March 30, 2000

WORKING DRAFT #3

MEMORANDUM FOR Chester E. Bowie
Chief, Demographic Surveys Division

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Subject: American Housing Survey - National Sample (AHS-N): Specifications for Weighting 1997 Regular Data

I. PURPOSE OF THESE SPECIFICATIONS

This memorandum provides the specifications for weighting* the regular data for the 1997 AHS-N Sample.

Since you will be reprogramming the weighting from scratch, we'll assume the entire memorandum is new and we won't highlight changes from 1995.

We provided a glossary of terms, a glossary of word abbreviations, and a table of contents in the last three attachments of the document (attachments F through H) for quick referencing.

We defined or explained the terms with an asterisk (*) next to them in the glossary of terms.

You've already done the weighting for 1997 AHS-N. These specifications are for documentational purposes only. For a documentation of what we checked and found during the 1997 AHS-N weighting, see reference 8 of this memorandum.

II. OVERVIEW OF WEIGHTING PROCEDURE

This section contains an overview of the weighting procedure. First, there is a summary of the major changes compared to past years. Then, we define which units to use in the weighting. Finally, we summarize the factors that make up the final weight.

A. Major Changes

As part of the effort to redesign the AHS-N processing system, we examined the weighting procedure to try to reduce the amount of time it takes to complete the weighting. This section highlights the major changes made to the weighting procedure.

1. Base Weights (BWs) and Weighting Control Factors (WCFs)

   In the past, you had to apply the BWs and compute the WCFs each enumeration. We also had to verify these each time. These two components are now on your master file of all AHS-N units and will be verified before the weighting is run. For 1997 and beyond, we'll only have to verify that the BWs and WCFs were multiplied together and passed on in the weighting.

   Any permanent reductions to the basic sample will be included on the master file as a WCF rather than as a sample adjustment factor.

2. Sample Adjustment Factor

   In the past, we provided new BWs when we used the rural or metropolitan supplemental samples*. In the future, the BWs won't change. Instead, we'll use a SAF to modify the weight on the appropriate units if supplemental sample is used.

3. Factors Dropped from the Weighting

   We decided to drop two factors from the weighting procedure because they had a minimal impact on the weights. The factors we dropped are the Permit New Construction Noninterview Adjustment Factor and the Type A Unable-to-Locate Factor. Both factors were less than 1.01 with the Unable-to-Locate factor being less than 1.005 for all cells. The units previously accounted for by these two factors will now be accounted for in the second stage Ratio Estimate Factor (REF).

4. Tolerances for Rakings of the Second- and Third-Stage REFs

   In the past, we had you stop the weighting after each rake for us to review the output and decide if another raking was needed. Now, we plan to give you criteria for when to stop the raking. This crteria will allow you to run the weighting all the way through to the end without stopping.

After reviewing the data from the 1995 AHS-N weighting, we discovered some regions were closer to meeting the criteria after three rakes (the number of rakes used in 1995) than other regions. Since we supply or have controls computed independently within each region, we decided to have the raking criteria applied separately by region. This procedure has several implications:

a. Regions will never collapse with one another
b. Four separate decisions must be made on whether to continue the raking, one for each region
c. Some records could have more factors computed and applied than other records (i.e., the more rakes a unit goes through, the more factors).

5. Verification and Output

In the past, most of the weighting verification took place after the data collection was completed. The accelerated time schedule for processing AHS-N cannot be met with this verification approach. Now, we plan to do the following:

a. verify the weighting on a flow basis using the output from testing of the edits.
b. check the weighting at two points - very early in the process and just prior to the end of data collection.

Note: this operation will start with the 1999 AHS-N weighting since there wasn't time to test it before the 1997 enumeration.

In addition, there will be two types of output used in the verification process:

a. a fixed (hard copy) output that you will supply every year and does not change.
b. a variable output that we'll most likely generated from a file you will give us access to.

In addition to the changes in the verification and output of AHS-N data, we'll be defining all of the 2nd stage cells needed through 2005.

B. Units to Use in the Weighting

For 1997, you'll use all units in the basic sample*. These are units whose supplement flag* value is blank. This sample includes units sent for interview in 1997, as well as all prior year Type C noninterviews*.

