000 | 109,000 | 0.4% |
| <i>Owner household income</i> | | | |
| \$100,000 or more | 18,952,000 | 55,000 | 0.3% |

⁵ Three conditions were necessary for a housing sector to appear in Table 5, two mathematical and one judgmental: (1) the difference between the sector's loss rate and the overall loss rate had to have been statistically significant at the 1-percent level, (2) the sector's loss rate had to have been less than half or more than double the overall loss rate, and (3) the difference had to appear to be interesting.

Income, combined with tenure, has a small effect on loss rates. The lowest income renters and rental units with the lowest rents had high loss rates, while the highest income homeowners and those homes with the highest housing costs had the low loss rates. Across both owner and renter households, loss rates increased as income or housing costs decreased. Many of the observed differences were statistically different than those for all owners or all renters, but the differences were relatively minor compared to those at the end of the distributions. Households who have income from dividends, interest, or rent also had lower-than-normal loss rates.

Table 6 compiles a list of housing sectors whose rates of new additions (gains) were markedly higher or lower than the norm. Where the AHS provides information on all units, Table 6 uses the gain rate of the overall stock (2.1 percent) as a point of comparison. For this group, noteworthy rates are those that are less than half or more than double that of the overall stock. For many variables, the AHS can only provide information on occupied units. For this group, noteworthy rates are those that are less than half or more than double that of all occupied units (1.9 percent). For both groups, statistical significance at the 1-percent level is required to be included in Table 6. Only 10 sectors had gain rates that satisfied these conditions.⁶

⁶ There were 32 sectors that had gain rates that were statistically different from the reference rate at the 1-percent level, but in 22 cases the differences, while significant, were less than half or less than double the reference rate.

Table 6: Sectors Experiencing Atypical Gain Rates, 2009–2011⁷

| | Estimated 2011 count | Estimated total additions | Percent gain |
|-----------------------------------|-------------------------|------------------------------|-----------------|
| Total Housing Stock | 132,419,000 | 2,846,000 | 2.1% |
| <i>Occupancy status</i> | | | |
| Vacant | 13,379,000 | 558,000 | 4.2% |
| <i>Units in structure</i> | | | |
| 1, attached | 6,774,000 | 311,000 | 4.6% |
| 50 or more | 5,576,000 | 265,000 | 4.8% |
| <i>Rooms</i> | | | |
| 2 | 1,342,000 | 84,000 | 6.3% |
| <i>Bedrooms</i> | | | |
| None | 1,412,000 | 83,000 | 5.9% |
| <i>Stories in structure</i> | | | |
| 4 to 6 | 4,244,000 | 195,000 | 4.6% |
| <i>Plumbing facilities</i> | | | |
| No exclusive use | 1,175,000 | 8,000 | 0.7% |
| <i>Moderate physical problems</i> | | | |
| Kitchen | 1,243,000 | 9,000 | 0.7% |
| <i>Age of householder</i> | | | |
| 75 years old and over | 13,070,000 | 89,000 | 0.7% |
| <i>Race and Hispanic origin</i> | | | |
| Two or more races | 1,463,000 | 11,000 | 0.8% |

A high proportion (4.2 percent) of the vacant units were new additions to the stock, possibly because many new units are vacant when they first enter the stock. Single-family attached units and units in large (50+) buildings had significantly higher-than-average gain rates.

Two-room units and units with no separate bedrooms also had high gain rates. These findings, combined with the high loss rates in Table 5 for small units, suggest high turnover among small units.

As one might expect, few units are added to the stock that have shared plumbing facilities or incomplete kitchens. Households with householders 75 years old or older or with householder of more than one race are less likely to live in newly created units.

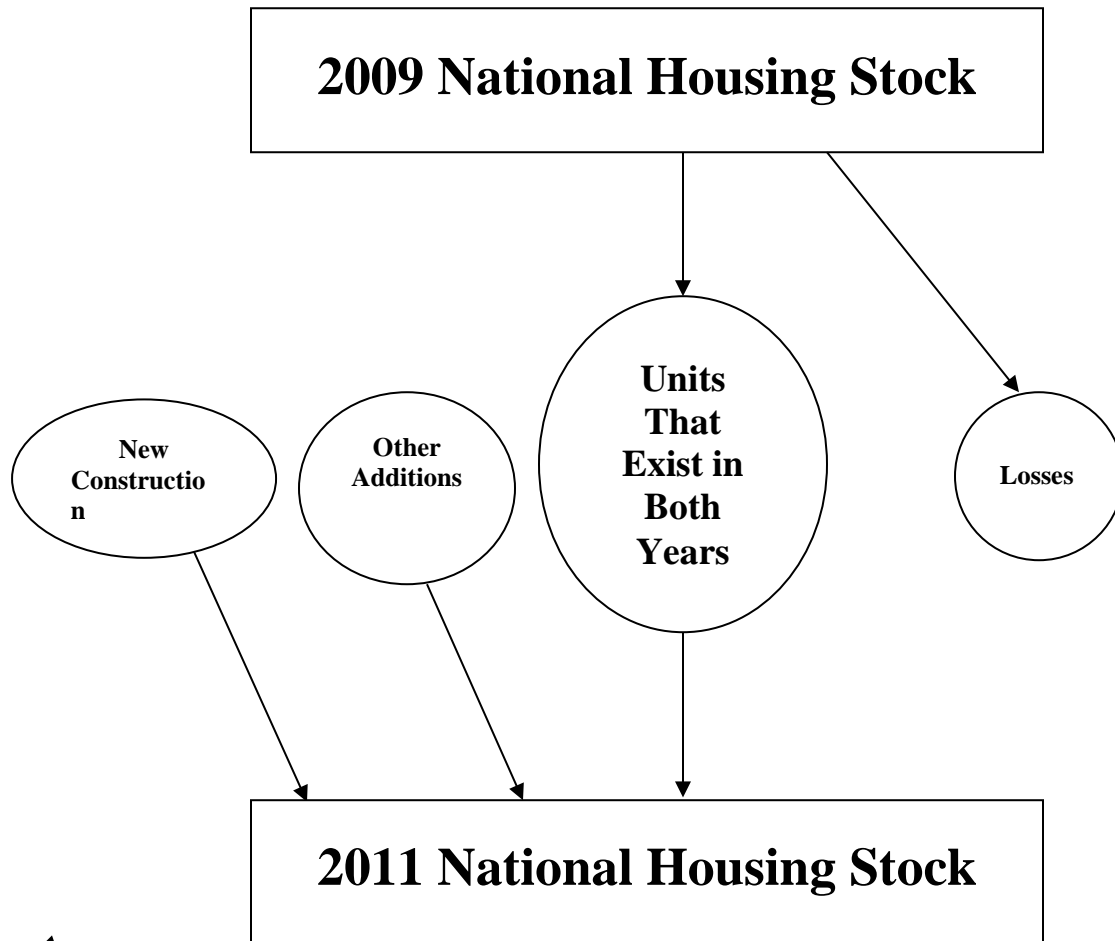
⁷ Three conditions were necessary for a housing sector to appear in Table 6, two mathematical and one judgmental: (1) the difference between the sector's gain rate and the overall gain rate had to have been statistically significant at the 1-percent level, (2) the sector's gain rate had to have been less than half or more than double the overall gain rate, and (3) the difference had to appear to be interesting.

Appendix A: CINCH Methodology

Overview

Components of Inventory Change (CINCH) is a tool used by housing analysts to study how the housing inventory changes over time. Figure 1 illustrates how the inventory evolves.

Figure 1: How the Housing Inventory Changes



According to the American Housing Survey (AHS), the 2009 housing stock contained 130,112,000 housing units. Most of these units continued to be part of the 2011 housing stock, but some units disappeared from the housing stock between 2009 and 2011. The AHS estimated that the 2011 housing stock contained 132,419,000 housing units. Simple arithmetic shows that new construction and other additions had to provide a sufficient number of units to overcome any losses between 2009 and 2011 and to increase the overall stock by 2,307,000 units.

In the context of Figure 1, the U.S. Census Bureau provides estimates for both rectangles (the 2009 and 2011 housing stocks) and one oval (units added through new construction between 2009 and 2011). No one estimates the other three ovals: the number of units that belong to both

the 2009 and 2011 housing stock, units lost to the housing stock between 2009 and 2011, and other additions to the housing stock between 2009 and 2011.

While losses and other additions are small relative to the overall stock, they encompass important features of how housing markets evolve. Housing units are “clumps” of physical capital associated with specific plots of land, and the housing inventory is the aggregation of these capital-land combinations. New construction creates new clumps, and like all capital, some “clumps” depreciate and disappear. But housing units undergo other interesting changes. Losses can be either permanent or temporary. Units destroyed by natural disasters or intentionally demolished are permanent losses. Temporary losses include units that are used for nonresidential purposes and units that are uninhabitable because of structural defects that can be repaired. Additions can result from restoring units that were uninhabitable or converting nonresidential structures into residential structures.

In addition to determining the size of each oval, housing analysts find information about the characteristics of the units in the different ovals useful. Interesting characteristics include: structure type, age of the unit, size of the unit, location by region, location by metropolitan status, tenure, household size and composition, resident income, and resident race and ethnicity.

CINCH analysis has three goals:⁸

- To provide an estimate for all six components of Figure 1.
- To disaggregate losses and other additions into relevant component parts.
- To characterize the units that survive from one period to the next and the units that are added or lost between periods.

The AHS has four features that make CINCH analysis possible:

- Each unit has weights that can be used to estimate its share of the overall stock.
- The AHS tracks new construction and the various types of losses and other additions.
- The AHS has detailed information about the characteristics of each unit and its occupants.
- The AHS tracks the same unit from one period to the next so that changes in status and characteristics can be observed directly.

⁸ Previous CINCH analyses have distinguished between the “status” of a unit with respect to the housing stock, e.g., existing as a nonresidential structure, and the “characteristics” of the unit or its occupants, e.g., rental vs. owner-occupied or the race of the householder. This report will use this same distinction. Also adopting previous CINCH terminology, the report will refer to the more recent AHS survey, 2011, as the current year and the previous AHS survey year, 2009, as the base year.

Weighting Issues Involved in Using the AHS

It would be possible to list for every AHS sample unit its status and characteristics in both 2009 and 2011. In some cases, there may be no status, e.g., not yet constructed in 2009, or no characteristics, e.g., no race of householder for vacant units, but with this understanding, such a listing would still be possible. From the listing, one could construct an exact accounting of the movement of units among the various statuses and characteristics between 2009 and 2011.

