

American Housing Survey

**Components of
Inventory Change
And Rental Market Dynamics:
San Diego
1994-2002**

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Components of Inventory Change and Rental Market Dynamics: San Diego 1994-2002

Overview

Housing analysts use two techniques—Components of Inventory Change (CINCH) and rental market dynamics—to look at a housing market at two points in time and explain how the observed changes came about in physical (bricks and mortar) terms. CINCH focuses first on the overall number and then the characteristics of units at different times. Using CINCH methods, analysts answer such question as: “What happened to the x units that disappeared from the housing stock between the beginning and the end of the period?” or “Where did the increase in owner-occupied units come from?” Rental market dynamics, which is really a type of CINCH analysis, focuses on the rental market with particular emphasis on the affordability of rental housing. Using rental market dynamics techniques, analysts answer such questions as: “Have the number of rental units affordable to households with very low incomes increased or decreased over the period?” or “What happened to the units that were affordable to low-income households at the beginning of the period?”

Previously HUD commissioned CINCH and rental market dynamics analyses using the national American Housing Survey (AHS).¹ This report focuses on the San Diego metropolitan housing market over the period between 1994 and 2002. It is one of 13 reports based on local American Housing Surveys conducted in 2002; these 13 metropolitan areas were previously surveyed in either 1994 or 1995.

CINCH and rental market analysis have both forward-looking and backward-looking components. In the forward-looking components, analysts start with the housing stock available at the beginning of the period and then, looking at the end of the period, attempt to explain what happened to those units. Possible answers include some units still exist and serve the same market, some units still exist but serve a different market, some units have been demolished or destroyed in natural disasters, or some units are being used for nonresidential purposes. In the backward-looking component, analysts start with the housing stock available at the end of the period and, looking at the beginning of the period, attempt to explain where those units came from. Possible answers include some units existed at the beginning of the period and served the same market, some units existed at the beginning of the period but served a different market, some units were newly constructed over the period, or some units were being used for nonresidential purposes at the beginning of the period. Neither CINCH nor rental market dynamics try to track the experience of a unit over the entire period; both are interested only in the beginning and the end of the period. For example, a housing unit in 1994 may have become a medical office in 1997, but returned to being a housing unit in 2000. CINCH

¹ See <http://www.huduser.org/datasets/cinch.html> and <http://www.huduser.org/datasets/ahs/ahsReports.html#2>.

would record this unit as having undergone no change over the period from 1994 to 2002. In classical analytical jargon, CINCH and rental market dynamics are *comparative static* analyses.

Ideally one would want to combine the forward-looking and backward-looking analyses to produce a complete accounting that can explain the beginning and the end consistently in terms of units that existed in both periods, losses from the stock over the period, and additions to the stock over the period. The analysis in this report uses the AHS, which is a sample of units at both points in time; and, unfortunately, previous efforts using the AHS have demonstrated that creating sample weights that take both periods into account generates some inconsistent or inaccurate results. For this reason, the most recent analyses have separated the forward-looking and backward-looking components. This report will do the same. (Weighting is explained briefly in Appendix B and more fully in a separate paper cited in the Appendix.)

The remainder of this report consists of four sections:

- An explanation of how to read the CINCH tables.
- Two sets of four tables each: a set of forward-looking tables tracing the movement of units from 1994 to 2002 and identifying how units were lost to the housing stock; and a set of backward-looking tables tracing where 2002 units came from and distinguishing between units that were part of the stock in 1994 and units that were additions to the stock since 1994.
- A brief discussion of the rental market dynamics.
- Two rental market dynamics tables, one forward-looking and one backward-looking.

At various places, the discussion points out some of the limitations of these analyses or of using the AHS metropolitan samples for these analyses.

Two appendixes explain how the results were tested and how the weights were created.

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 1994 housing stock by 2002. There are three basic dispositions of 1994 units: units that continue to exist in 2002 with the same characteristics (or serving the same market), units that continue to exist in 2002 but with different characteristics (or serving a different market), and units that were lost to the stock.

The backward-looking tables are concerned with where the 2002 housing stock came from in reference to 1994. There are three basic sources of 2002 units: units that existed in 1994 with the same characteristics (or serving the same market), units that existed in 1994 but with different characteristics (or serving a different market), and 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. The row numbers 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 1 focuses on occupied units; row 15 focuses on units built in 1985 through 1989.
- 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 1994 AHS report for San Diego counted 896,800 occupied units (column B, row 2, Forward-Looking Table 1); the 2002 AHS report counted 999,100 occupied units (column B, row 2, Backward-Looking Table 1).
- 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 (1994 for the forward-looking tables and 2002 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 B, the weights were created to match AHS published totals for rows 2 through 4 of Table 1. This perfect match will not be true of other rows.² In the case of the San Diego metropolitan area, the CINCH weights produce population estimates that are very close to the published estimates with a few exceptions, including the number of units built between 1994 and 2002 and, in Backward-Looking Table 4, the number of owner-occupied units with low monthly housing costs and the number of low-income owners.

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

- 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 1 estimates that 836,320 of the occupied units were occupied in 2002.
- 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 51,950 units that were occupied in 1994 are still part of the housing stock in 2002 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—characteristics that 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 1994 to 2002.

- Column F is the CINCH estimate of the number of units from column C that are not in the 2002 housing stock because they were merged with other units or converted into multiple units. Among occupied units, 300 units were lost to mergers and conversions.
- Column G is the CINCH estimate of the number of mobile homes from column C that were moved out during the period. Among occupied units, 540 mobile homes were moved out. The AHS does not follow a manufactured housing unit that is moved and, therefore, cannot distinguish between units that are relocated and units that are demolished. It treats all moves as losses.
- 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 business rather than residential purposes.³ Among occupied units, 2,820 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 2002. In this case, 2,860 units were demolished or destroyed.
- Column J is the CINCH estimate of the number of units from column C that by 2002 were condemned or that were no longer usable for housing because of

³ 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. So nonresidential means strictly no residential use.

extensive damage. Among occupied units, 240 units are no longer usable for housing.