C. Final Weight

Multiply the following weights and factors to determine the final weight for tabulating 1997 estimates:

1. Base Weight (BW)
2. Weighting Control Factors
3. Sample Adjustment Factor (SAF)
4. Type A Noninterview (NI) Adjustment Factor
5. First-Stage Ratio-Estimate Factor (REF)
6. Second-Stage REF before the raking procedure (i.e., Rake "0")
7. Third-Stage REF before the raking procedure (i.e., Rake "0")
8. Second-and Third-Stage REFs from the raking procedure.

The variable names for the above weights and factors on the AHS-N weighting file are given in Attachment A.

Sections IV through XI discuss these weights and factors.

You'll calculate two final weights:

1. one based on Census region* 1st stage factors and
2. one based on OMB region* 1st stage factors.

Use double precision for all intermediate steps in the weighting procedure.

Save the intermediate weights and factors after each step in the weighting procedure. For each step in the weighting, assign a factor of 1.0000 to all units for which no factor was applied.

III. DATA NEEDED FOR THE WEIGHTING

You'll need data from several sources to construct your initial weighting data file and to perform the weighting. We'll specify the data and the source in the appropriate sections of these specifications. Below is a summary of the different sources you'll need.

1. Master File of AHS-N Sample Units - This SAS dataset contains all units ever in sample for AHS-N, including units that weren=t sent out for interview in 1997.

2. Prior Year Data File - This SAS dataset contains data for the most recent prior year of AHS-N. If no prior year data is available, 1980 census data is used. If neither AHS-N nor 1980 census data is available, this information will be blank. You created and updated this file through the operations described in reference 4 of these specifications.

3. Total Housing Unit Controls - LSB will provide you four numbers -- one control total for each Census region.

4. Household Data File - You generated this file, which contains housing unit data items for the 1997 sample units.

5. Person Data File - You generated this file, which contains demographic data items for the 1997 sample units.

6. First-Stage Ratio-Estimation Factors - This dataset will contain 1980-based first-stage REFs.

7. Second-Stage New Construction Controls - LSB computed these control totals for the mobile home and conventional new construction cells through the operations described in reference 5 of these specifications. LSB will provide you one control total for each cell in the second-stage ratio-estimation procedure.

8. Third-Stage Housing and Vacancy Survey (HVS) Occupied and Vacant Distributions (Percentages) - You=ll compute these percentages using CPS/HVS data, provided by the CPS Programming branch in DSD through the operations described in reference 7 of these specifications.

9. Mobile Home Losses Data File - You created and updated the file of all mobile home (MH) losses* in new construction through the operations described in reference 6 of these specifications.

10. Current Year Data File - This is the initial AHS-N weighting data file containing all the data collected during interviewing for the 1997 sample units and sample units not interviewed such as prior year Type C noninterviews. Merge the following data files by 1990 control Number to construct the current year data file:

    - Master File of AHS-N Sample Units

- Prior Year Data File
- AHS-N Household Data File
- AHS-N Person Data File.

Append the MH losses data file to the current year (CY) data file during the Second-Stage Ratio-Estimation procedure. Create the final AHS-N weighting file as a SAS dataset as soon as the weighting is finished (see Section XII.A).

USE 1980 CENSUS-BASED GEOGRAPHY FOR THIS WEIGHTING (for longitudinality and survey sponsor purposes).

IV. BASE WEIGHTS

Complete the operations in reference 1 before starting this procedure.

You assigned each housing unit a base weight* (BW) to reflect its probability of selection.

You stored the BWs on the master file of AHS-N units, and we=ll verify them before the weighting is run.

You already stored the BWs on the initial AHS-N weighting file through the operations briefly described in Section III.10.

The base weight is one of the three components used to compute what we=ll refer to as the "final base weight" in the AHS-N weighting. The other two components are the "final" weighting control factors and the sample adjustment factor. The next two sections in this memorandum discuss these two components.

See Section XII.B for output required.

V. WEIGHTING CONTROL FACTORS

Complete the operations in reference 2 before starting this procedure.

A weighting control factor (WCF) adjusts the probability of selection for a HU to reflect subsampling that takes place after the initial sample selection.

You stored the WCFs on the master file of AHS-N units, and we=ll verify them before the weighting is run.

You already stored the WCFs on your initial AHS-N weighting file through the operations

briefly described in Section III.10.

Compute the "final WCF" as the product of all of the WCFs on the weighting file.
Save the following intermediate weights and factors at the end of this step in the weighting procedure:

1. the WCFs applied to an unit
2. the final WCF (variable FINWCF on the CY weighting file)
3. the product of the base weight and the final WCF.

See Section XII.B for output required.