The exact accounting would apply only to AHS sample observations, roughly a 1-in-2,500 picture of the housing stock at the national level. To obtain estimates of the magnitude of actual changes in the housing stock, one needs to apply weights to the sampled units. When weights are applied, the accounting will no longer be exact because units have different weights in different years.⁹ For example, the exact accounting might show that 2,500 sample units that were rental in 2009 became owner-occupied in 2011. To estimate the number of units in the national housing stock that were rental in 2009 and became owner-occupied in 2011, one would need to apply weights. But using 2009 weights would produce a different estimate than using 2011 weights. There is no conceptual reason to favor the answer using 2009 weights over the answer using 2011 weights. The choice of weights depends upon how the intended analysis will be used.¹⁰

For this reason, previous CINCH analyses have distinguished between:

(a) *Forward-looking analysis*, that is, starting with the base year stock (2009) and determining the status and characteristics of *those* units in the current year (2011). The goal is to explain what happened to the 130,112,000 units comprising the housing stock in the base year. Forward-looking analysis takes the housing stock as given in the base year and looks at the destination of these units in the current year.

(b) *Backward-looking analysis*, that is, starting from the current year (2011) stock and determining the status and characteristics of *those* units in the base year (2009). The goal here is to explain where the 132,419,000 units comprising the current year housing stock came from. Backward-looking analysis takes the current year housing stock as given and looks at the source of these units, either in the base year or in new construction or other additions.

We will follow the same procedure.

⁹ The Census Bureau assigns both a pure weight (the inverse of the probability of selection) and a final weight to each AHS observation. The final weights are designed to sum up to independent estimates of the total housing stock. The pure weights will vary over observations within a given AHS because of stratification in drawing the sample. Generally, pure weights do not vary across survey years. However, when HUD and the Census Bureau expanded the AHS sample size in 2011 and combined the national survey with 29 metropolitan-specific surveys, the pure weight of a given unit in 2011 decreased from its 2009 weight because that unit now represents fewer housing units in 2011. The final weights will differ over observations within a given AHS because the Census Bureau makes adjustments for various factors affecting the sample. The final weights of a given observation will vary between AHS surveys because of changes in the housing stock.

¹⁰ Weighting issues are explained in greater detail in a separate paper, *Weighting Strategy for 2007–2009 CINCH Analysis*.

Appendix B: CINCH Tables

How to Read CINCH Tables

Rows and columns serve different purposes in CINCH tables. The rows identify classes of units to be analyzed. The columns trace those units either forward or backward.

The forward-looking tables are concerned with what happened to the 2009 housing stock by 2011. There are three basic dispositions of 2009 units:

- Units that continue to exist in 2011 with the same characteristics (or serving the same market).
- Units that continue to exist in 2011 but with different characteristics (or serving a different market).
- Units that were lost to the stock.

The backward-looking tables are concerned with where the 2011 housing stock came from in reference to 2009. There are three basic sources of 2011 units:

- Units that existed in 2009 with the same characteristics (or serving the same market).
- Units that existed in 2009 but with different characteristics (or serving a different market).
- Units that are additions to the housing stock.

Since the essence of the CINCH analysis is in the columns, we will explain the columns in detail.

Columns Common to Both Forward-Looking and Backward-Looking Tables

The first and last columns contain the row numbers, which are identical for the same tables in the forward-looking and backward-looking sets. Columns A through E set up the analysis and track units that exist in both periods.

- Column A specifies the characteristic that defines the subset of the stock that is being tracked forward or backward in a particular row. For example, row 2 of Table A focuses on occupied units; row 17 focuses on units built in 1990 through 1994.
- Column B gives the estimate published in the AHS report for the number of units that satisfy the conditions specified in column A. For example, the 2009 AHS report counted 111,806,000 occupied units in 2009 (column B, row 2, forward-looking Table A); the 2011 AHS report counted 114,907,000 occupied units (column B, row 2, backward-looking Table A).
- Column C gives the CINCH estimate of the number of units that satisfy two conditions: (a) being part of the housing stock in the relevant year (2009 for the forward-looking

tables and 2011 for the backward-looking tables), and (b) satisfying the condition in column A. CINCH uses different weights than those used in preparing the published reports. Therefore, CINCH estimates can differ from AHS estimates for particular subsets of the housing stock. As explained in Appendix C, the weights were created to match certain AHS published totals; for this reason, rows 2 through 4 of Table A are perfect matches. This perfect match will not be true for most other rows.¹¹

- Column D is the CINCH estimate of the number of units from column C that (a) are also part of the housing stock in the *other* year, and (b) continue to belong to the subset defined by column A. For example, column D of row 2 of forward-looking Table A estimates that 102,030,000 of the occupied units in 2009 were also occupied in 2011.
- Column E is the CINCH estimate of the number of units from column C that (a) are also part of the housing stock in the *other* year, but (b) no longer belong to the subset defined by column A. Column E of row 2 indicates that 8,946,000 units that were occupied in 2009 are still part of the housing stock in 2011 but are no longer occupied. In some cases, the analysis will not allow a unit to change characteristics between the base year and the other year. Examples include type of structure, year built, and number of stories; these characteristics are considered impossible or unlikely to change.

Columns Unique to Forward-Looking Tables

In forward-looking tables, columns F through K track what happened to units that were lost from 2009 to 2011.

- Column F is the CINCH estimate of the number of units from column C that are not in the 2011 housing stock because they were merged with other units or converted into multiple units. Among occupied units, 49,000 units were lost to mergers and conversions (column F, row 2 of forward-looking Table A).
- Column G is the CINCH estimate of the number of houses or mobile homes from column C that were moved out during the period. In most cases, these units were relocated rather than destroyed. The AHS considers them “losses” because a housing unit is a combination of land and capital, and a move breaks that specific combination to create a new combination at a different location. For this reason, mobile homes that move from one lot to another are treated as both losses and additions.¹² Among occupied units, 151,000 units were moved out.
- Column H is the CINCH estimate of the number of units from column C that became nonresidential at the end of the period. For example, a real estate firm, a tax preparation office, a palm reader, or some other business might buy or rent a house to use for

¹¹ Columns B and C will also match, except for rounding, in row 1 of Table A because row 1 is defined as the sum of rows 2 through 4.

¹² The AHS does not track what happens to a house or mobile home that is moved off of a lot that is part of the AHS sample, and does not inquire about the previous history of a unit that is moved on to a lot that is part of the AHS sample.

business rather than residential purposes.¹³ Among occupied units, 111,000 became nonresidential.

- Column I is the CINCH estimate of the number of units from column C that were demolished or were destroyed by fires or natural disasters by 2011. In this case, 263,000 units occupied in 2009 were demolished or destroyed.
- Column J is the CINCH estimate of the number of units from column C that by 2011 were condemned or were no longer usable for housing because of extensive damage. Among occupied units, 82,000 units were no longer usable for housing.
- Column K is the CINCH estimate of the number of units from column C that were lost by 2011 for other reasons. Among occupied units, there were 212,000 units lost for these miscellaneous reasons.

The columns form a closed system. Column C counts the number of units tracked; columns D through K account for all the possible outcomes. Therefore, column C minus the sum of columns D through K always equals zero, except for rounding.

Columns Unique to Backward-Looking Tables

In backward-looking tables, columns F through K track where units came from that are part of the housing stock in 2011 but were not part of the 2009 housing stock.

- Column F is the CINCH estimate of the number of units from column C that were created by the merger or conversion of other units. Among occupied units in 2011, 64,000 units were additions to the stock since 2009 that were created by mergers or conversions (column F, row 2 of backward-looking Table A).
- Column G estimates the number of houses or mobile homes from column C that were moved in during the period. Among occupied units, 115,000 houses or mobile homes were moved in. As noted in the discussion of column G for the forward-looking tables, mobile homes that move from one lot to another are treated as both losses and additions.¹⁴
- Column H is the CINCH estimate of the number of units from column C that had been nonresidential in 2009. Among occupied units, 80,000 had been nonresidential in 2009.
- Column I is the CINCH estimate of the number of units from column C that were newly constructed between 2009 and 2011. Among occupied units, 1,720,000 units were newly constructed.

¹³ If the owner or tenant both lives in a unit and conducts business out of the unit, the AHS considers the unit to be residential. Nonresidential, therefore, means strictly no residential use.

¹⁴ The reader will notice that, for the overall housing stock (row 1), the number of houses and mobile homes moved out after 2009 is less than the number moved in by 2011. These totals frequently do not agree because of limitations in the sample design and difficulty in distinguishing new mobile homes from move-ins.

- Column J is the CINCH estimate of the number of units from column C that were added by 2011 from units that were structurally unsound in 2009.¹⁵ Among occupied units, 75,000 had been temporarily lost to the stock in 2009 for structural reasons.
- Column K is the CINCH estimate of the number of units from column C that were added by 2011 from units that had been temporarily lost to the stock for reasons “not classified” or were newly added by “other” means. Among occupied units, 73,000 were recovered from units temporarily lost in 2009 for unspecified reasons or newly added in 2011 for other reasons.

¹⁵ These units had codes that identified them as “occupancy prohibited” or “interior exposed to the elements” in 2007.

Forward-Looking Table A: Housing Characteristics

| Row | A | B | C | D | E | F | G | H | I | J | K | Row |
|-----|---------------------|-------------------|-----------------|----------------------------|---------------------------|--|-------------------------------------|--|--|---------------------------------------|-------------------------------|-----|
| | Characteristics | Published numbers | Present in 2009 | 2009 units present in 2011 | Change in characteristics | 2009 units lost due to conversion/merger | 2009 house or mobile home moved out | 2009 units changed to nonresidential use | 2009 units lost through demolition or disaster | 2009 units badly damaged or condemned | 2009 units lost in other ways | |
| 1 | Total Housing Stock | 130,112,000 | 130,112,000 | 128,413,000 | 0 | 100,000 | 242,000 | 255,000 | 519,000 | 211,000 | 371,000 | 1 |
| | Occupancy Status | | | | | | | | | | | |
| 2 | Occupied | 111,806,000 | 111,806,000 | 102,030,000 | 8,946,000 | 49,000 | 151,000 | 111,000 | 263,000 | 82,000 | 174,000 | 2 |
| 3 | Vacant | 13,688,000 | 13,688,000 | 5,072,000 | 8,001,000 | 43,000 | 74,000 | 92,000 | 181,000 | 105,000 | 120,000 | 3 |
| 4 | Seasonal | 4,618,000 | 4,618,000 | 2,287,000 | 2,078,000 | 9,000 | 17,000 | 52,000 | 75,000 | 24,000 | 77,000 | 4 |
| | Units in Structure | | | | | | | | | | | |
| 5 | 1, detached | 82,472,000 | 81,739,000 | 81,015,000 | 0 | 35,000 | 33,000 | 103,000 | 229,000 | 131,000 | 194,000 | 5 |
| 6 | 1, attached | 7,053,000 | 6,990,000 | 6,907,000 | 0 | 11,000 | 0 | 14,000 | 11,000 | 12,000 | 35,000 | 6 |
| 7 | 2 to 4 | 10,160,000 | 10,308,000 | 10,109,000 | 0 | 31,000 | 0 | 37,000 | 35,000 | 37,000 | 58,000 | 7 |
| 8 | 5 to 9 | 6,347,000 | 6,332,000 | 6,251,000 | 0 | 7,000 | 0 | 10,000 | 30,000 | 15,000 | 19,000 | 8 |
| 9 | 10 to 19 | 5,722,000 | 5,909,000 | 5,831,000 | 0 | 2,000 | 0 | 10,000 | 30,000 | 10,000 | 26,000 | 9 |
| 10 | 20 to 49 | 4,525,000 | 4,643,000 | 4,612,000 | 0 | 3,000 | 3,000 | 9,000 | 3,000 | 2,000 | 11,000 | 10 |
| 11 | 50 or more | 5,063,000 | 5,402,000 | 5,315,000 | 0 | 4,000 | 0 | 60,000 | 6,000 | 5,000 | 13,000 | 11 |
| 12 | Mobile home/trailer | 8,769,000 | 8,769,000 | 8,355,000 | 0 | 6,000 | 207,000 | 11,000 | 174,000 | 0 | 16,000 | 12 |