- Column K is the CINCH estimate of the number of units from column C that were lost by 2002 for other reasons. These include units that the Census Bureau eliminated for sampling purposes and other miscellaneous losses. Among occupied units, there were 1,760 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.⁴

Columns Unique to Backward-Looking Tables

In backward-looking tables, columns F through I track where units came from that are part of the housing stock in 2002, but were not part of the housing stock in 1994.⁵

- Column F is the CINCH estimate of the number of mobile homes from column C that were moved in during the period. Among occupied units, 780 mobile homes were moved in (column F, row 2 of Backward-Looking Table 1).⁶ Move-ins are treated as additions to balance the treatment of move-outs as losses.
- Column G is the CINCH estimate of the number of units from column C that had been nonresidential in 1994. Among occupied units, 2,250 had been nonresidential.
- Column H is the CINCH estimate of the number of units from column C that were newly constructed between 1994 and 2002. Among occupied units, 71,920 units were newly constructed.
- Column I is the CINCH estimate of the number of units from column C that were added by 2002 for other reasons. These include units that were considered temporary losses because occupancy was prohibited in 1994 or the interior of the unit was exposed to the elements, and also units that the Census Bureau considered temporarily lost to the housing stock for reasons “not classified.” Among occupied units, 590 had been temporarily lost to the stock in 1994.

⁴ The weighted numbers are rounded to the nearest 10. The AHS publication rounds to the nearest 100. We found that rounding to the nearest 10 worked better for the metropolitan sites. The weights were typically in the range of 100 to 300 and in many rows the numbers in columns F through K were small. With a weight of 149, rounding to the nearest hundred would mean that one sample observation would be rounded to 100, two sample observations to 300, and three sample observations to 400. Rounding to the nearest ten results in weighted totals of 150, 300, and 450 for these cases.

⁵ This list does not contain a column for units added through mergers and conversions. The Census Bureau did not code the variable that would normally identify mergers and conversions in 2002 (REUAD=7 or 8).

⁶ The Census Bureau did not code the variable that would normally identify mobile home move-ins in 2002 (REUAD=4). We estimated these from another variable (NOINT=13).

Table 1

Table 1 focuses on the general housing characteristics of the stock. Row 1 provides the highest level CINCH overview of the stock. For this row, column A specifies no conditions other than being part of the stock in the relevant year.

Rows 2-4 divide the housing stock by use. By Census Bureau definition, the number of occupied non-seasonal units equals the number of households. Because households are the basis for all the analyses in Tables 2 through 4, it is important to get a good starting point for these estimates. For this reason, the weights are designed to match published AHS totals for occupied units, vacant units, and seasonal units.

Rows 5-12 divide the housing stock by type of structure to identify what type of units account for losses.⁷ The Census Bureau sometimes suppresses data to protect the confidentiality of respondents. For some metropolitan areas, suppression results in zero estimates for certain multiunit structures in the public data file, whereas the published tables contain estimates for these multiunit classes.

Rows 13-23 divide the housing stock by year built.⁸ The published reports use the categories 1990-1994, 1995-1999, and 2000-2004; we use 1990-1994 and 1995-2002 to isolate units newly constructed since the previous AHS survey.⁹ Column I shows that losses due to demolition or disasters were heavily concentrated in the older units. Among units built in 1929 or earlier, approximately 5 percent were demolished or destroyed by 2002.

Rows 24-30 and 31-35 divide the housing stock by two different measures of interior space, the number of rooms and the number of bedrooms.¹⁰

Rows 36-41 focus on multiunit structures only and divide them by number of stories. Column E is forced to be zero and, depending on the metropolitan area, the Census Bureau may suppress information, forcing some rows to be zero. In general, the published reports contain matching data for row 36 only.

Rows 42-43 divide the housing stock between central cities units and suburban residences to determine how the observed changes vary by location. Approximately two-thirds of the new construction took place in the suburbs. Rows 44-45 divide the housing stock by whether or not the occupants have moved in within the last two calendar years to

⁷ In general, the CINCH estimates exceed published AHS estimates for single-family detached units and fall short of the published AHS estimates for manufactured homes by roughly equal amounts.

⁸ Row 13 is not included in the forward-looking tables, because the 1994 housing stock cannot contain units built after 1994.

⁹ We use REUAD=3 and not year built to identify new construction. For this reason, there are units built after 1994 that are not considered new construction. In addition, year built is obtained from the respondent interview and may be inaccurate.

¹⁰ Because of small sample sizes in the losses and additions columns, we combined room categories that the published reports list separately.

determine if certain units consistently have high turnover and to see if high turnover units are more susceptible to loss.

Table 2

This table pertains to issues related to the physical quality of units. Row 1 repeats the analysis from row 2 in Table 1. All the subsequent rows are based on row 1.

Rows 2-3 look at whether the units have complete kitchens; that is, have an installed sink with piped water, a mechanical refrigerator, and built-in burners for the exclusive use of the occupants. Rows 4-5 look at whether the units have complete plumbing facilities; that is, hot and cold piped water, a flush toilet, and a bathtub or shower inside the structure for the exclusive use of the occupants. Rows 6-8 look at each of these requirements separately. In the 1994 AHS, the published reports separate out the “exclusive use” category; in the data used for this report, these units show up in row 8. Rows 2-3, 4-5, and 6-8 attempted to separate out good units from the least desirable units, based on kitchen and bath equipment, to compare how they changed over the period.

Rows 9-13 pertain to how units obtain water and dispose of sewage.

Rows 14-19 look at units with serious problems. Rows 15-19 identify specific types of serious deficiencies. Row 14 counts the units having one or more of these deficiencies. Rows 20-25 look at units with moderate problems. Rows 21-25 identify specific types of deficiencies. Row 20 counts the units having one or more of these deficiencies.¹¹ These rows are in the analysis to answer two questions: whether poor-quality units in one year are also poor-quality units in the other year, and whether poorer quality units are more likely to be lost. Both the forward-looking and backward-looking analyses indicate that there is little continuity over the 7 years with respect to having serious physical problems. Approximately 12 percent of the units with serious problems in 1994 had serious problems in 2002, and 5 percent of the units with serious problems in 2002 had had serious problems in 1994. Little continuity was also shown with respect to moderate problems. Approximately 5 percent of the units with moderate problems in 1994 still had moderate problems in 2002, and approximately 5 percent of the units with moderate problems in 2002 had had moderate problems in 1994. Fewer than 2 percent of the units had serious problems in either year, and fewer than 3 percent had moderate problems in either year.