VI. SAMPLE ADJUSTMENT FACTOR AND THE FINAL BASE WEIGHT

A sample adjustment factor (SAF) adjusts the weight on the appropriate units

1. if the supplemental sample (i.e., rural and metropolitan) is used or
2. if other adjustments are made to the sample.

The "panel 1" sample from the counties of Will, IL; Dekalb, GA; and Fayette, GA gets sample adjustment factors other than 1.0 in 1997. Assign those SAFs that are listed in reference 3 to all records in those counties.

Assign a value of 1.0 to the SAF for all other units because we're only using the basic sample in 1997.

Now that you have the BWs, the WCFs, and the SAF, compute the final base weight:

$$\text{final BW} = \text{BW} \times \text{final WCF} \times \text{SAF}$$

Save the following intermediate weights and factors at the end of this step in the weighting procedure:

1. the SAF
2. the final BW (variable FINBWGT on the CY weighting file).

See Section XII.B for output required.

VII. TYPE A NONINTERVIEW ADJUSTMENT FACTOR

We don't obtain interviews from all eligible sample HUs. To compensate for the loss of data

from Type A NIs, we adjust (increase) the weights of the interviewed HUs.

The Type A NI adjustment factor adjusts the weight for units where the interviewer is unable to obtain the necessary information to complete an interview. This factor doesn=t adjust for units we couldn=t locate.
See Section VII.C for the universe of the calculation of the Type A NI adjustment factor.

See Section VII.E for the universe of the application of the Type A NI adjustment factor.

See Section XII.C for output required.

A. Data Needed for Cell Determination

This section discusses when to use prior year (PY) or current year (CY) data to determine the Type A NI adjustment cell a unit belongs in. Calculate the Type A NI adjustment factor separately for each census region by the following five groups:

1. 1997 URE* units
2. 1997 non-URE occupied units* without prior year data available
3. 1997 non-URE occupied units that were owner-occupied* or year-round (YR) vacants for sale* (based on the prior year data file)
4. 1997 non-URE occupied units that were renter-occupied* or YR vacants for rent* (based on the prior year data file)
5. 1997 non-URE occupied units that were other YR vacants* or seasonal and migratory vacants* (based on the prior year data file).

Use the PY tenure data and CY URE status for URE units from group 1, if available. If the PY tenure data is not available, then use the value from the CY weighting file.

Note: we no longer use Table I.1 for the Type A NI adjustment. In the past, UREs were interviewed using the occupied questionnaire. Thus, there could have been Type A UREs. Now, UREs are interviewed using the series of questions for vacants. Because there will not be any Type A vacants, there will not be any Type A UREs.

Use the CY weighting file for non-URE units from group 2.

Use the PY data file to determine the cell a unit belongs in for non-URE units from groups 3-5.

All records in the universe for the calculation and application of the Type A NI

adjustment factor should have the following assigned from either the PY data file or the CY weighting file:

- Tenure status
- Type of HU*
- Units in structure*
- Number of rooms*
- Vacancy status*.

This assignment of data was specified in reference 4 of these specifications.

B. Noninterview Adjustment Cells

Use Tables I.2-I.5 in Attachment C for the Type A NI adjustment cells. The table number (i.e., 2-5) corresponds to the group in the above list in Section VII.A. These tables also contain the scale values* to use in collapsing (see Section VII.D). The universe for each table is given in a footnote.

C. Calculating the Type A NI Adjustment Factor

The universe for the calculation of the Type A NI adjustment factor is all units that are either regular occupied interviews* or Type A NIs (except Type A unable-to-locate NIs*).

Compute a Type A NI adjustment factor for each cell in Tables I.2-I.5. Let

I_c = Weighted sum of interviewed housing units in the c^{th} NI cell in a census region,

I_u = Unweighted count of interviewed housing units in the c^{th} NI cell in a census region,

NI_c = Weighted sum of Type A NIs (excluding Type A unable-to-locate NIs) in the c^{th} NI cell in a census region and

NI_u = Unweighted count of Type A NIs (excluding Type A unable-to-locate NIs) in the c^{th} NI cell in a census region.

The Type A NI adjustment factor, F_c, is equal to the following ratio:

$$\frac{I_c + NI_c}{I_c}$$

Use the final BW for the weights of I_c and NI_c.

D. Collapsing

Collapse cells using the algorithm as specified in Attachment B.

E. Applying the Factor

The universe for the application of the Type A NI adjustment factor is all units that are regular occupied interviews.