| | A | B | C | D | E | F | G | H | I | J | K | |
|-----|------------------|-------------------|-----------------|----------------------------|---------------------------|--|-------------------------------------|--|--|---------------------------------------|-------------------------------|-----|
| Row | Characteristics | Published numbers | Present in 2009 | 2009 units present in 2011 | Change in characteristics | 2009 units lost due to conversion/merger | 2009 house or mobile home moved out | 2009 units changed to nonresidential use | 2009 units lost through demolition or disaster | 2009 units badly damaged or condemned | 2009 units lost in other ways | Row |
| | Year Built | | | | | | | | | | | |
| 14 | 2005–2009 | 7,324,000 | 6,522,000 | 6,455,000 | 0 | 0 | 2,000 | 17,000 | 10,000 | 5,000 | 32,000 | 14 |
| 15 | 2000–2004 | 9,158,000 | 10,513,000 | 10,409,000 | 0 | 7,000 | 36,000 | 12,000 | 27,000 | 5,000 | 16,000 | 15 |
| 16 | 1995–1999 | 8,821,000 | 11,362,000 | 11,276,000 | 0 | 3,000 | 36,000 | 21,000 | 13,000 | 2,000 | 11,000 | 16 |
| 17 | 1990–1994 | 7,060,000 | 4,825,000 | 4,777,000 | 0 | 2,000 | 19,000 | 4,000 | 17,000 | 0 | 5,000 | 17 |
| 18 | 1985–1989 | 8,804,000 | 8,895,000 | 8,813,000 | 0 | 5,000 | 31,000 | 5,000 | 19,000 | 4,000 | 18,000 | 18 |
| 19 | 1980–1984 | 7,478,000 | 7,723,000 | 7,591,000 | 0 | 5,000 | 26,000 | 10,000 | 43,000 | 2,000 | 46,000 | 19 |
| 20 | 1975–1979 | 13,731,000 | 13,696,000 | 13,525,000 | 0 | 17,000 | 25,000 | 19,000 | 72,000 | 17,000 | 21,000 | 20 |
| 21 | 1970–1974 | 11,068,000 | 10,952,000 | 10,818,000 | 0 | 1,000 | 28,000 | 6,000 | 57,000 | 12,000 | 30,000 | 21 |
| 22 | 1960–1969 | 15,261,000 | 15,028,000 | 14,865,000 | 0 | 12,000 | 19,000 | 15,000 | 72,000 | 20,000 | 25,000 | 22 |
| 23 | 1950–1959 | 13,222,000 | 12,730,000 | 12,578,000 | 0 | 12,000 | 11,000 | 29,000 | 38,000 | 24,000 | 40,000 | 23 |
| 24 | 1940–1949 | 7,945,000 | 7,835,000 | 7,725,000 | 0 | 5,000 | 2,000 | 18,000 | 47,000 | 15,000 | 23,000 | 24 |
| 25 | 1930–1939 | 5,840,000 | 5,726,000 | 5,580,000 | 0 | 16,000 | 3,000 | 22,000 | 47,000 | 29,000 | 29,000 | 25 |
| 26 | 1920–1929 | 5,164,000 | 5,139,000 | 5,064,000 | 0 | 2,000 | 3,000 | 19,000 | 12,000 | 12,000 | 27,000 | 26 |
| 27 | 1919 or earlier | 9,235,000 | 9,166,000 | 8,938,000 | 0 | 15,000 | 0 | 59,000 | 44,000 | 64,000 | 46,000 | 27 |
| | | | | | | | | | | | | |
| | Rooms | | | | | | | | | | | |
| 28 | 1 room | 579,000 | 669,000 | 281,000 | 305,000 | 0 | 0 | 53,000 | 2,000 | 0 | 28,000 | 28 |
| 29 | 2 rooms | 1,423,000 | 1,410,000 | 510,000 | 834,000 | 19,000 | 0 | 10,000 | 10,000 | 9,000 | 19,000 | 29 |
| 30 | 3 rooms | 11,290,000 | 11,329,000 | 7,805,000 | 3,285,000 | 18,000 | 13,000 | 44,000 | 68,000 | 22,000 | 73,000 | 30 |
| 31 | 4 rooms | 23,036,000 | 23,169,000 | 14,817,000 | 7,922,000 | 23,000 | 65,000 | 54,000 | 135,000 | 78,000 | 74,000 | 31 |
| 32 | 5 rooms | 29,888,000 | 29,870,000 | 16,382,000 | 13,073,000 | 18,000 | 104,000 | 35,000 | 151,000 | 53,000 | 54,000 | 32 |
| 33 | 6 rooms | 27,480,000 | 27,216,000 | 13,855,000 | 13,102,000 | 8,000 | 35,000 | 35,000 | 88,000 | 38,000 | 55,000 | 33 |
| 34 | 7 rooms | 17,877,000 | 17,829,000 | 8,011,000 | 9,701,000 | 4,000 | 21,000 | 16,000 | 33,000 | 6,000 | 37,000 | 34 |
| 35 | 8 rooms | 10,623,000 | 10,658,000 | 4,496,000 | 6,112,000 | 3,000 | 0 | 7,000 | 26,000 | 0 | 14,000 | 35 |
| 36 | 9 rooms | 4,629,000 | 4,673,000 | 1,596,000 | 3,059,000 | 0 | 0 | 2,000 | 5,000 | 4,000 | 8,000 | 36 |
| 37 | 10 rooms or more | 3,286,000 | 3,289,000 | 1,519,000 | 1,752,000 | 7,000 | 3,000 | 0 | 0 | 0 | 8,000 | 37 |

| Row | A | B | C | D | E | F | G | H | I | J | K | Row |
|-----|-----------------------|-------------------|-----------------|----------------------------|---------------------------|--|-------------------------------------|--|--|---------------------------------------|-------------------------------|-----|
| | Characteristics | Published numbers | Present in 2009 | 2009 units present in 2011 | Change in characteristics | 2009 units lost due to conversion/merger | 2009 house or mobile home moved out | 2009 units changed to nonresidential use | 2009 units lost through demolition or disaster | 2009 units badly damaged or condemned | 2009 units lost in other ways | |
| | Bedrooms | | | | | | | | | | | |
| 38 | None | 1,265,000 | 1,313,000 | 712,000 | 481,000 | 10,000 | 0 | 62,000 | 10,000 | 2,000 | 35,000 | 38 |
| 39 | 1 | 14,690,000 | 14,826,000 | 12,091,000 | 2,444,000 | 31,000 | 10,000 | 50,000 | 77,000 | 33,000 | 89,000 | 39 |
| 40 | 2 | 34,514,000 | 34,690,000 | 28,322,000 | 5,800,000 | 33,000 | 81,000 | 66,000 | 193,000 | 101,000 | 94,000 | 40 |
| 41 | 3 | 53,734,000 | 53,447,000 | 45,270,000 | 7,621,000 | 11,000 | 129,000 | 53,000 | 196,000 | 58,000 | 109,000 | 41 |
| 42 | 4 or more | 25,909,000 | 25,835,000 | 21,478,000 | 4,194,000 | 15,000 | 22,000 | 23,000 | 42,000 | 17,000 | 44,000 | 42 |
| | | | | | | | | | | | | |
| 43 | Multiunit structures | 31,817,000 | 32,613,000 | 32,137,000 | 0 | 48,000 | 3,000 | 127,000 | 105,000 | 68,000 | 126,000 | 43 |
| | Stories in Structures | | | | | | | | | | | |
| 44 | 1 | NA | 3,640,000 | 3,589,000 | 0 | 9,000 | 0 | 10,000 | 15,000 | 4,000 | 13,000 | 44 |
| 45 | 2 | NA | 13,372,000 | 13,147,000 | 0 | 19,000 | 3,000 | 41,000 | 70,000 | 40,000 | 53,000 | 45 |
| 46 | 3 | NA | 8,808,000 | 8,721,000 | 0 | 6,000 | 0 | 23,000 | 9,000 | 15,000 | 34,000 | 46 |
| 47 | 4 to 6 | NA | 4,183,000 | 4,085,000 | 0 | 9,000 | 0 | 48,000 | 10,000 | 4,000 | 25,000 | 47 |
| 48 | 7 or more | NA | 2,610,000 | 2,595,000 | 0 | 4,000 | 0 | 4,000 | 0 | 5,000 | 1,000 | 48 |
| | | | | | | | | | | | | |
| | Region | | | | | | | | | | | |
| 49 | Northeast | 23,316,000 | 23,482,000 | 23,210,000 | 0 | 14,000 | 10,000 | 64,000 | 40,000 | 44,000 | 100,000 | 49 |
| 50 | Midwest | 29,403,000 | 29,975,000 | 29,605,000 | 0 | 16,000 | 32,000 | 46,000 | 143,000 | 48,000 | 84,000 | 50 |
| 51 | South | 49,372,000 | 49,307,000 | 48,450,000 | 0 | 36,000 | 180,000 | 95,000 | 302,000 | 107,000 | 137,000 | 51 |
| 52 | West | 28,021,000 | 27,348,000 | 27,148,000 | 0 | 34,000 | 19,000 | 50,000 | 33,000 | 12,000 | 51,000 | 52 |
| | | | | | | | | | | | | |
| | Metro Status | | | | | | | | | | | |
| 53 | Inside metro area | 102,679,000 | 97,032,000 | 96,022,000 | 0 | 82,000 | 81,000 | 176,000 | 285,000 | 142,000 | 245,000 | 53 |
| 54 | In central cities | 37,604,000 | 36,476,000 | 36,028,000 | 0 | 35,000 | 8,000 | 94,000 | 124,000 | 83,000 | 105,000 | 54 |
| 55 | In suburbs | 65,075,000 | 60,556,000 | 59,995,000 | 0 | 47,000 | 73,000 | 82,000 | 161,000 | 59,000 | 140,000 | 55 |
| 56 | Outside metro area | 27,433,000 | 33,079,000 | 32,391,000 | 0 | 19,000 | 161,000 | 79,000 | 234,000 | 69,000 | 127,000 | 56 |