Table 3

This table pertains to the characteristics of occupants. Row 1 repeats the analysis from row 2 in Table 1. All the subsequent rows are based on row 1.

¹¹ For definitions of serious and moderate problems see pages 998 and 999 of the AHS Codebook, version 1.77, at http://www.huduser.org/intercept.asp?loc=/Datasets/ahs/AHS_Codebook.pdf.

Rows 2-3 look at the age of the householder. Rows 4-5 look at whether the household includes children. Rows 6-11 look at the race or ethnicity of the householder. Rows 12-14 look at three possible sources of household income. In all cases, the analysis seeks to determine how stable the occupancy characteristics are over time, and what part of the market was served by units that lost between 1994 and 2002.

Table 4

Table 4 pertains to tenure, income, and housing costs. Row 1 repeats the analysis from row 2 in Table 1. All the subsequent rows are based on row 1.

Rows 2-4 focus on tenure to determine the extent to which units change tenure characteristics and whether rental or owner-occupied units are more likely to be lost. Only 0.3 percent of units occupied in San Diego in 1994 had been demolished or destroyed by 2002, but the rate varied by tenure. Units that were rented in 1994 were demolished or destroyed at the rate of 0.6 percent, compared with 0.1 percent for units that had been owner-occupied.

Rows 5-11 contain a partial rental dynamics analysis.¹² Row 5 identifies non-market units, a class that includes subsidized units and units provided for no cash rents; for example, units given to maintenance or management personnel or to relatives. The remaining rows divide market rental units into affordability classes. In defining affordability, the analysis sets boundaries for each class based on the highest rent a household in an income group could afford without spending more than 30 percent of its monthly income on rent. Ideally there would be six categories in each metropolitan area:

- Extremely-low-rent units (rents affordable to households with incomes equal to 35 percent of area median family income).
- Very-low-rent units (rents not affordable at 35 percent, but affordable at 50 percent of area median family income).
- Low-rent units (rents not affordable at 50 percent, but affordable at 65 percent of area median family income).
- Moderate-rent units (rents not affordable at 65 percent, but affordable at 80 percent of area median family income).
- High-rent units (rents not affordable at 80 percent, but affordable at 100 percent of area median family income).
- Very-high-rent units (rents not affordable at 100 percent of area median family income).

¹² The rental dynamics analysis is partial because it traces movement out of, but not into, particular rental classes. Tables A and B in the final section of this report contain a complete rental dynamics analysis.

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For most metropolitan areas studied, the number of categories is fewer than six, because the Census Bureau had to place an upper limit on the rents reported in the public-use data to protect the confidentiality of respondents. San Diego has all six classes.

Rows 12-16 track rental units by household income; rows 22-26 track owner-occupied units by household income.¹³

Rows 17-21 identify owner-occupied units by total monthly housing costs.¹⁴

¹³ Because of small sample sizes in the losses and additions columns, we combined income categories that the published reports list separately.

¹⁴ Because of small sample sizes in the losses and additions columns, we combined cost categories that the published reports list separately.

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Forward-Looking Table 1: Structural and Location Characteristics – All Housing Units

	A Characteristics	B Published numbers	C Present in 1994	D 1994 units present in 2002	E Change in character- istics	F '94 units affected by conversion /merger	G '94 mobile homes moved out	H '94 units changed to nonresidential use	I '94 units lost through demolition or disaster	J '94 units badly damaged or condemned	K '94 units lost in other ways	
1	Total Housing Stock	993,300	993,400	983,040	0	540	540	3,590	3,400	240	2,060	1
	Occupancy Status											
2	Occupied	896,800	896,800	836,320	51,950	300	540	2,820	2,860	240	1,760	2
3	Vacant	95,600	95,600	10,850	82,920	240	0	770	530	0	300	3
4	Seasonal	1,000	1,000	270	730	0	0	0	0	0	0	4
	Units in Structure											
5	1, detached	495,200	506,750	502,220	0	0	540	880	1,710	240	1,150	5
6	1, attached	59,600	60,400	60,400	0	0	0	0	0	0	0	6
7	2 to 4	99,400	101,890	99,360	0	540	0	1,200	480	0	300	7
8	5 to 9	100,300	102,430	101,160	0	0	0	240	720	0	300	8
9	10 to 19	107,600	109,380	108,370	0	0	0	530	480	0	0	9
10	20 to 49	47,300	47,520	47,280	0	0	0	240	0	0	0	10
11	50 or more	34,300	33,730	33,250	0	0	0	480	0	0	0	11
12	Mobile Home/trailer	49,800	31,300	30,990	0	0	0	0	0	0	300	12
	Year Built											
14	1990-1994	55,300	51,410	51,170	0	0	0	240	0	0	0	14
15	1985-1989	161,100	163,480	162,760	0	0	240	240	240	0	0	15
16	1980-1984	82,400	81,420	81,120	0	300	0	0	0	0	0	16
17	1970-1979	263,400	264,110	263,810	0	0	0	300	0	0	0	17
18	1960-1969	197,700	195,020	192,480	0	0	0	550	1,080	0	910	18
19	1950-1959	116,700	118,700	115,770	0	240	300	820	970	0	610	19
20	1940-1949	64,000	66,370	65,360	0	0	0	240	0	240	540	20
21	1930-1939	31,700	32,260	31,530	0	0	0	730	0	0	0	21
22	1920-1929	12,400	11,440	10,820	0	0	0	0	620	0	0	22
23	1919 or earlier	8,500	9,180	8,220	0	0	0	480	480	0	0	23

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Forward-Looking Table 1 (continued): Structural and Location Characteristics – All Housing Units