Apply the Type A NI adjustment factor to units that are regular occupied interviews in the four groups mentioned in Section VII.A. All Type A NIs get an implicit Type A NI adjustment factor of 1.0000.

VIII. FIRST-STAGE RATIO-ESTIMATION FACTOR

The first-stage REF adjusts the weight for sampling from non-self representing (NSR) PSUs*. See Section VIII.B for the universe for the application of the first-stage REF.

This section discusses:

1. What cells to use in applying the first-stage REF
2. How to determine the first-stage R-E cells; and
3. How to apply the first-stage REFs.

Both sets of factors (i.e., for census and OMB regions) are 1980-based first-stage REFs. They are the same ones used in the 1995 AHS-N weighting and will be used for future weightings in the foreseeable future.

See Section XII.D for output required.

A. First-Stage REF and Cells

Apply the first-stage REF using two different sets of cells:

1. Census region
2. OMB region.

Use the first-stage factors given in Table II.1 - Table II.4 (Attachment C-5 through C-6) for the Census regions.

Use the first-stage factors given in Table II.5 - Table II.14 (Attachment C-6 through C-9) for the OMB regions.

See Section XII.B for determining the first-stage R-E cells.

B. Determining the First-Stage Ratio-Estimation Cells

The universe for the application of the first-stage REF is records from NSR PSUs that are not in coverage improvement address segments.

Include only the following units in the first-stage R-E cells:

- Interviews (i.e., regular occupied, UREs, and vacants)
- Type B NIs*
- Type C NIs*
- Ineligible vacants*.

Exclude all Type A NIs because they are already represented in the Type A NI adjustment part of the weighting.

All records in the universe for the application of the first-stage REF should have the following assigned from the PY data or the CY weighting file:

- Tenure status
- Race* of reference person
- Hispanic origin* of reference person
- Vacancy status.

This assignment of data was specified in reference 4 of these specifications.

1. Regular Occupied Interviews

   All records that are regular occupied interviews should already have CY tenure status (i.e., either owner-occupied* or renter-occupied*) data by the AHS-N edits.

   If a regular occupied interview record has owner-occupied information, then place it in the first-stage owner cell; if it has renter-occupied information, then place it in the first-stage renter cell.

Use CY race* and CY Hispanic origin* data as well as CY tenure status data for the regular occupied interviews in the first-stage demographic cells (see tables II.3 and II.4 for the South and West regions; see tables II.7 through II.10 for the Philadelphia, Atlanta, Chicago, and Dallas OMB regions).

2. UREs, Vacants, and Ineligible Vacants

Place records that are UREs, vacants, and ineligible vacants in the first-stage vacant cells.

3. Type B and Type C Noninterviews

Use PY data (if available) to determine which first-stage cell a Type B or Type C NI record belongs in.

a. If a Type B or Type C NI record has PY owner-occupied* information, then place it in the first-stage owner cell; if it has PY renter-occupied* information, then place it in the first-stage renter cell. These are Type B and Type C NIs that were regular occupied interviews in the past.

Use PY race* and PY Hispanic origin* data as well as PY tenure status data for the Type-B and Type-C NIs in the first-stage demographic cells (see tables II.3 and II.4 for the South and West regions; see tables II.7 through II.10 for the Philadelphia, Atlanta, Chicago, and Dallas OMB regions).

b. If a Type B or Type C NI record has PY vacancy status* information (i.e., both PY owner-occupied and renter-occupied information are blank), then place it in the first-stage vacant cell. These are Type B and Type C NIs that were either UREs, vacant interviews, or ineligible vacants in the past.

c. If a Type B or Type C NI record doesn't satisfy conditions a. and b., then place it in the first-stage vacant cell. It is most likely a Type B or Type C NI that had never been an interview.

C. Applying the First-Stage REFs

Apply the first-stage REF to records from NSR PSUs only. Include all segments except coverage improvement address segments. Include the following units:

1. Interviews
2. Type B NIs
3. Type C NIs
4. Ineligible vacants.

IX. SECOND-STAGE RATIO-ESTIMATION FACTOR

We want the AHS-N HU estimates to be consistent with the independent estimates of the housing inventory. The second-stage REF adjusts the sample estimate for known deficiencies (generally undercoverage*) in sampling new construction units.

See Section XII.E for output required for second-stage REF.

A. Control Counts

Use the 1990 based controls during these ratio estimation procedures.