Forward-Looking Table B: Unit Quality

| | A | B | C | D | E | F | G | H | I | J | K | |
|-----|-------------------------------------|-------------------|-----------------|----------------------------|---------------------------|--|-------------------------------------|--|--|---------------------------------------|-------------------------------|-----|
| Row | Characteristics | Published numbers | Present in 2009 | 2009 units present in 2011 | Change in characteristics | 2009 units lost due to conversion/merger | 2009 house or mobile home moved out | 2009 units changed to nonresidential use | 2009 units lost through demolition or disaster | 2009 units badly damaged or condemned | 2009 units lost in other ways | Row |
| 1 | Occupied Units | 111,806,000 | 111,806,000 | 102,030,000 | 8,946,000 | 49,000 | 151,000 | 111,000 | 263,000 | 82,000 | 174,000 | 1 |
| | Kitchen | | | | | | | | | | | |
| 2 | With complete kitchen | 110,054,000 | 110,067,000 | 99,205,000 | 10,083,000 | 44,000 | 151,000 | 90,000 | 253,000 | 74,000 | 167,000 | 2 |
| 3 | Lacking complete kitchen facilities | 1,751,000 | 1,739,000 | 206,000 | 1,481,000 | 5,000 | 0 | 21,000 | 10,000 | 8,000 | 8,000 | 3 |
| | Plumbing | | | | | | | | | | | |
| 4 | Plumbing | 110,574,000 | 110,538,000 | 99,808,000 | 9,932,000 | 47,000 | 142,000 | 111,000 | 255,000 | 82,000 | 161,000 | 4 |
| 5 | Lack some plumbing | 1,232,000 | 1,268,000 | 84,000 | 1,151,000 | 3,000 | 9,000 | 0 | 8,000 | 0 | 13,000 | 5 |
| 6 | No hot piped water | 113,000 | 109,000 | 45,000 | 54,000 | 0 | 0 | 0 | 5,000 | 0 | 5,000 | 6 |
| 7 | No bathtub/shower | 113,000 | 112,000 | 41,000 | 63,000 | 3,000 | 0 | 0 | 0 | 0 | 5,000 | 7 |
| 8 | No flush toilet | 102,000 | 99,000 | 42,000 | 50,000 | 3,000 | 0 | 0 | 0 | 0 | 5,000 | 8 |
| 9 | No exclusive use | 1,065,000 | 1,096,000 | 15,000 | 1,061,000 | 0 | 9,000 | 0 | 3,000 | 0 | 8,000 | 9 |
| | Water | | | | | | | | | | | |
| 10 | Public/private water | 98,027,000 | 96,992,000 | 88,127,000 | 8,179,000 | 49,000 | 105,000 | 95,000 | 214,000 | 71,000 | 151,000 | 10 |
| 11 | Well | 13,430,000 | 14,417,000 | 13,118,000 | 1,163,000 | 0 | 46,000 | 14,000 | 43,000 | 10,000 | 23,000 | 11 |
| 12 | Other water source | 349,000 | 396,000 | 308,000 | 81,000 | 0 | 0 | 3,000 | 5,000 | 0 | 0 | 12 |
| | Sewer | | | | | | | | | | | |
| 13 | Public sewer | 89,467,000 | 88,857,000 | 78,991,000 | 9,271,000 | 46,000 | 72,000 | 90,000 | 195,000 | 66,000 | 127,000 | 13 |
| 14 | Septic tank/cesspool | 22,307,000 | 22,916,000 | 18,989,000 | 3,691,000 | 3,000 | 80,000 | 21,000 | 68,000 | 16,000 | 47,000 | 14 |
| 15 | Other | 31,000 | 33,000 | 12,000 | 21,000 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |

| | A | B | C | D | E | F | G | H | I | J | K | |
|-----|-------------------|-------------------|-----------------|----------------------------|---------------------------|---|-------------------------------------|--|--|---------------------------------------|-------------------------------|-----|
| Row | Characteristics | Published numbers | Present in 2009 | 2009 units present in 2011 | Change in characteristics | 2009 units lost due to conversion/ merger | 2009 house or mobile home moved out | 2009 units changed to nonresidential use | 2009 units lost through demolition or disaster | 2009 units badly damaged or condemned | 2009 units lost in other ways | Row |
| 16 | Severe Problems | 1,864,000 | 1,880,000 | 165,000 | 1,673,000 | 5,000 | 9,000 | 0 | 15,000 | 0 | 13,000 | 16 |
| 17 | Plumbing | 1,232,000 | 1,268,000 | 84,000 | 1,151,000 | 3,000 | 9,000 | 0 | 8,000 | 0 | 13,000 | 17 |
| 18 | Heating | 545,000 | 533,000 | 12,000 | 512,000 | 3,000 | 0 | 0 | 7,000 | 0 | 0 | 18 |
| 19 | Electric | 71,000 | 73,000 | 54,000 | 19,000 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 20 | Upkeep | 74,000 | 70,000 | 0 | 70,000 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 21 | Moderate Problems | 3,893,000 | 3,870,000 | 1,044,000 | 2,716,000 | 5,000 | 17,000 | 26,000 | 41,000 | 10,000 | 10,000 | 21 |
| 22 | Plumbing | 164,000 | 179,000 | 3,000 | 176,000 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| 23 | Heating | 1,073,000 | 1,125,000 | 818,000 | 269,000 | 0 | 17,000 | 5,000 | 16,000 | 0 | 0 | 23 |
| 24 | Kitchen | 1,177,000 | 1,739,000 | 206,000 | 1,481,000 | 5,000 | 0 | 21,000 | 10,000 | 8,000 | 8,000 | 24 |
| 25 | Upkeep | 1,629,000 | 1,247,000 | 126,000 | 1,077,000 | 0 | 0 | 0 | 36,000 | 3,000 | 5,000 | 25 |

Forward-Looking Table C: Occupant Characteristics

| | A | B | C | D | E | F | G | H | I | J | K | |
|-----|--------------------------------|-------------------|-----------------|----------------------------|---------------------------|--|-------------------------------------|--|--|---------------------------------------|-------------------------------|-----|
| Row | Characteristics | Published numbers | Present in 2009 | 2009 units present in 2011 | Change in characteristics | 2009 units lost due to conversion/merger | 2009 house or mobile home moved out | 2009 units changed to nonresidential use | 2009 units lost through demolition or disaster | 2009 units badly damaged or condemned | 2009 units lost in other ways | Row |
| 1 | Occupied Units | 111,806,000 | 111,806,000 | 102,030,000 | 8,946,000 | 49,000 | 151,000 | 111,000 | 263,000 | 82,000 | 174,000 | 1 |
| | Age | | | | | | | | | | | |
| 2 | Under 65 | 88,712,000 | 86,064,000 | 74,452,000 | 10,943,000 | 44,000 | 108,000 | 88,000 | 220,000 | 69,000 | 141,000 | 2 |
| 3 | 65 to 74 | 11,938,000 | 13,084,000 | 9,003,000 | 4,014,000 | 3,000 | 9,000 | 5,000 | 19,000 | 10,000 | 21,000 | 3 |
| 4 | 75 or older | 11,157,000 | 12,658,000 | 9,872,000 | 2,692,000 | 3,000 | 34,000 | 18,000 | 24,000 | 3,000 | 12,000 | 4 |
| | Children | | | | | | | | | | | |
| 5 | Some | 38,201,000 | 37,136,000 | 26,736,000 | 10,113,000 | 10,000 | 63,000 | 31,000 | 95,000 | 31,000 | 57,000 | 5 |
| 6 | None | 73,604,000 | 74,670,000 | 61,801,000 | 12,325,000 | 39,000 | 88,000 | 80,000 | 168,000 | 51,000 | 117,000 | 6 |
| | Race/Origin | | | | | | | | | | | |
| 7 | White | 91,137,000 | 92,159,000 | 81,697,000 | 9,818,000 | 36,000 | 137,000 | 95,000 | 188,000 | 51,000 | 136,000 | 7 |
| 8 | Hispanic | 11,804,000 | 12,618,000 | 9,568,000 | 2,966,000 | 5,000 | 14,000 | 13,000 | 20,000 | 20,000 | 13,000 | 8 |
| 9 | Non-Hispanic | 79,333,000 | 79,541,000 | 69,792,000 | 9,189,000 | 31,000 | 124,000 | 82,000 | 168,000 | 31,000 | 123,000 | 9 |
| 10 | Black | 13,993,000 | 12,909,000 | 10,014,000 | 2,736,000 | 13,000 | 14,000 | 12,000 | 66,000 | 31,000 | 24,000 | 10 |
| 11 | Hispanic | 384,000 | 353,000 | 140,000 | 213,000 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 12 | Non-Hispanic | 13,609,000 | 12,557,000 | 9,794,000 | 2,603,000 | 13,000 | 14,000 | 12,000 | 66,000 | 31,000 | 24,000 | 12 |
| 13 | American Indian, Eskimo, Aleut | 968,000 | 959,000 | 612,000 | 347,000 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 14 | Asian | 4,003,000 | 4,056,000 | 3,093,000 | 947,000 | 0 | 0 | 3,000 | 3,000 | 0 | 12,000 | 14 |
| 15 | Pacific Islander | 281,000 | 283,000 | 159,000 | 123,000 | 0 | 0 | 1,000 | 0 | 0 | 0 | 15 |
| 16 | Two or more races | 1,423,000 | 1,439,000 | 917,000 | 514,000 | 0 | 0 | 0 | 6,000 | 0 | 3,000 | 16 |
| 17 | Total Hispanics | 12,739,000 | 13,564,000 | 10,451,000 | 3,029,000 | 5,000 | 14,000 | 13,000 | 20,000 | 20,000 | 13,000 | 17 |

| | A | B | C | D | E | F | G | H | I | J | K | |
|-----|-----------------------------|-------------------|-----------------|----------------------------|---------------------------|--|-------------------------------------|--|--|---------------------------------------|-------------------------------|-----|
| Row | Characteristics | Published numbers | Present in 2009 | 2009 units present in 2011 | Change in characteristics | 2009 units lost due to conversion/merger | 2009 house or mobile home moved out | 2009 units changed to nonresidential use | 2009 units lost through demolition or disaster | 2009 units badly damaged or condemned | 2009 units lost in other ways | Row |
| | Income Source | | | | | | | | | | | |
| 18 | Wages and salaries | 82,121,000 | 80,290,000 | 63,232,000 | 16,493,000 | 31,000 | 113,000 | 58,000 | 184,000 | 49,000 | 131,000 | 18 |
| 19 | Self-employed | 12,966,000 | 12,889,000 | 5,179,000 | 7,627,000 | 3,000 | 11,000 | 18,000 | 16,000 | 5,000 | 29,000 | 19 |
| 20 | Social security or pension | NA | 30,915,000 | 22,996,000 | 7,721,000 | 11,000 | 58,000 | 25,000 | 50,000 | 16,000 | 38,000 | 20 |
| 21 | Dividend, interest, or rent | NA | 30,760,000 | 14,351,000 | 16,321,000 | 14,000 | 8,000 | 23,000 | 18,000 | 5,000 | 21,000 | 21 |
| 22 | Welfare | 2,049,000 | 2,022,000 | 336,000 | 1,668,000 | 0 | 3,000 | 3,000 | 3,000 | 8,000 | 3,000 | 22 |