	A Characteristics	B Published numbers	C Present in 1994	D 1994 units present in 2002	E Change in character- istics	F '94 units affected by conversion /merger	G '94 mobile homes moved out	H '94 units changed to nonresidential use	I '94 units lost through demolition or disaster	J '94 units badly damaged or condemned	K '94 units lost in other ways	
	Rooms											
24	1 – 4 rooms	408,200	406,950	332,400	68,990	540	0	2,040	1,830	240	900	24
25	5 rooms	203,900	203,250	101,680	100,480	0	0	240	300	0	550	25
26	6 rooms	159,800	160,830	68,050	90,670	0	540	720	540	0	300	26
27	7 rooms	115,200	115,710	47,670	66,730	0	0	580	720	0	0	27
28	8 rooms	65,700	66,290	26,330	39,960	0	0	0	0	0	0	28
29	9 rooms	31,200	31,580	9,640	21,940	0	0	0	0	0	0	29
30	10 rooms or more	9,400	8,800	1,720	6,780	0	0	0	0	0	300	30
	Bedrooms											
31	None	16,500	17,310	5,840	9,900	300	0	790	480	0	0	31
32	1	157,400	152,720	133,640	16,500	0	0	1,020	730	240	600	32
33	2	362,400	361,080	318,660	39,700	240	240	710	620	0	910	33
34	3	302,300	306,570	264,500	40,100	0	300	580	840	0	240	34
35	4 or more	154,800	155,720	135,630	18,570	0	0	480	730	0	300	35
36	Multiunit Structures Stories in Structures	388,700	394,950	389,420	0	540	0	2,700	1,690	0	600	36
37	1		41,600	40,640	0	240	0	240	480	0	0	37
38	2		278,840	275,300	0	0	0	1,730	1,200	0	600	38
39	3		46,720	46,170	0	300	0	240	0	0	0	39
40	4 to 6		27,790	27,310	0	0	0	480	0	0	0	40
41	7 or more		0	0	0	0	0	0	0	0	0	41
	Metro Status											
42	In central cities		456,360	450,520	0	240	0	1,930	1,990	240	1,450	42
43	In suburbs		537,040	532,520	0	300	540	1,660	1,410	0	610	43
	Mover Status											
44	Moved in last 2 years		276,440	94,050	178,720	300	0	1,610	970	240	550	44
45	Not a recent mover		620,360	513,070	102,430	0	540	1,210	1,890	0	1,210	45

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Forward-Looking Table 2: Condition of Unit – All Occupied Units

	A Characteristics	B Published numbers	C Present in 1994	D 1994 units present in 2002	E Change in character- istics	F '94 units affected by conversion /merger	G '94 mobile homes moved out	H '94 units changed to nonresidential use	I '94 units lost through demolition or disaster	J '94 units badly damaged or condemned	K '94 units lost in other ways	
1	Occupied Units	896,800	896,800	836,320	51,950	300	540	2,820	2,860	240	1,760	1
	Kitchen											
2	With complete kitchen	887,900	888,690	814,230	66,720	300	540	2,030	2,860	240	1,760	2
3	Lacking complete kitchen facilities	8,900	8,110	1,090	6,230	0	0	790	0	0	0	3
	Plumbing											
4	With all plumbing facilities	892,800	892,400	828,450	55,660	300	540	2,580	2,860	240	1,760	4
5	Lack some plumbing	4,000	4,400	260	3,910	0	0	240	0	0	0	5
6	No hot piped water	300	820	0	580	0	0	240	0	0	0	6
7	No bathtub/shower	200	750	260	260	0	0	240	0	0	0	7
8	No flush toilet	200	4,080	260	3,580	0	0	240	0	0	0	8
	Water											
9	Public/private water	868,900	867,870	808,660	51,300	300	300	2,820	2,480	240	1,760	9
10	Well	11,100	13,230	10,680	2,300	0	240	0	0	0	0	10
11	Other water source	16,700	15,700	0	15,320	0	0	0	380	0	0	11
	Sewer											
12	Public sewer	841,700	837,400	779,920	50,120	300	300	2,820	2,240	240	1,460	12
13	Septic tank/cesspool	55,000	59,400	45,880	12,350	0	240	0	620	0	300	13
	Severe Problems											
14	Severe Problems	6,100	6,310	770	5,300	0	0	240	0	0	0	14
15	Plumbing	3,900	4,400	260	3,910	0	0	240	0	0	0	15
16	Heating	1,000	1,140	260	890	0	0	0	0	0	0	16
17	Electric	200	260	0	260	0	0	0	0	0	0	17
18	Upkeep	1,100	770	0	770	0	0	0	0	0	0	18
19	Hallways	0	0	0	0	0	0	0	0	0	0	19
	Moderate problems											
20	Moderate problems	25,200	25,400	1,340	23,510	0	0	550	0	0	0	20
21	Plumbing	5,000	5,760	0	5,760	0	0	0	0	0	0	21
22	Heating	1,300	1,400	0	1,400	0	0	0	0	0	0	22
23	Kitchen	7,500	8,110	1,090	6,230	0	0	790	0	0	0	23
24	Upkeep	11,700	11,650	260	11,400	0	0	0	0	0	0	24
25	Hallways	0	0	0	0	0	0	0	0	0	0	25

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Forward-Looking Table 3: Household Characteristics – All Occupied Units