Compute the second-stage REF twice for the controls by

1. Using the weight obtained during first-stage cell computations with census regions; and

2. Using the weight obtained during first-stage cell computations with OMB regions.

The third-stage occupied and vacant control counts, are computed after the second stage of R-E (see Section X).

Save the second- and third-stage control counts produced in this section. Each step of the raking procedure uses these control counts (see Section X.C).

B. Second-Stage Ratio-Estimation Cells

Use the cells in Table III (Attachment C-10) for the second-stage R-E procedure.

All interviews, ineligible vacants, mobile home losses*, Type B NIs, and Type C NIs should have the following assigned either from the PY data file or the data from the current enumeration:

- Year built*
- Type of housing unit
- Units in structure.

This assignment of data was specified in reference 4 of these specifications.

Use CY data for interviewed units and ineligible vacants.

Use PY data for Type B and Type C NIs because they don't have CY data. If Type B and Type C NIs have no second-stage data, then they should already have imputed data. This assignment was specified in reference 5 of these specifications.

You already used PY data to define the MH loss units (see Section III of reference 5 of these specifications).

C. Calculating the Second-Stage REF

Calculate the second-stage REF using the ratio

$$\frac{\text{Control Total of HUs in a cell}}{\text{Sample Estimate of HUs in a cell}}$$

for each cell in Table III.

LSB will provide you with the numerators for each cell in Table III (see sections IX.D.2 and IX.E.2). You'll use them as the second-stage NC control totals. Note that you'll use the NC control totals and the independent control totals of total HUs to derive the old construction control totals (see Section IX.F.2).

Before you calculate the second-stage REF, you must exclude certain units from the sample estimate and from the application of the factor. Attachment E lists the units to be excluded from the sample estimate and from the application of the second-stage REF.

Use the sample estimates and control totals specified in sections IX.D.1-2, IX.E.1-2, and IX.F.1-2.

D. Conventional New Construction

Use all non-mobile home* units having a year built of 1980 or later for conventional new construction* HUs.

1. Sample Estimates

   Use the weighted sum of the following units:

   a. Interviews (i.e., regular occupied, UREs, and vacants)
   b. Type B NIs, excluding those mentioned in Attachment E

c. Type C NIs, excluding those mentioned in Attachment E
d. Ineligible vacants.

Include all prior year Type C NIs excluding those mentioned in Attachment E in the sample estimate.

Exclude all conventional NC with a year built of 1988 or later that are public housing units* from the sample estimate.

Use the following weight for the denominator of the second-stage REF for interviews, ineligible vacants, and the eligible Type B and Type C NIs. The weight equals the product of the following components:

a. Final BW
b. Type A NI adjustment factor
c. First-stage factor.

Note that for the following units, the Type A NI adjustment factor has an implicit value of 1.0000:

- URE and vacant interviews
- Ineligible vacants
- Type B NIs
- Type C NIs.

2. Control Totals

LSB will provide you the control totals for conventional NC units.

3. Applying the Factor

Apply the second-stage REF to the following conventional new construction units:

a. Interviews
b. Type B NIs, excluding those mentioned in Attachment E
c. Type C NIs, excluding those mentioned in Attachment E
d. Ineligible vacants.

Apply the second-stage REF to the public housing units excluded from the sample estimate used to compute the second-stage REF.

E. New Construction Mobile Homes

Use all mobile home* units, including all MH losses, having a model year of 1980 or later for new construction mobile home* HUs.
Note: the AHS-N weighting file should now contain MH losses from the data file that you created/updated in reference 6 of these specifications.

1. Sample Estimates

Use the weighted sum from the following units as estimates for MHs:

a. Interviews (i.e., regular occupied, UREs, and vacants)
b. MH losses
c. Type B-13s
d. Type C-30s.

Note that the Type B-13s will be on the updated version of the file of MH losses when we=ll determine that they are losses.

Use the following weight for the denominator of the second-stage REF for interviews, MH losses, Type B-13s and Type C-30s. The weight equals the product of the following components:

a. Final BW
b. Type A NI adjustment factor
c. First-stage REF.

Note that for the following units, the Type A NI adjustment factor has an implicit value of 1.0000:

- URE and vacant interviews
- MH losses
- Type B-13s
- Type C-30s.

2. Control Totals

LSB provide you the control totals for NC MHs to calculate the second-stage REF.