Forward-Looking Table D: Income and Housing Cost

| | A | B | C | D | E | F | G | H | I | J | K | |
|-----|------------------------------|-------------------|-----------------|----------------------------|---------------------------|--|-------------------------------------|--|--|---------------------------------------|-------------------------------|-----|
| Row | Characteristics | Published numbers | Present in 2009 | 2009 units present in 2011 | Change in characteristics | 2009 units lost due to conversion/merger | 2009 house or mobile home moved out | 2009 units changed to nonresidential use | 2009 units lost through demolition or disaster | 2009 units badly damaged or condemned | 2009 units lost in other ways | Row |
| 1 | Occupied Units | | 111,806,000 | 102,030,000 | 8,946,000 | 49,000 | 151,000 | 111,000 | 263,000 | 82,000 | 174,000 | 1 |
| | Tenure | | | | | | | | | | | |
| 2 | Owner occupied | 76,428,000 | 76,428,000 | 68,281,000 | 7,722,000 | 22,000 | 109,000 | 26,000 | 145,000 | 29,000 | 94,000 | 2 |
| 3 | Homeownership rate | 68.4% | 68.4% | | | | | | | | | 3 |
| 4 | Renter occupied | 35,378,000 | 35,378,000 | 28,035,000 | 6,938,000 | 28,000 | 42,000 | 85,000 | 118,000 | 53,000 | 80,000 | 4 |
| | Renter Monthly Housing Costs | | | | | | | | | | | |
| 5 | No cash rent | 2,037,000 | 1,756,000 | 654,000 | 1,071,000 | 3,000 | 6,000 | 5,000 | 13,000 | 0 | 5,000 | 5 |
| 6 | Less than \$350 | 2,938,000 | 3,110,000 | 1,574,000 | 1,465,000 | 3,000 | 9,000 | 16,000 | 20,000 | 13,000 | 11,000 | 6 |
| 7 | \$350 to \$599 | 5,857,000 | 5,850,000 | 2,420,000 | 3,350,000 | 8,000 | 8,000 | 10,000 | 32,000 | 3,000 | 19,000 | 7 |
| 8 | \$600 to \$799 | 7,517,000 | 7,260,000 | 3,250,000 | 3,924,000 | 8,000 | 5,000 | 22,000 | 28,000 | 13,000 | 10,000 | 8 |
| 9 | \$800 to \$1,249 | 10,837,000 | 10,977,000 | 6,048,000 | 4,825,000 | 5,000 | 14,000 | 19,000 | 21,000 | 23,000 | 23,000 | 9 |
| 10 | \$1,250 or more | 6,192,000 | 6,425,000 | 3,810,000 | 2,581,000 | 3,000 | 0 | 13,000 | 3,000 | 3,000 | 13,000 | 10 |
| | Renter Household Income | | | | | | | | | | | |
| 11 | Less than \$15,000 | 9,284,000 | 9,266,000 | 4,126,000 | 4,984,000 | 13,000 | 20,000 | 24,000 | 53,000 | 23,000 | 25,000 | 11 |
| 12 | \$15,000 to \$29,999 | 8,921,000 | 8,876,000 | 2,744,000 | 6,037,000 | 5,000 | 3,000 | 31,000 | 34,000 | 8,000 | 15,000 | 12 |
| 13 | \$30,000 to \$49,999 | 7,915,000 | 7,892,000 | 1,899,000 | 5,924,000 | 0 | 8,000 | 13,000 | 13,000 | 15,000 | 20,000 | 13 |
| 14 | \$50,000 to \$99,999 | 7,234,000 | 7,296,000 | 2,274,000 | 4,963,000 | 8,000 | 0 | 13,000 | 19,000 | 8,000 | 13,000 | 14 |
| 15 | \$100,000 or more | 2,024,000 | 2,047,000 | 429,000 | 1,592,000 | 3,000 | 12,000 | 5,000 | 0 | 0 | 8,000 | 15 |

| | A | B | C | D | E | F | G | H | I | J | K | |
|-----|-----------------------------|-------------------|-----------------|----------------------------|---------------------------|--|-------------------------------------|--|--|---------------------------------------|-------------------------------|-----|
| Row | Characteristics | Published numbers | Present in 2009 | 2009 units present in 2011 | Change in characteristics | 2009 units lost due to conversion/merger | 2009 house or mobile home moved out | 2009 units changed to nonresidential use | 2009 units lost through demolition or disaster | 2009 units badly damaged or condemned | 2009 units lost in other ways | Row |
| | Owner Monthly Housing Costs | | | | | | | | | | | |
| 16 | Less than \$350 | 10,976,000 | 9,800,000 | 3,990,000 | 5,698,000 | 0 | 46,000 | 2,000 | 50,000 | 5,000 | 8,000 | 16 |
| 17 | \$350 to \$599 | 12,747,000 | 12,775,000 | 5,346,000 | 7,334,000 | 3,000 | 34,000 | 6,000 | 31,000 | 0 | 21,000 | 17 |
| 18 | \$600 to \$799 | 7,331,000 | 7,747,000 | 2,224,000 | 5,474,000 | 3,000 | 12,000 | 3,000 | 18,000 | 0 | 13,000 | 18 |
| 19 | \$800 to \$1,249 | 15,295,000 | 15,160,000 | 6,816,000 | 8,284,000 | 5,000 | 12,000 | 3,000 | 22,000 | 11,000 | 8,000 | 19 |
| 20 | \$1,250 or more | 30,078,000 | 30,946,000 | 22,255,000 | 8,582,000 | 11,000 | 5,000 | 13,000 | 24,000 | 13,000 | 43,000 | 20 |
| | | | | | | | | | | | | |
| | Owner Household Income | | | | | | | | | | | |
| 21 | \$0 to \$14,999 | 7,211,000 | 7,509,000 | 2,694,000 | 4,744,000 | 3,000 | 12,000 | 11,000 | 36,000 | 8,000 | 3,000 | 21 |
| 22 | \$15,000 to \$29,999 | 10,740,000 | 10,997,000 | 3,902,000 | 7,010,000 | 3,000 | 32,000 | 0 | 27,000 | 5,000 | 19,000 | 22 |
| 23 | \$30,000 to \$49,999 | 13,934,000 | 14,107,000 | 4,938,000 | 9,079,000 | 6,000 | 40,000 | 3,000 | 28,000 | 5,000 | 8,000 | 23 |
| 24 | \$50,000 to \$99,999 | 25,272,000 | 24,863,000 | 12,087,000 | 12,652,000 | 3,000 | 17,000 | 10,000 | 41,000 | 8,000 | 45,000 | 24 |
| 25 | \$100,000 or more | 19,271,000 | 18,952,000 | 11,171,000 | 7,727,000 | 8,000 | 8,000 | 3,000 | 13,000 | 3,000 | 20,000 | 25 |

Backward-Looking Table A: Housing Characteristics

| | A | B | C | D | E | F | G | H | I | J | K | |
|-----|--------------------------|-------------|-----------------|----------------------------|---------------------------|---------------------------------------|------------------------------------|--|--------------------------------------|--|--------------------------------|-----|
| Row | 2011 Characteristics | Published | Present in 2011 | 2011 units present in 2009 | Change in characteristics | 2011 units added by conversion/merger | 2011 house or mobile home moved in | 2011 units added from nonresidential use | 2011 units added by new construction | 2011 units added from temporary losses in 2009 stock | 2011 units added in other ways | Row |
| 1 | Housing Stock | 132,419,000 | 132,419,000 | 129,573,000 | 0 | 73,000 | 174,000 | 183,000 | 2,057,000 | 226,000 | 134,000 | 1 |
| | Occupancy Status | | | | | | | | | | | |
| 2 | Occupied | 114,907,000 | 114,907,000 | 103,074,000 | 9,706,000 | 64,000 | 115,000 | 80,000 | 1,720,000 | 75,000 | 73,000 | 2 |
| 3 | Vacant | 13,379,000 | 13,379,000 | 5,109,000 | 7,713,000 | 5,000 | 34,000 | 88,000 | 268,000 | 117,000 | 46,000 | 3 |
| 4 | Seasonal | 4,133,000 | 4,133,000 | 2,185,000 | 1,787,000 | 5,000 | 25,000 | 14,000 | 69,000 | 35,000 | 14,000 | 4 |
| | Units in Structure | | | | | | | | | | | |
| 5 | 1, detached | 82,974,000 | 83,017,000 | 81,412,000 | 0 | 20,000 | 12,000 | 82,000 | 1,283,000 | 125,000 | 83,000 | 5 |
| 6 | 1, attached | 7,768,000 | 6,774,000 | 6,463,000 | 0 | 11,000 | 0 | 20,000 | 250,000 | 17,000 | 14,000 | 6 |
| 7 | 2 to 4 | 10,678,000 | 10,581,000 | 10,407,000 | 0 | 39,000 | 1,000 | 29,000 | 59,000 | 25,000 | 22,000 | 7 |
| 8 | 5 to 9 | 6,354,000 | 6,454,000 | 6,384,000 | 0 | 0 | 0 | 11,000 | 46,000 | 12,000 | 1,000 | 8 |
| 9 | 10 to 19 | 6,028,000 | 6,243,000 | 6,148,000 | 0 | 1,000 | 2,000 | 11,000 | 66,000 | 9,000 | 5,000 | 9 |
| 10 | 20 to 49 | 4,474,000 | 4,725,000 | 4,590,000 | 0 | 0 | 0 | 4,000 | 123,000 | 6,000 | 2,000 | 10 |
| 11 | 50 or more | 5,096,000 | 5,577,000 | 5,311,000 | 0 | 3,000 | 0 | 20,000 | 230,000 | 6,000 | 7,000 | 11 |
| 12 | Manufactured/mobile home | 9,049,000 | 9,049,000 | 8,858,000 | 0 | 0 | 159,000 | 6,000 | 1,000 | 26,000 | 0 | 12 |