	A Characteristics	B Published numbers	C Present in 1994	D 1994 units present in 2002	E Change in character- istics	F '94 units affected by conversion /merger	G '94 mobile homes moved out	H '94 units changed to nonresidential use	I '94 units lost through demolition or disaster	J '94 units badly damaged or condemned	K '94 units lost in other ways	
1	Occupied units	896,800	896,800	836,320	51,950	300	540	2,820	2,860	240	1,760	1
	Age											
2	Under 65	702,400	705,360	590,750	107,180	300	540	2,330	2,860	240	1,150	2
3	65 or older	194,400	191,440	111,840	78,510	0	0	480	0	0	610	3
	Children											
4	Some	332,200	342,390	193,620	145,820	0	300	580	1,270	240	550	4
5	None	564,700	554,410	415,750	133,080	300	240	2,240	1,590	0	1,210	5
	Race/Origin											
6	White	755,700	752,130	599,380	145,490	300	540	2,580	2,140	240	1,460	6
7	Hispanic	102,100	104,250	42,960	60,330	0	0	480	0	240	240	7
8	Non-Hispanic	653,500	647,880	505,460	136,130	300	540	2,090	2,140	0	1,210	8
9	Black	47,500	47,880	15,120	32,210	0	0	0	240	0	300	9
10	Other	93,600	96,790	52,580	43,480	0	0	240	480	0	0	10
11	Total Hispanics	137,000	140,090	83,780	54,620	0	0	730	480	240	240	11
	Income Source											
12	Wages and salaries	656,500	661,890	548,060	107,760	300	540	1,690	2,380	0	1,150	12
13	Welfare or SSI	71,700	73,880	8,350	64,220	0	0	580	480	240	0	13
14	Social security or pension	265,200	258,030	147,330	109,910	0	0	480	0	0	300	14

Components of Inventory Change and Rental Market Dynamics:
San Diego 1994–2002

Forward-Looking Table 4: Market Dynamics and Affordability – All Occupied Units

	A Characteristics	B Published numbers	C Present in 1994	D 1994 units present in 2002	E Change in character- istics	F '94 units affected by conversion /merger	G '94 mobile homes moved out	H '94 units changed to nonresidential use	I '94 units lost through demolition or disaster	J '94 units badly damaged or condemned	K '94 units lost in other ways	
1	Occupied units	896,800	896,800	836,320	51,950	300	540	2,820	2,860	240	1,760	1
	Tenure											
2	Owner occupied	500,900	490,080	430,140	57,700	0	240	240	540	0	1,210	2
3	Percent own occupied	55.9%	54.6%	51.4%	NA	0.0%	44.2%	8.5%	19.0%	0.0%	69.0%	3
4	Renter occupied	395,800	406,720	307,550	92,870	300	300	2,580	2,320	240	550	4
	Rental Affordability											
5	Non-market		49,380	16,080	32,230	0	0	340	730	0	0	5
6	Extremely low rent		31,480	11,750	17,600	0	0	1,030	870	240	0	6
7	Very low rent		114,070	49,540	63,200	300	300	480	240	0	0	7
8	Low rent		111,750	43,540	67,490	0	0	240	240	0	240	8
9	Moderate rent		53,300	13,650	39,170	0	0	240	240	0	0	9
10	High rent		25,360	8,000	17,360	0	0	0	0	0	0	10
11	Very high rent		21,380	5,000	15,840	0	0	240	0	0	300	11
	Renter Hsd Income											
12	Less than \$20,000	151,900	157,100	45,940	107,710	0	0	1,850	1,110	240	240	12
13	\$20,000 to \$34,999	121,200	123,650	26,000	96,380	0	0	240	730	0	300	13
14	\$35,000 to \$59,999	78,700	80,550	20,600	58,620	300	300	480	240	0	0	14
15	\$60,000 to \$99,999	33,600	34,740	7,400	27,100	0	0	0	240	0	0	15
16	\$100,000 or more	10,600	10,680	1,410	9,270	0	0	0	0	0	0	16
	Owner Monthly Housing Costs											
17	Less than \$499	145,600	141,450	69,610	71,230	0	0	0	0	0	610	17
18	\$500 to \$699	42,100	40,090	7,220	32,260	0	0	0	300	0	300	18
19	\$700 to \$999	63,800	62,310	13,280	48,790	0	240	0	0	0	0	19
20	\$1,000 to \$1,499	113,200	112,850	34,920	77,690	0	0	240	0	0	0	20
21	\$1,500 or more	85,100	84,640	61,040	23,060	0	0	0	240	0	300	21
a	Missing mort data	51,100	48,750	18,860	29,890	0	0	0	0	0	0	a
	Owner Hsd Income											
22	Less than \$20,000	73,800	69,110	19,580	48,930	0	0	0	0	0	610	22
23	\$20,000 to \$34,999	101,400	98,370	18,110	79,960	0	0	0	0	0	300	23
24	\$35,000 to \$59,999	139,300	137,470	31,480	105,680	0	0	0	0	0	300	24
25	\$60,000 to \$99,999	123,700	123,370	34,950	87,390	0	240	240	540	0	0	25
26	\$100,000 or more	62,700	61,770	29,930	31,840	0	0	0	0	0	0	26

Components of Inventory Change and Rental Market Dynamics:
San Diego 1994–2002

Backward-Looking Table 1: Structural and Location Characteristics – All Housing Units

	A Characteristics	B Published numbers	C Present in 2002	D 2002 units present in 1994	E Change in character- istics	F '02 mobile homes moved in	G '02 units derived from nonresidential use	H '02 units added by new construction	I '02 units added from temporary losses	
1	Total	1,072,000	1,072,000	985,310	0	990	3,700	81,410	590	1
	Occupancy Status									
2	Occupied	999,100	999,100	842,770	80,790	780	2,250	71,920	590	2
3	Vacant	67,100	67,100	10,080	46,580	210	1,270	8,960	0	3
4	Seasonal	5,800	5,800	250	4,840	0	180	530	0	4
	Units in Structure									
5	1, detached	565,200	572,630	513,610	0	0	1,950	56,710	360	5
6	1, attached	152,300	157,560	147,520	0	210	0	9,610	230	6
7	2 to 4	75,500	78,460	76,200	0	0	0	2,260	0	7
8	5 to 9	81,900	82,500	78,860	0	0	0	3,640	0	8
9	10 to 19	63,100	65,730	61,440	0	0	1,110	3,180	0	9
10	20 to 49	43,500	43,840	40,660	0	0	230	2,940	0	10
11	50 or more	40,100	39,950	36,700	0	0	180	3,070	0	11
12	Mobile Home/trailer	50,400	31,330	30,310	0	780	230	0	0	12
	Year Built									
13	1995-2002	87,600	78,810	1,840	0	0	230	76,740	0	13
14	1990-1994	55,200	54,440	50,250	0	620	0	3,570	0	14
15	1985-1989	160,500	163,700	163,470	0	0	230	0	0	15
16	1980-1984	81,400	82,170	82,170	0	0	0	0	0	16
17	1970-1979	273,700	272,510	270,550	0	170	700	1,100	0	17
18	1960-1969	187,500	185,120	184,420	0	210	500	0	0	18
19	1950-1959	112,300	117,420	116,170	0	0	880	0	360	19
20	1940-1949	64,100	66,120	65,600	0	0	520	0	0	20
21	1930-1939	30,200	31,890	31,240	0	0	640	0	0	21
22	1920-1929	11,400	11,580	11,350	0	0	0	0	230	22
23	1919 or earlier	8,100	8,250	8,250	0	0	0	0	0	23