3. Applying the Factor

Apply the second-stage REF to the following new construction mobile home units:

a. Interviews
b. MH losses
c. Type B-13s
d. Type C-30s (demolished or disaster loss).

Drop the MH losses from the CY weighting file prior to the third-stage R-E procedure.

F. Old Construction*

Use all interviewed (i.e., occupied and vacant) units having a year built before 1980 for old construction HUs. Exclude all ineligible vacant units.

Calculate and apply the second-stage new construction (conventional and MH) factors before you determine the old construction controls.

Compute the second-stage REF for one cell per region (occupied and vacant combined).

1. Sample Estimate

Use the product of the following weighting components for the weight of interviews:

a. Final BW
b. Type A NI adjustment factor
c. First-stage REF.

Note that vacant units have an implicit Type A NI adjustment factor of 1.0000.

2. Control Totals

Calculate the control totals using only weights from interviewed units from the first-stage REFs with census regions. Don=t use the weights from the first stage REFs with OMB regions.

Don't compute the control totals during each raking. Compute them the first time you do the second-stage of R-E. Save these control totals for all rakings.

Use the following procedure to determine the control totals for old construction:

Step 1 Calculate the weighted sum (sample estimate) of interviewed NC units by region. Use the product of the following weighting components for the weight:

1. Final BW
2. Type A NI adjustment factor
3. First-stage REF
4. Second-stage REF.

Step 2 Subtract the sample estimate of interviewed NC units calculated in step 1 from the independent control totals of total HUs, supplied by LSB, separately by region. Use these results for the control totals for step 3 below.

Step 3 Calculate the second-stage REF for total old construction units (before raking) using the sample estimates from Section IX.F.1 and the control totals from step 2 of IX.F.2 and apply it to both occupied and vacant units. Save these results for the old construction controls for occupied and vacant units for all rakings.

3. Computing and Applying the Factor

Compute the second-stage REF for the following units using the sample estimate from Section IX.F.1 and the control totals from step 3 of Section IX.F.2 separately (in all rakings):

a. Occupied units
b. Vacant units.

Apply the second-stage REF to those units mentioned above.

G. Control Totals for the Third-Stage Ratio-Estimation Cells

Calculate the control totals using only the weight after the second-stage REF calculated using the first-stage REFs with the census regions. Don=t use the weight calculated using the first-stage REFs with OMB regions.

Don=t compute the control totals during each raking. Compute them the first time you do the second-stage ratio-estimation. Save these control totals for all rakings.

Step 1 Calculate the weighted sum of interviewed HUs by region separately for occupied and vacant units. Use the product of the following components for the weight:

1. Final BW
2. Type A NI adjustment factor
3. First-stage REF
4. Second-stage REF.

Step 2 Compute the factors for each cell in Tables IV.1 - IV.2 (Attachments C-7 through C-10) using the third-stage percentages that you computed from CPS/HVS data (see Reference 4 of these specifications). Multiply the factors within each region for each of the cells in Tables IV.1 - IV.2, by the regional weighted occupied total for the region computed in Step 1. Use these results for the third-stage REF control totals for occupied housing units in Tables IV.1 -IV.2.

Use Table IV.1 for the cells pertaining to occupied Hispanic and non-Hispanic units*.

Use Table IV.2 for the cells pertaining to occupied Black and non-Black units*.

Step 3 Calculate the factors for each of the cells in Table IV.3 (Attachment C-11) using the third-stage percentages that you computed from CPS/HVS data (see Reference **7** of these specifications). Multiply the factors within each region for each of the cells in Table IV.3 by the weighted vacant total for the region computed in Step 1. Use these results for the third-stage REF for vacant housing units in Table IV.3.

Use Table IV.3 for the cells pertaining to vacant units. Compute these factors separately by census region.

Step 4 See Section XII.F for output required.

X. THIRD-STAGE RATIO-ESTIMATION FACTOR

The third-stage REF adjusts the weight for the following groups:

1. Hispanic and non-Hispanic units (i.e., ethnicity);

2. Black and non-Black units (i.e, race); and
3. Vacant housing units.

The universe for both the calculation and application of the third-stage REF is records that are interviews (regular occupied, URE, and vacant) except ineligible vacants.
See Section XII.F for output required for the third-stage REF.

A. Third-Stage REFs For Occupied and Vacant Units

Use the 1990-based controls during the ratio estimation procedures. Compute the third-stage REF using interviewed units only. Do this procedure separately by region for both occupied and vacant units.