| | A | B | C | D | E | F | G | H | I | J | K | |
|-----|----------------------|------------|-----------------|----------------------------|---------------------------|---------------------------------------|------------------------------------|--|--------------------------------------|--|--------------------------------|-----|
| Row | 2011 Characteristics | Published | Present in 2011 | 2011 units present in 2009 | Change in characteristics | 2011 units added by conversion/merger | 2011 house or mobile home moved in | 2011 units added from nonresidential use | 2011 units added by new construction | 2011 units added from temporary losses in 2009 stock | 2011 units added in other ways | Row |
| | Year Structure Built | | | | | | | | | | | |
| 13 | 2010–2014 | 720,000 | 704,000 | 8,000 | 0 | 7,000 | 3,000 | 0 | 686,000 | 0 | 0 | 13 |
| 14 | 2005–2009 | 8,267,000 | 8,667,000 | 7,464,000 | 0 | 1,000 | 19,000 | 15,000 | 1,146,000 | 7,000 | 14,000 | 14 |
| 15 | 2000–2004 | 9,250,000 | 9,966,000 | 9,721,000 | 0 | 0 | 18,000 | 5,000 | 216,000 | 0 | 6,000 | 15 |
| 16 | 1995–1999 | 8,948,000 | 11,518,000 | 11,460,000 | 0 | 4,000 | 39,000 | 8,000 | 0 | 0 | 6,000 | 16 |
| 17 | 1990–1994 | 7,206,000 | 4,894,000 | 4,868,000 | 0 | 0 | 18,000 | 6,000 | 0 | 0 | 2,000 | 17 |
| 18 | 1985–1989 | 9,014,000 | 8,986,000 | 8,967,000 | 0 | 0 | 3,000 | 3,000 | 0 | 5,000 | 8,000 | 18 |
| 19 | 1980–1984 | 7,715,000 | 7,729,000 | 7,679,000 | 0 | 7,000 | 19,000 | 7,000 | 0 | 11,000 | 6,000 | 19 |
| 20 | 1975–1979 | 13,579,000 | 13,817,000 | 13,720,000 | 0 | 7,000 | 13,000 | 22,000 | 0 | 34,000 | 22,000 | 20 |
| 21 | 1970–1974 | 11,176,000 | 11,008,000 | 10,930,000 | 0 | 2,000 | 34,000 | 14,000 | 0 | 21,000 | 6,000 | 21 |
| 22 | 1960–1969 | 15,405,000 | 15,035,000 | 14,980,000 | 0 | 7,000 | 6,000 | 12,000 | 3,000 | 15,000 | 11,000 | 22 |
| 23 | 1950–1959 | 13,455,000 | 12,665,000 | 12,595,000 | 0 | 5,000 | 0 | 30,000 | 2,000 | 24,000 | 9,000 | 23 |
| 24 | 1940–1949 | 7,836,000 | 7,713,000 | 7,672,000 | 0 | 2,000 | 2,000 | 12,000 | 0 | 18,000 | 8,000 | 24 |
| 25 | 1930–1939 | 5,536,000 | 5,652,000 | 5,600,000 | 0 | 4,000 | 0 | 12,000 | 0 | 23,000 | 14,000 | 25 |
| 26 | 1920–1929 | 5,323,000 | 5,106,000 | 5,067,000 | 0 | 7,000 | 0 | 7,000 | 0 | 14,000 | 11,000 | 26 |
| 27 | 1919 or earlier | 8,989,000 | 8,962,000 | 8,842,000 | 0 | 19,000 | 0 | 31,000 | 4,000 | 54,000 | 11,000 | 27 |

| | A | B | C | D | E | F | G | H | I | J | K | |
|-----|----------------------|------------|-----------------|----------------------------|---------------------------|---------------------------------------|------------------------------------|--|--------------------------------------|--|--------------------------------|-----|
| Row | 2011 Characteristics | Published | Present in 2011 | 2011 units present in 2009 | Change in characteristics | 2011 units added by conversion/merger | 2011 house or mobile home moved in | 2011 units added from nonresidential use | 2011 units added by new construction | 2011 units added from temporary losses in 2009 stock | 2011 units added in other ways | Row |
| | Rooms | | | | | | | | | | | |
| 28 | 1 | 601,000 | 665,000 | 276,000 | 353,000 | 3,000 | 0 | 17,000 | 4,000 | 2,000 | 10,000 | 28 |
| 29 | 2 | 1,404,000 | 1,342,000 | 510,000 | 747,000 | 2,000 | 3,000 | 11,000 | 32,000 | 23,000 | 13,000 | 29 |
| 30 | 3 | 11,433,000 | 11,420,000 | 7,931,000 | 3,168,000 | 35,000 | 32,000 | 29,000 | 158,000 | 40,000 | 26,000 | 30 |
| 31 | 4 | 23,636,000 | 23,799,000 | 15,111,000 | 8,248,000 | 24,000 | 31,000 | 43,000 | 250,000 | 59,000 | 32,000 | 31 |
| 32 | 5 | 30,440,000 | 30,297,000 | 16,620,000 | 13,025,000 | 3,000 | 55,000 | 18,000 | 524,000 | 29,000 | 24,000 | 32 |
| 33 | 6 | 27,779,000 | 27,769,000 | 13,925,000 | 13,306,000 | 3,000 | 37,000 | 32,000 | 414,000 | 39,000 | 13,000 | 33 |
| 34 | 7 | 17,868,000 | 17,938,000 | 8,062,000 | 9,556,000 | 2,000 | 3,000 | 11,000 | 274,000 | 19,000 | 11,000 | 34 |
| 35 | 8 | 10,749,000 | 10,731,000 | 4,494,000 | 6,024,000 | 0 | 13,000 | 14,000 | 177,000 | 7,000 | 3,000 | 35 |
| 36 | 9 | 4,854,000 | 5,000,000 | 1,594,000 | 3,269,000 | 0 | 0 | 5,000 | 130,000 | 2,000 | 0 | 36 |
| 37 | 10 or more | 3,654,000 | 3,458,000 | 1,522,000 | 1,832,000 | 0 | 0 | 3,000 | 94,000 | 4,000 | 3,000 | 37 |
| | | | | | | | | | | | | |
| | Bedrooms | | | | | | | | | | | |
| 38 | None | 1,413,000 | 1,412,000 | 706,000 | 622,000 | 3,000 | 0 | 23,000 | 27,000 | 18,000 | 14,000 | 38 |
| 39 | 1 | 14,924,000 | 15,004,000 | 12,270,000 | 2,334,000 | 45,000 | 35,000 | 37,000 | 193,000 | 50,000 | 41,000 | 39 |
| 40 | 2 | 35,083,000 | 35,062,000 | 28,768,000 | 5,665,000 | 20,000 | 35,000 | 53,000 | 405,000 | 74,000 | 43,000 | 40 |
| 41 | 3 | 54,245,000 | 54,220,000 | 45,724,000 | 7,447,000 | 2,000 | 88,000 | 40,000 | 840,000 | 55,000 | 24,000 | 41 |
| 42 | 4 or more | 26,755,000 | 26,722,000 | 21,558,000 | 4,479,000 | 3,000 | 16,000 | 30,000 | 592,000 | 30,000 | 12,000 | 42 |
| | | | | | | | | | | | | |
| 43 | Multiunit structures | NA | 33,579,000 | 32,841,000 | 0 | 42,000 | 3,000 | 75,000 | 524,000 | 58,000 | 37,000 | 42 |
| | Stories in Structure | | | | | | | | | | | |
| 44 | 1 | NA | 4,046,000 | 3,982,000 | 0 | 5,000 | 1,000 | 16,000 | 27,000 | 13,000 | 2,000 | 43 |
| 45 | 2 | NA | 13,703,000 | 13,520,000 | 0 | 23,000 | 2,000 | 21,000 | 99,000 | 22,000 | 17,000 | 44 |
| 46 | 3 | NA | 9,031,000 | 8,818,000 | 0 | 7,000 | 0 | 10,000 | 176,000 | 11,000 | 9,000 | 45 |
| 47 | 4 to 6 | NA | 4,244,000 | 4,049,000 | 0 | 5,000 | 0 | 19,000 | 155,000 | 10,000 | 6,000 | 46 |
| 48 | 7 or more | NA | 2,555,000 | 2,472,000 | 0 | 3,000 | 0 | 9,000 | 66,000 | 2,000 | 4,000 | 47 |

| | A | B | C | D | E | F | G | H | I | J | K | |
|-----|----------------------------------|-------------|-----------------|----------------------------|---------------------------|---------------------------------------|------------------------------------|--|--------------------------------------|--|--------------------------------|-----|
| Row | 2011 Characteristics | Published | Present in 2011 | 2011 units present in 2009 | Change in characteristics | 2011 units added by conversion/merger | 2011 house or mobile home moved in | 2011 units added from nonresidential use | 2011 units added by new construction | 2011 units added from temporary losses in 2009 stock | 2011 units added in other ways | Row |
| | Census Regions | | | | | | | | | | | |
| 49 | Northeast | 23,717,000 | 22,857,000 | 22,525,000 | 0 | 31,000 | 6,000 | 42,000 | 195,000 | 28,000 | 30,000 | 48 |
| 50 | Midwest | 29,545,000 | 30,050,000 | 29,621,000 | 0 | 12,000 | 45,000 | 38,000 | 267,000 | 46,000 | 22,000 | 49 |
| 51 | South | 50,381,000 | 50,669,000 | 49,460,000 | 0 | 9,000 | 96,000 | 67,000 | 885,000 | 123,000 | 29,000 | 50 |
| 52 | West | 28,776,000 | 28,843,000 | 27,968,000 | 0 | 22,000 | 27,000 | 35,000 | 709,000 | 30,000 | 52,000 | 51 |
| | Metropolitan/ Nonmetropolitan | | | | | | | | | | | |
| 53 | Inside metropolitan areas | 104,017,000 | 98,617,000 | 96,553,000 | 0 | 55,000 | 84,000 | 139,000 | 1,533,000 | 146,000 | 107,000 | 52 |
| 54 | In central cities | 38,599,000 | 37,182,000 | 36,312,000 | 0 | 33,000 | 27,000 | 73,000 | 588,000 | 87,000 | 63,000 | 53 |
| 55 | Not in central cities | 65,418,000 | 61,436,000 | 60,242,000 | 0 | 23,000 | 57,000 | 67,000 | 945,000 | 59,000 | 44,000 | 54 |
| 56 | Outside metropolitan areas | 28,402,000 | 33,802,000 | 33,020,000 | 0 | 18,000 | 90,000 | 43,000 | 524,000 | 80,000 | 27,000 | 55 |