Components of Inventory Change and Rental Market Dynamics:
San Diego 1994–2002

Backward-Looking Table 1 (continued): Structural and Location Characteristics – All Housing Units

	A Characteristics	B Published numbers	C Present in 2002	D 2002 units present in 1994	E Change in character- istics	F '02 mobile homes moved in	G '02 units derived from nonresidential use	H '02 units added by new construction	I '02 units added from temporary losses	
	Rooms									
24	1 – 4 rooms	400,800	402,540	332,670	53,210	660	2,830	12,930	230	24
25	5 rooms	226,900	227,250	101,900	111,870	170	290	12,670	360	25
26	6 rooms	181,800	181,500	68,380	97,450	170	290	15,220	0	26
27	7 rooms	128,100	126,880	47,900	65,710	0	0	13,260	0	27
28	8 rooms	77,700	77,160	26,470	34,670	0	290	15,730	0	28
29	9 rooms	31,500	31,540	9,710	15,310	0	0	6,520	0	29
30	10 rooms or more	25,300	25,130	1,680	18,360	0	0	5,090	0	30
	Bedrooms									
31	None	7,400	8,370	5,790	2,020	0	560	0	0	31
32	1	162,000	159,840	133,580	16,030	660	2,050	7,290	230	32
33	2	369,100	366,350	319,500	33,570	170	520	12,590	0	33
34	3	341,100	344,880	265,310	49,490	170	580	28,980	360	34
35	4 or more	192,400	192,560	136,410	23,610	0	0	32,540	0	35
36	Multiunit Structures	304,100	310,480	293,870	0	0	1,520	15,090	0	36
	Stories in Structures									
37	1		34,630	33,400	0	0	880	350	0	37
38	2		209,020	202,870	0	0	460	5,690	0	38
39	3		38,530	34,320	0	0	0	4,210	0	39
40	4 to 6		11,600	9,620	0	0	0	1,980	0	40
41	7 or more		16,700	13,650	0	0	180	2,870	0	41
	Metro Status									
42	In central cities		482,190	451,470	0	0	640	29,490	590	42
43	In suburbs		589,810	533,840	0	990	3,060	51,920	0	43
	Mover Status									
44	Moved in last 2 years		257,400	94,780	133,190	450	520	27,870	590	44
45	Not a recent mover		741,700	536,050	159,550	330	1,730	44,050	0	45

Components of Inventory Change and Rental Market Dynamics:
San Diego 1994–2002

Backward-Looking Table 2: Condition of Unit – All Occupied Units

	A Characteristics	B Published numbers	C Present in 2002	D 2002 units present in 1994	E Change in character- istics	F '02 mobile homes moved in	G '02 units derived from nonresidential use	H '02 units added by new construction	I '02 units added from temporary losses	
1	Occupied Units	999,100	999,100	842,770	80,790	780	2,250	71,920	590	1
	Kitchen									
2	With complete kitchen	979,500	979,690	820,510	84,100	780	2,020	71,690	590	2
3	Lacking complete kitchen facilities	19,600	19,410	1,100	17,850	0	230	230	0	3
	Plumbing									
4	With all plumbing facilities	992,300	992,450	834,830	82,540	780	2,020	71,690	590	4
5	Lack some plumbing	6,800	6,650	260	5,930	0	230	230	0	5
6	No hot piped water	800	750	0	520	0	230	0	0	6
7	No bathtub/shower	1,300	1,260	260	770	0	230	0	0	7
8	No flush toilet	1,300	1,260	260	770	0	230	0	0	8
	Water									
9	Public/private water	986,700	983,140	814,900	95,460	620	1,960	69,610	590	9
10	Well	12,200	15,730	10,760	2,440	170	290	2,070	0	10
11	Other water source	300	230	0	0	0	0	230	0	11
	Sewer									
12	Public sewer	945,400	942,470	785,930	85,310	620	1,960	68,060	590	12
13	Septic tank/cesspool	53,500	56,370	46,230	5,830	170	290	3,860	0	13
	Severe Problems									
14	Severe Problems	15,200	15,380	770	14,140	0	230	230	0	14
15	Plumbing	6,800	6,650	260	5,930	0	230	230	0	15
16	Heating	7,400	7,630	260	7,370	0	0	0	0	16
17	Electric	500	580	0	580	0	0	0	0	17
18	Upkeep	1,000	1,100	0	1,100	0	0	0	0	18
19	Hallways	0	0	0	0	0	0	0	0	19
	Moderate problems									
20	Moderate problems	28,800	29,000	1,350	27,190	0	0	460	0	20
21	Plumbing	1,800	2,180	0	2,180	0	0	0	0	21
22	Heating	1,600	2,070	0	2,070	0	0	0	0	22
23	Kitchen	18,300	19,410	1,100	17,850	0	230	230	0	23
24	Upkeep	7,100	7,770	260	7,280	0	0	230	0	24
25	Hallways	300	260	0	260	0	0	0	0	25