Note: You'll do this procedure twice, once using weights computed using census regions during the first-stage REF and once using weights computed using OMB regions during that first-stage REF. The third-stage REF process will be the same using census region weights and OMB region weights.

Compute these factors separately by census region.

Use the following formula to compute the third-stage REF for the Hispanic/non-Hispanic, Black/non-Black, and Vacant groups:

$$\frac{\text{Control Total of HUs in a cell}}{\text{Sample Estimate of HUs in a cell}}$$

The control totals and sample estimates are defined in Sections X.B and X.C.

1. Occupied Units

   Use all units that are regular occupied interviews for

   a. Hispanic and non-Hispanic units; and
   b. Black and non-Black units.

   Use the following 2-step procedure for the occupied units:

   Step 1 Compute and apply the factors for Hispanic and non-Hispanic units.

   Step 2 Compute and apply the factors for occupied Black and non-Black units after the factors in step 1 are applied.

Use Table IV.1 (Attachment C-11 through C-12) for the cells pertaining to occupied Hispanic and non-Hispanic units.

Use Table IV.2 (Attachment C-13 through C-14) for the cells pertaining to occupied Black and non-Black units.

2. Vacant Units

Use all interviewed units that are UREs and (regular) vacants for the vacant units. Exclude all ineligible vacants.

Use a one-step procedure for the vacant units. Calculate this factor at the time you calculate the occupied Hispanic and non-Hispanic factors.

Use Table IV.3 (Attachment C-15) for the cells pertaining to vacant units.

Place all UREs that are not seasonal and migratory vacants into the AYear-Round Vacants - Other@ cell so that the distribution of vacant units in the AHS-N is the same as those in the HVS.

B. Control Totals

Use the results of step 2 in Section IX.G for the control totals of the cells in Tables IV.1.-2.

Use the results of step 3 in Section IX.G for the control totals of the cells in Table IV.3.

C. Sample Estimates

Derive the third-stage sample estimates for the following groups:

- Hispanic and non-Hispanic
- Black and non-Black
- Vacant.

1. Sample Estimates for Hispanic and Non-Hispanic Units

Sum the weights of all occupied units in each cell of Table IV.1 using the product of the following weighting components for the weight:

a. Final BW
b. Type A NI adjustment factor

c. First-stage REF
d. Second-stage REF.

2. Sample Estimates for Black and Non-Black Units

Sum the weights of all occupied units in each cell of Table IV.2 using the product of the following weighting components for the weight:

a. Final BW
b. Type A NI adjustment factor
c. First-stage REF
d. Second-stage REF
e. Third-stage Hispanic REF.

3. Sample Estimates for Vacants

Sum the weights of all vacant units in each cell of Table IV.3 using the product of the following weighting components for the weight:

a. Final BW
b. Type A NI adjustment factor
c. First-stage REF
d. Second-stage REF
e. Third-stage Hispanic REF
f. Third-stage Black REF.

Note that the third-stage Hispanic and Black REFs are 1.0000.

D. Collapsing

Collapse cells in Tables IV.1-3 where necessary using the collapsing procedure in Attachment B, replacing the two criteria in step 2 with the following:

1. The number of unweighted units in each cell or collapsed set of cells must be 50 or more.

2. The third-stage REF for each cell or collapsed set of cells must satisfy the following condition:

$$0.5000 < \text{third-stage REF} < 2.0000$$

3. If the cells collapsed the first time the third-stage REFs were computed, then they should collapse for all rakings. NOTE: This condition will not cause cells

to collapse during the initial computation of the third-stage factors.

See Section XI.D for a discussion of collapsing of third-stage R-E cells during the raking procedure.

E. Applying the Factor

Apply the third-stage REF to the following interviewed units:

1. Hispanic and non-Hispanic occupied units
2. Black and non-Black occupied units
3. Vacant units (URE and vacant interviewed units, excluding ineligible vacants).

XI. RAKING PROCEDURE

The AHS-N raking procedure is a repetition of the second- and third-stages of R-E. Use the raking procedure specified in the following sections to bring the sample estimates into closer agreement with the control totals for both the second- and third-stages of R-E.

Continue to use the same collapsed cells for the raking that you used for the second and third stages before the raking.

A. Criteria for Stopping the Raking Procedure

Follow the pre-determined criteria when to stop the raking so that the weighting can be run completely.

Run the raking procedure until one of the following criteria is met:

1. The factor for all cells in a table is between 0.98 and 1.02 or
2. The change in each factor from one raking to the next is less than 0.015.