Backward-Looking Table B: Unit Quality

| | A | B | C | D | E | F | G | H | I | J | K | |
|-----|---|-------------|-----------------|----------------------------|---------------------------|---------------------------------------|------------------------------------|--|--------------------------------------|--|--------------------------------|-----|
| Row | 2011 Characteristics | Published | Present in 2011 | 2011 units present in 2009 | Change in characteristics | 2011 units added by conversion/merger | 2011 house or mobile home moved in | 2011 units added from nonresidential use | 2011 units added by new construction | 2011 units added from temporary losses in 2009 stock | 2011 units added in other ways | Row |
| 1 | Occupied Units | 114,907,000 | 114,907,000 | 103,074,000 | 9,706,000 | 64,000 | 115,000 | 80,000 | 1,720,000 | 75,000 | 73,000 | 1 |
| 2 | With complete kitchen | 112,898,000 | 112,922,000 | 100,217,000 | 10,615,000 | 54,000 | 112,000 | 72,000 | 1,704,000 | 72,000 | 73,000 | 2 |
| 3 | Lacking complete kitchen facilities | 2,010,000 | 1,985,000 | 208,000 | 1,739,000 | 9,000 | 3,000 | 8,000 | 16,000 | 2,000 | 0 | 3 |
| | Plumbing Facilities | | | | | | | | | | | |
| 4 | With all plumbing facilities | 113,472,000 | 113,440,000 | 100,852,000 | 10,480,000 | 61,000 | 109,000 | 77,000 | 1,718,000 | 69,000 | 73,000 | 4 |
| 5 | Lacking some or all plumbing facilities | 1,435,000 | 1,467,000 | 86,000 | 1,362,000 | 3,000 | 6,000 | 3,000 | 2,000 | 5,000 | 0 | 5 |
| 6 | No hot piped water | 189,000 | 216,000 | 47,000 | 161,000 | 3,000 | 0 | 3,000 | 0 | 3,000 | 0 | 6 |
| 7 | No bathtub and no shower | 147,000 | 167,000 | 42,000 | 117,000 | 3,000 | 3,000 | 3,000 | 0 | 0 | 0 | 7 |
| 8 | No flush toilet | 122,000 | 128,000 | 42,000 | 80,000 | 3,000 | 0 | 3,000 | 0 | 0 | 0 | 8 |
| 9 | No exclusive use | 1,183,000 | 1,175,000 | 15,000 | 1,151,000 | 0 | 3,000 | 0 | 2,000 | 3,000 | 0 | 9 |
| | Primary Source of Water | | | | | | | | | | | |
| 10 | Public or private system | 101,397,000 | 100,105,000 | 88,983,000 | 9,163,000 | 57,000 | 91,000 | 66,000 | 1,618,000 | 63,000 | 62,000 | 10 |
| 11 | Well serving 1 to 5 units | 13,131,000 | 14,379,000 | 13,297,000 | 925,000 | 7,000 | 21,000 | 11,000 | 97,000 | 11,000 | 9,000 | 11 |
| 12 | Other | 380,000 | 424,000 | 313,000 | 97,000 | 0 | 3,000 | 3,000 | 5,000 | 0 | 2,000 | 12 |

| | A | B | C | D | E | F | G | H | I | J | K | |
|-----|----------------------------|------------|-----------------|----------------------------|---------------------------|---------------------------------------|------------------------------------|--|--------------------------------------|--|--------------------------------|-----|
| Row | 2011 Characteristics | Published | Present in 2011 | 2011 units present in 2009 | Change in characteristics | 2011 units added by conversion/merger | 2011 house or mobile home moved in | 2011 units added from nonresidential use | 2011 units added by new construction | 2011 units added from temporary losses in 2009 stock | 2011 units added in other ways | Row |
| | Means of Sewage Disposal | | | | | | | | | | | |
| 13 | Public sewer | 92,636,000 | 92,021,000 | 79,650,000 | 10,609,000 | 46,000 | 59,000 | 64,000 | 1,481,000 | 52,000 | 60,000 | 13 |
| 14 | Septic tank or cesspool | NA | 22,833,000 | 19,315,000 | 3,156,000 | 15,000 | 56,000 | 16,000 | 239,000 | 22,000 | 14,000 | 14 |
| 15 | Other | NA | 53,000 | 12,000 | 39,000 | 3,000 | 0 | 0 | 0 | 0 | 0 | 15 |
| 16 | Severe physical problems | 2,125,000 | 2,146,000 | 167,000 | 1,957,000 | 3,000 | 6,000 | 3,000 | 5,000 | 5,000 | 0 | 16 |
| 17 | Plumbing | 1,435,000 | 1,467,000 | 86,000 | 1,362,000 | 3,000 | 6,000 | 3,000 | 2,000 | 5,000 | 0 | 17 |
| 18 | Heating | 602,000 | 589,000 | 11,000 | 572,000 | 0 | 0 | 0 | 3,000 | 3,000 | 0 | 18 |
| 19 | Electric | 65,000 | 74,000 | 55,000 | 19,000 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 20 | Upkeep | 79,000 | 82,000 | 0 | 82,000 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| | | | | | | | | | | | | |
| 21 | Moderate physical problems | 4,199,000 | 4,088,000 | 1,066,000 | 2,972,000 | 9,000 | 6,000 | 5,000 | 19,000 | 2,000 | 8,000 | 21 |
| 22 | Plumbing | 215,000 | 238,000 | 3,000 | 233,000 | 2,000 | 0 | 0 | 0 | 0 | 0 | 22 |
| 23 | Heating | 1,041,000 | 1,154,000 | 841,000 | 304,000 | 0 | 3,000 | 0 | 3,000 | 0 | 3,000 | 23 |
| 24 | Upkeep | 1,833,000 | 1,985,000 | 208,000 | 1,739,000 | 9,000 | 3,000 | 8,000 | 16,000 | 2,000 | 0 | 24 |
| 25 | Kitchen | 1,242,000 | 1,243,000 | 126,000 | 1,109,000 | 0 | 3,000 | 0 | 0 | 0 | 5,000 | 25 |

Backward-Looking Table C: Occupant Characteristics

| | A | B | C | D | E | F | G | H | I | J | K | |
|-----|-----------------------------|-------------|-----------------|----------------------------|---------------------------|---------------------------------------|------------------------------------|--|--------------------------------------|--|--------------------------------|-----|
| Row | 2011 Characteristics | Published | Present in 2011 | 2011 units present in 2009 | Change in characteristics | 2011 units added by conversion/merger | 2011 house or mobile home moved in | 2011 units added from nonresidential use | 2011 units added by new construction | 2011 units added from temporary losses in 2009 stock | 2011 units added in other ways | Row |
| 1 | Occupied Units | 114,907,000 | 114,907,000 | 103,074,000 | 9,706,000 | 64,000 | 115,000 | 80,000 | 1,720,000 | 75,000 | 73,000 | 1 |
| | Age of Householder | | | | | | | | | | | |
| 2 | Less than 65 years old | 89,849,000 | 87,965,000 | 75,259,000 | 10,822,000 | 54,000 | 103,000 | 71,000 | 1,530,000 | 69,000 | 58,000 | 2 |
| 3 | 65 to 74 years old | 13,168,000 | 13,872,000 | 9,080,000 | 4,638,000 | 7,000 | 9,000 | 5,000 | 127,000 | 0 | 5,000 | 3 |
| 4 | 75 years old and over | 11,890,000 | 13,070,000 | 9,964,000 | 3,017,000 | 2,000 | 3,000 | 4,000 | 64,000 | 6,000 | 10,000 | 4 |
| | Households & Children | | | | | | | | | | | |
| 5 | Households with children | 37,573,000 | 37,355,000 | 26,969,000 | 9,491,000 | 13,000 | 39,000 | 39,000 | 752,000 | 26,000 | 28,000 | 5 |
| 6 | Households with no children | 77,334,000 | 77,552,000 | 62,423,000 | 13,897,000 | 51,000 | 76,000 | 42,000 | 969,000 | 49,000 | 46,000 | 6 |

| | A | B | C | D | E | F | G | H | I | J | K | |
|-----|--|------------|-----------------|----------------------------|---------------------------|---------------------------------------|------------------------------------|--|--------------------------------------|--|--------------------------------|-----|
| Row | 2011 Characteristics | Published | Present in 2011 | 2011 units present in 2009 | Change in characteristics | 2011 units added by conversion/merger | 2011 house or mobile home moved in | 2011 units added from nonresidential use | 2011 units added by new construction | 2011 units added from temporary losses in 2009 stock | 2011 units added in other ways | Row |
| | Race and Hispanic Origin | | | | | | | | | | | |
| 7 | White alone | 92,820,000 | 93,988,000 | 82,575,000 | 9,804,000 | 43,000 | 98,000 | 58,000 | 1,299,000 | 53,000 | 58,000 | 7 |
| 8 | Hispanic | 12,630,000 | 13,177,000 | 9,677,000 | 3,214,000 | 12,000 | 9,000 | 13,000 | 211,000 | 18,000 | 23,000 | 8 |
| 9 | Non-Hispanic | 80,190,000 | 80,811,000 | 70,521,000 | 8,967,000 | 31,000 | 88,000 | 45,000 | 1,089,000 | 36,000 | 35,000 | 9 |
| 10 | Black alone | 14,694,000 | 13,517,000 | 10,074,000 | 3,135,000 | 15,000 | 18,000 | 19,000 | 228,000 | 18,000 | 11,000 | 10 |
| 11 | Hispanic | 535,000 | 417,000 | 139,000 | 268,000 | 0 | 0 | 2,000 | 8,000 | 0 | 0 | 11 |
| 12 | Non-Hispanic | 14,159,000 | 13,100,000 | 9,854,000 | 2,949,000 | 15,000 | 18,000 | 17,000 | 220,000 | 18,000 | 11,000 | 12 |
| 13 | Am Indian or Alaska Native | 965,000 | 1,011,000 | 627,000 | 360,000 | 0 | 0 | 0 | 20,000 | 3,000 | 0 | 13 |
| 14 | Asian alone | 4,620,000 | 4,629,000 | 3,081,000 | 1,383,000 | 1,000 | 0 | 0 | 158,000 | 0 | 5,000 | 14 |
| 15 | Pacific Islander alone | 328,000 | 299,000 | 160,000 | 129,000 | 2,000 | 0 | 0 | 8,000 | 0 | 0 | 15 |
| 16 | Two or more races | 1,480,000 | 1,463,000 | 927,000 | 525,000 | 2,000 | 0 | 3,000 | 6,000 | 0 | 0 | 16 |
| 17 | Hispanic or Latino (any race) | 13,841,000 | 14,282,000 | 10,557,000 | 3,412,000 | 12,000 | 9,000 | 16,000 | 236,000 | 18,000 | 23,000 | 17 |
| | | | | | | | | | | | | |
| | Income Sources of Families and Primary Individuals | | | | | | | | | | | |
| 18 | Wages and salaries | 81,430,000 | 80,140,000 | 63,834,000 | 14,652,000 | 38,000 | 81,000 | 53,000 | 1,385,000 | 48,000 | 50,000 | 18 |
| 19 | Self-employment | 13,263,000 | 13,429,000 | 5,229,000 | 7,931,000 | 9,000 | 14,000 | 9,000 | 226,000 | 5,000 | 7,000 | 19 |
| 20 | Social security or pension | NA | 32,235,000 | 23,233,000 | 8,649,000 | 10,000 | 28,000 | 12,000 | 268,000 | 22,000 | 15,000 | 20 |
| 21 | Dividends, interest, or rent | NA | 28,108,000 | 14,376,000 | 13,267,000 | 5,000 | 9,000 | 14,000 | 418,000 | 8,000 | 12,000 | 21 |
| 22 | Public assistance or public welfare | 2,393,000 | 2,264,000 | 343,000 | 1,890,000 | 0 | 3,000 | 10,000 | 17,000 | 0 | 3,000 | 22 |