Components of Inventory Change and Rental Market Dynamics:
San Diego 1994–2002

Backward-Looking Table 3: Household Characteristics – All Occupied Units

	A Characteristics	B Published numbers	C Present in 2002	D 2002 units present in 1994	E Change in character- istics	F '02 mobile homes moved in	G '02 units derived from nonresidential use	H '02 units added by new construction	I '02 units added from temporary losses	
1	Occupied units	999,100	999,100	842,770	80,790	780	2,250	71,920	590	1
	Age									
2	Under 65	792,800	799,590	595,300	136,060	780	1,960	64,890	590	2
3	65 or older	206,200	199,510	112,700	79,490	0	290	7,030	0	3
	Children									
4	Some	351,600	359,080	195,120	128,380	170	290	34,770	360	4
5	None	647,500	640,020	418,950	181,120	620	1,960	37,140	230	5
	Race/Origin									
6	White	760,500	757,590	604,000	99,770	780	1,960	50,840	230	6
7	Hispanic	92,700	93,400	43,290	47,460	0	0	2,420	230	7
8	Non-Hispanic	667,800	664,190	509,360	103,660	780	1,960	48,430	0	8
9	Black	47,000	48,420	15,240	31,450	0	0	1,730	0	9
10	Other	191,600	193,090	52,990	120,110	0	290	19,340	360	10
11	Total Hispanics	193,400	194,150	84,420	100,090	0	0	9,040	590	11
	Income Source									
12	Wages and salaries	811,500	817,390	552,290	199,180	620	1,730	62,980	590	12
13	Welfare or SSI	38,200	38,180	8,420	28,160	170	0	1,440	0	13
14	Social security or pension	262,600	255,460	148,460	95,360	0	290	11,340	0	14

Components of Inventory Change and Rental Market Dynamics:
San Diego 1994–2002

Backward-Looking Table 4: Market Dynamics and Affordability – All Occupied Units

	A Characteristics	B Published numbers	C Present in 2002	D 2002 units present in 1994	E Change in character- istics	F '02 mobile homes moved in	G '02 units derived from nonresidential use	H '02 units added by new construction	I '02 units added from temporary losses	
1	Occupied units	999,100	999,100	842,770	80,790	780	2,250	71,920	590	1
	Tenure									
2	Owner occupied	586,000	577,130	433,450	86,510	500	290	56,020	360	2
3	Percent own occupied	58.6%	57.8%	51.4%	NA	63.2%	12.9%	77.9%	61.2%	3
4	Renter occupied	413,100	421,970	309,930	93,670	290	1,960	15,900	230	4
	Rental Affordability									
5	Non-market		43,940	16,210	25,830	0	230	1,670	0	5
6	Extremely low rent		35,850	11,840	23,260	290	460	0	0	6
7	Very low rent		101,630	49,920	49,630	0	230	1,610	230	7
8	Low rent		106,910	43,870	61,540	0	1,040	460	0	8
9	Moderate rent		63,200	13,750	47,320	0	0	2,130	0	9
10	High rent		42,190	8,060	29,070	0	0	5,070	0	10
11	Very high rent		28,250	5,030	18,250	0	0	4,960	0	11
	Renter Hsd Income									
12	Less than \$20,000	99,800	101,640	46,300	51,780	0	0	3,340	230	12
13	\$20,000 to \$34,999	99,900	104,070	26,200	76,260	0	690	920	0	13
14	\$35,000 to \$59,999	118,500	120,040	20,760	93,800	290	750	4,430	0	14
15	\$60,000 to \$99,999	69,300	70,490	7,460	59,750	0	520	2,760	0	15
16	\$100,000 or more	25,700	25,730	1,420	19,870	0	0	4,440	0	16
	Owner Monthly Housing Costs									
17	Less than \$499	152,700	132,340	70,150	58,160	330	0	3,340	360	17
18	\$500 to \$699	45,400	48,540	7,280	36,600	0	0	4,660	0	18
19	\$700 to \$999	52,800	50,260	13,380	34,700	170	290	1,730	0	19
20	\$1,000 to \$1,499	112,600	109,650	35,190	70,370	0	0	4,090	0	20
21	\$1,500 or more	222,400	236,340	80,510	113,620	0	0	42,200	0	21
	Owner Hsd Income									
22	Less than \$20,000	62,700	58,350	19,730	35,860	170	0	2,590	0	22
23	\$20,000 to \$34,999	80,800	76,330	18,240	53,250	330	0	4,150	360	23
24	\$35,000 to \$59,999	124,700	121,650	31,720	85,040	0	0	4,890	0	24
25	\$60,000 to \$99,999	154,700	156,930	35,220	103,510	0	290	17,900	0	25
26	\$100,000 or more	163,000	163,870	30,160	107,230	0	0	26,480	0	26

Rental Market Dynamics¹⁵

Table A expands the analysis in rows 5-11 in Forward-Looking Table 4 into a full rental dynamics analysis by examining in more detail what happened to the units in each row. In particular, the “present in 2002” and “change in characteristics” columns (column D and E in the CINCH tables) are disaggregated into the following options: each of the other rent affordability columns (new columns *D* through *J*), owner-occupancy (new column *K*), and vacant or seasonal status (new column *L*). The remaining columns (columns F through K in the CINCH tables) are collapsed into a “Lost to stock” column (new column *M*). Table B does the same for the analysis of rows 5-11 in Backward-Looking Table 4, with column *M* being additions through new construction and column *N* being additions from other sources.¹⁶

Table A shows that there were 406,720 rental units in the San Diego metropolitan area in 1994. In 2002, 99,160 of these units were no longer rental; 60,420 were owner-occupied, 32,450 were either vacant or being used seasonally, and 6,290 had been lost to the stock. Taken as a proportion of the units in 1994, movement into owner-occupancy was concentrated in the high- and very-high-rent categories, and losses to the stock were concentrated among extremely-low-rent units.

Table B shows there were 421,970 rental units in the San Diego metropolitan area in 2002, of which 112,050 were not rental units in 1994. The new units came from units that had been owner-occupied (38,500), units that had been vacant or in seasonal use (55,170), newly constructed units (15,900), and other additions (2,480). The formerly owner-occupied units were spread fairly evenly across the rent categories, with extremely-low-rent units receiving somewhat fewer and very-high-rent units receiving somewhat more. Most of the newly constructed rental units went to the high-rent and very-high-rent categories.

Looking at both tables, we see that the overall number of rental units increased by approximately 15,000 units between 1994 and 2002. The number of extremely-low-rent and very-low-rent units combined fell from approximately 145,000 in 1994 to approximately 137,000 in 2002.

¹⁵ This rental dynamics analysis differs from previous analyses in two ways: we do not adjust rents for bedroom sizes and we do not adjust area median family income for inflation.

¹⁶ These tables use all the AHS observations for which we have relevant rent data, including observations where the Census Bureau provided an estimate of contract rent when the respondent did not provide an answer to the rent question. These observations are said to have “allocated” rents. The Watson-Eggers paper cited in footnote 1 studied the effect of allocations on rental dynamics analysis. They found that unallocated data show less dispersion. In their study of the six metropolitan areas surveyed as part of the national AHS, they found that the proportion of rental units that remain in the same rent category increased for all categories except non-market, where the proportion decreased slightly. There also appeared to be less movement of more than one rent category.

Components of Inventory Change and Rental Market Dynamics:
San Diego 1994–2002

Table A: Forward-Looking Rental Dynamics Analysis

Forward looking	<i>C</i> Number in 1994	<i>D</i> Non- market in 2002	<i>E</i> Extremely low rent in 2002	<i>F</i> Very low rent in 2002	<i>G</i> Low rent in 2002	<i>H</i> Moderate rent in 2002	<i>I</i> High rent in 2002	<i>J</i> Very high rent in 2002	<i>K</i> Owner- occupied in 2002	<i>L</i> Vacant or seasonal in 2002	<i>M</i> Lost to stock
Non-market	49,380	16,080	3,730	5,510	6,280	4,150	3,070	1,020	6,330	2,140	1,060
Extremely low rent	31,480	2,100	11,750	6,140	3,250	0	510	510	2,710	2,370	2,140
Very low rent	114,070	8,240	8,810	49,540	28,040	2,300	830	0	4,820	10,160	1,330
Low rent	111,750	4,140	1,430	14,690	43,540	22,270	4,200	580	11,150	9,040	730
Moderate rent	53,300	770	1,020	1,020	4,690	13,650	9,200	2,260	15,050	5,170	480
High rent	25,360	580	0	510	580	1,090	8,000	3,630	9,630	1,340	0
Very high rent	21,380	260	510	260	0	1,020	820	5,000	10,730	2,240	550
Column sum	406,720	32,160	27,240	77,680	86,370	44,480	26,620	13,000	60,420	32,450	6,290

Table B: Backward-Looking Rental Dynamics Analysis

Backward looking	<i>C</i> Number in 2002	<i>D</i> Non- market in 1994	<i>E</i> Extremely low rent in 1994	<i>F</i> Very low rent in 1994	<i>G</i> Low rent in 1994	<i>H</i> Moderate rent in 1994	<i>I</i> High rent in 1994	<i>J</i> Very high rent in 1994	<i>K</i> Owner- occupied in 1994	<i>L</i> Vacant or seasonal in 1994	<i>M</i> New construc- tion	<i>N</i> Other additions
Non-market	43,940	16,210	2,120	8,300	4,170	770	580	260	4,840	4,790	1,670	230
Extremely low rent	35,850	3,760	11,840	8,880	1,440	1,030	0	510	2,810	4,830	0	750
Very low rent	101,630	5,550	6,190	49,920	14,800	1,030	510	260	4,700	16,580	1,610	460
Low rent	106,910	6,330	3,280	28,250	43,870	4,730	580	0	5,200	13,170	460	1,040
Moderate rent	63,200	4,180	0	2,320	22,440	13,750	1,100	1,030	6,440	9,810	2,130	0
High rent	42,190	3,090	510	840	4,230	9,270	8,060	830	6,500	3,800	5,070	0
Very high rent	28,250	1,030	510	0	580	2,280	3,660	5,030	8,000	2,190	4,960	0
Column sum	421,970	40,150	24,450	98,520	91,540	32,860	14,490	7,920	38,500	55,170	15,900	2,480

Appendix A – 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 in the forward-looking analysis and columns D through I in the backward-looking analysis) equaled the number of units present in the base year. 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 (13-23) in Table 1 are a disaggregation of the total stock in row 1. Similarly, rows 6 (Whites), 9 (Blacks), and 10 (Other race) in Table 3 are a disaggregation of row 1 (occupied households). 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. We have footnoted two places where our coding does not seem to produce the same results as the published estimates. We observed that the correspondence between the CINCH and published estimates were closer in the slower growing metropolitan areas. We also noticed that the CINCH weighting tends to underestimate the number of units built since 1989 and the number of Hispanic households.

Appendix B – Weighting

CINCH separates the AHS samples in 1994 and 2002 into three components: units that exist and are part of the housing stock in both years (SAMES), units that are part of the 1994 housing stock but are not part of the 2002 housing stock (LOSSES), and units that are not part of the 1994 housing stock but are part of the 2002 housing stock (ADDITIONS). ADDITIONS are split into NEW CONSTRUCTION and RECOVERIES (structures that existed in 1994 but were not in the housing stock).

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 1994 and those ADDITIONS that were interviewed in 2002.

For the forward-looking analysis, we started with the AHS pure weights and used the AHS weighted count in 1994 of SAMES to create weights for the interviewed SAMES. We used the AHS weighted count in 1994 of LOSSES to create weights for interviewed LOSSES. We then adjusted the weights of SAMES and LOSSES to equal the AHS published totals for occupied units, vacant units, and seasonal units in 1994.

For the backward-looking analysis, we started with the AHS pure weights and used the AHS weighted count in 2002 of SAMES to create weights for the interviewed SAMES. We used the AHS weighted counts in 2002 for NEW CONSTRUCTION and for RECOVERIES to create weights for interviewed NEW CONSTRUCTION and interviewed RECOVERIES. We then adjusted the weights for SAMES, NEW CONSTRUCTION, and RECOVERIES to equal AHS published totals for occupied units, vacant units, and seasonal units in 2002.

The logic behind the weighting and the procedures used to create the weights is explained in *Weighting for CINCH and Rental Dynamics Analysis*.