Backward-Looking Table D: Income and Housing Cost

| | A | B | C | D | E | F | G | H | I | J | K | |
|-----|------------------------------|-------------|-----------------|----------------------------|---------------------------|---------------------------------------|------------------------------------|--|--------------------------------------|--|--------------------------------|-----|
| Row | 2011 Characteristics | Published | Present in 2011 | 2011 units present in 2009 | Change in characteristics | 2011 units added by conversion/merger | 2011 house or mobile home moved in | 2011 units added from nonresidential use | 2011 units added by new construction | 2011 units added from temporary losses in 2009 stock | 2011 units added in other ways | Row |
| 1 | Occupied Units | 114,907,000 | 114,907,000 | 103,074,000 | 9,706,000 | 64,000 | 115,000 | 80,000 | 1,720,000 | 75,000 | 73,000 | 1 |
| | Tenure | | | | | | | | | | | |
| 2 | Owner-occupied | 76,091,000 | 76,091,000 | 68,745,000 | 5,955,000 | 7,000 | 94,000 | 26,000 | 1,203,000 | 36,000 | 25,000 | 2 |
| 3 | Homeownership rate | 66.2% | 66.2% | | | | | | | | | 3 |
| 4 | Renter-occupied | 38,816,000 | 38,816,000 | 28,585,000 | 9,494,000 | 57,000 | 21,000 | 54,000 | 517,000 | 39,000 | 48,000 | 4 |
| | Renter Monthly Housing Costs | | | | | | | | | | | |
| 5 | No cash rent | 2,271,000 | 1,997,000 | 667,000 | 1,285,000 | 3,000 | 3,000 | 12,000 | 13,000 | 6,000 | 9,000 | 5 |
| 6 | Less than \$350 | 3,094,000 | 3,246,000 | 1,612,000 | 1,603,000 | 6,000 | 0 | 0 | 23,000 | 0 | 3,000 | 6 |
| 7 | \$350 to \$599 | 5,702,000 | 5,791,000 | 2,493,000 | 3,213,000 | 19,000 | 6,000 | 8,000 | 39,000 | 11,000 | 3,000 | 7 |
| 8 | \$600 to \$799 | 7,823,000 | 7,816,000 | 3,349,000 | 4,361,000 | 10,000 | 7,000 | 14,000 | 59,000 | 8,000 | 8,000 | 8 |
| 9 | \$800 to \$1,249 | 12,072,000 | 12,148,000 | 6,166,000 | 5,761,000 | 9,000 | 3,000 | 12,000 | 174,000 | 3,000 | 20,000 | 9 |
| 10 | \$1,250 or more | 7,855,000 | 7,818,000 | 3,844,000 | 3,726,000 | 10,000 | 3,000 | 8,000 | 209,000 | 12,000 | 7,000 | 10 |
| | Renter Household Income | | | | | | | | | | | |
| 11 | Less than \$15,000 | 10,495,000 | 10,899,000 | 4,219,000 | 6,515,000 | 21,000 | 3,000 | 13,000 | 103,000 | 14,000 | 12,000 | 11 |
| 12 | \$15,000 to \$29,999 | 9,563,000 | 9,962,000 | 2,806,000 | 6,974,000 | 12,000 | 3,000 | 16,000 | 120,000 | 10,000 | 19,000 | 12 |
| 13 | \$30,000 to \$49,999 | 8,166,000 | 7,843,000 | 1,940,000 | 5,750,000 | 10,000 | 8,000 | 8,000 | 109,000 | 8,000 | 10,000 | 13 |
| 14 | \$50,000 to \$99,999 | 8,015,000 | 7,838,000 | 2,316,000 | 5,346,000 | 12,000 | 7,000 | 14,000 | 133,000 | 3,000 | 8,000 | 14 |
| 15 | \$100,000 or more | 2,577,000 | 2,275,000 | 428,000 | 1,785,000 | 2,000 | 0 | 3,000 | 52,000 | 5,000 | 0 | 15 |

| | A | B | C | D | E | F | G | H | I | J | K | |
|-----|-----------------------------|------------|-----------------|----------------------------|---------------------------|---------------------------------------|------------------------------------|--|--------------------------------------|--|--------------------------------|-----|
| Row | 2011 Characteristics | Published | Present in 2011 | 2011 units present in 2009 | Change in characteristics | 2011 units added by conversion/merger | 2011 house or mobile home moved in | 2011 units added from nonresidential use | 2011 units added by new construction | 2011 units added from temporary losses in 2009 stock | 2011 units added in other ways | Row |
| | Owner Monthly Housing Costs | | | | | | | | | | | |
| 16 | Less than \$350 | 9,284,000 | 8,027,000 | 4,131,000 | 3,816,000 | 5,000 | 27,000 | 0 | 35,000 | 11,000 | 2,000 | 16 |
| 17 | \$350 to \$599 | 12,820,000 | 12,774,000 | 5,415,000 | 7,234,000 | 2,000 | 25,000 | 0 | 86,000 | 3,000 | 10,000 | 17 |
| 18 | \$600 to \$799 | 8,237,000 | 8,239,000 | 2,247,000 | 5,905,000 | 0 | 13,000 | 0 | 68,000 | 4,000 | 3,000 | 18 |
| 19 | \$800 to \$1,249 | 15,879,000 | 15,770,000 | 6,883,000 | 8,647,000 | 0 | 20,000 | 8,000 | 201,000 | 8,000 | 3,000 | 19 |
| 20 | \$1,250 or more | 29,873,000 | 31,281,000 | 22,124,000 | 8,300,000 | 0 | 9,000 | 18,000 | 813,000 | 10,000 | 8,000 | 20 |
| | | | | | | | | | | | | |
| | Owner Household Income | | | | | | | | | | | |
| 21 | \$0 to \$14,999 | 7,437,000 | 7,701,000 | 2,753,000 | 4,865,000 | 1,000 | 13,000 | 2,000 | 56,000 | 11,000 | 0 | 21 |
| 22 | \$15,000 to \$29,999 | 11,095,000 | 11,580,000 | 3,977,000 | 7,479,000 | 0 | 28,000 | 3,000 | 82,000 | 9,000 | 2,000 | 22 |
| 23 | \$30,000 to \$49,999 | 13,847,000 | 14,065,000 | 5,017,000 | 8,836,000 | 0 | 31,000 | 3,000 | 167,000 | 4,000 | 8,000 | 23 |
| 24 | \$50,000 to \$99,999 | 24,518,000 | 24,357,000 | 12,183,000 | 11,671,000 | 5,000 | 23,000 | 8,000 | 443,000 | 13,000 | 12,000 | 24 |
| 25 | \$100,000 or more | 19,194,000 | 18,389,000 | 11,110,000 | 6,811,000 | 1,000 | 0 | 10,000 | 454,000 | 0 | 2,000 | 25 |

Appendix C: Consistency Checks & Weighting

Internal and External Checks

For the CINCH analysis, we performed two tests of internal consistency:

- For each row, we tested whether the sum of possible outcomes (columns D through K) equaled the number of units present in the base year (column C). In every case, equality was achieved, except for differences created by rounding.
- Throughout the tables, various sets of rows are related to each other. For example, the year-built rows (13–27) in Table A are a disaggregation of the total stock in row 1. Similarly, rows 7 (White), 10 (Black), 13 (American Indian, Eskimo, & Aleut), 14 (Asian), 15 (Pacific Islander), and 16 (two or more races) in Table C are a disaggregation of row 1 (occupied units). In these cases, there should be equality between the parent row and the sum of the break-out rows for all columns except D and E. The difference between column D in the parent row and the sum of column D for the break-out rows should equal the negative of the difference between column E in the parent row and the sum of column E for the break-out rows. In every case, equality was achieved, except for differences created by rounding.

Column B provides an external check of how well the CINCH weighting performed. In general, the CINCH estimates are within 5 percent of the AHS published totals, and many of the CINCH estimates are very close to the AHS estimates.

Weighting

CINCH separates the AHS samples in 2009 and 2011 into three components: units that exist and are part of the housing stock in both years (SAMES), units that are part of the 2007 housing stock but are not part of the 2009 housing stock (LOSSES), and units that are not part of the 2007 housing stock but are part of the 2009 housing stock (ADDITIONS). ADDITIONS are split into NEW CONSTRUCTION and OTHER ADDITIONS (structures that existed in 2007 but were not in the housing stock and other cases).

Because CINCH looks at various subsets of the housing stock, we need to know the characteristics of units and their occupants. Therefore, we can use only those SAMES observations that were interviewed in both years. For the same reason, we can use only those LOSSES that were interviewed in 2009 and those ADDITIONS that were interviewed in 2011.

For the forward-looking analysis, we started with the AHS pure weights. We used the AHS weighted count in 2009 of LOSSES to create new pure weights for interviewed LOSSES. We used the AHS published count of the stock in 2009 and our estimate of LOSSES to create new pure weights for the interviewed SAMES. We then adjusted the weights of SAMES and LOSSES to equal the AHS published totals for owner-occupied units, renter-occupied units, vacant units, and seasonal units in 2007. These matches were performed separately for mobile homes and all other structure types.

For the backward-looking analysis, we started with the AHS pure weights. We used the AHS weighted counts in 2011 for NEW CONSTRUCTION and for OTHER ADDITIONS to create new pure weights for interviewed NEW CONSTRUCTION and interviewed OTHER ADDITIONS. We used the AHS published count of the stock in 2011 and our estimates on NEW CONSTRUCTION and OTHER ADDITIONS to create new pure weights for the interviewed SAMES. We then adjusted the weights for SAMES, NEW CONSTRUCTION, and OTHER ADDITIONS to equal AHS published totals for owner-occupied units, renter-occupied units, vacant units, and seasonal units in 2009. These matches were performed separately for mobile homes and all other structure types.

The logic behind the weighting and the procedures used to create the weights is explained in *Weighting Strategy for 2009–2011 CINCH Analysis*.