Apply the raking criteria separately within each region.

The second-stage REF and the third-stage Hispanic REF both have to meet this criteria to consider the weighting completed. Since the third-stage Black and the Vacant REFs are computed last, the sample estimate will always agree with the control.

B. Repetition of the Second-Stage of Ratio-Estimation

Use the same procedure as specified in Section IX using the following weight modifications. Don=t compute any control totals.

1. Use the product of the following weighting components for the weight of (1) interviewed old construction units in Section IX.F.1; (2) interviews, ineligible vacants, Type B and Type C NIs in Section IX.D.1; and (3) interviews, MH losses, Type B-13s, and Type C-30s in Section IX.E.1 for the first raking:

    a. Final BW
    b. Type A NI adjustment factor
    c. First-stage REF
    d. Second-stage REF
    e. Third-stage Hispanic REF
    f. Third-stage Black REF
    g. Third-stage vacant REF.

    Note that

    a. If the unit is occupied, the third-stage vacant REF is 1.0000,
    b. If the unit is vacant, the Type A NI adjustment factor is 1.0000 and the third-stage REFs for the occupied Hispanic and Black groups are 1.0000,
    c. If the unit is an ineligible vacant, the Type A NI adjustment factor and all third-stage factors are 1.0000,
    d. If the unit is either a Type B or Type C NI, the Type A NI adjustment and all third-stage factors are 1.0000, and
    e. If the unit is a MH loss:
        i. the Type A NI adjustment factor is 1.0000 and
        ii. all third-stage factors are implicitly 1.0000.
        (Note: you already dropped the MH losses from the CY weighting file before the third-stage R-E procedure)

2. Include the second- and third-stage REFs from all previous rakings in the second and subsequent rakings.

3. Save the second-stage REF and the third-stage Hispanic REF from the previous rake to test the conditions of the raking criteria.

C. Repetition of the Third-Stage of Ratio Estimation

Use the same procedure as specified in Section X.A using the following weighting modifications:

1. Use the product of the following weighting components for the weights of Hispanic and non-Hispanic units in Section X.C.1 for the first raking:

a. Final BW
b. Type A NI adjustment factor
c. First-stage REF
d. Second-stage REF
e. Third-stage Hispanic REF
f. Third-stage Black REF
g. Repeat of second-stage REF.

2. Use the product of the following weighting components for the weights of vacant units in Section X.C.3 for the first raking:
   a. Final BW
   b. Type A NI adjustment factor
   c. First-stage REF
   d. Second-stage REF
   e. Third-stage vacant REF
   f. Repeat of second-stage REF.

3. Use the product of the following components for the weights of Black and non-Black units in Section X.C.2 for the first raking:

   a. Final BW
   b. Type A NI adjustment factor
   c. First-stage REF
   d. Second-stage REF
   e. Third-stage Hispanic REF
   f. Third-stage Black REF
   g. Repeat of second-stage REF
   h. Repeat of third-stage Hispanic REF.

4. Include the second- and third-stage REFs from all previous rakings in the second and subsequent rakings.

5. Save the second-stage REF and the third-stage Hispanic REF from the previous rake to test conditions of the raking criteria.

D. Collapsing During Repetition of Third-Stage of Ratio-Estimation

Once a cell or set of cells collapses during the raking procedure, it remains collapsed. In most cases, the cells collapse because they don=t have enough unweighted records. This collapsing of cells would remain the same in each rake.

However, a cell or set of cells can also collapse because the factor is less than 0.5000 or greater than 2.0000. Consequently, the same set of cells can "uncollapse" in later

rakings because the factor is now within those limits stated in Section X.D.2.

Because of this Auncollapsing of cells@, provide LSB with initial output of the third-stage cells for all four census regions in four rakes. LSB will give you a modified version of the limits given in Section X.D.2 so that the same set of cells can collapse. This modification, called the *forced collapsing of cells*, will vary according to census region.

Reset those limits that you modified back to the original given in Section X.D.2 once the AHS-N weighting for this enumeration is completed.

You later Aautomated@ the collapsing of third-stage cells for AHS-N weighting beginning in 1997. This automation ensured that the same set of cells will collapse in every repetition of third-stage R-E. You will no longer have to stop the weighting so that we=ll provide you modified version of the limits given in Section X.D.2.

XII. OUTPUT AND VERIFICATION

A. General

1. Fixed and Variable Output

There are two types of output used in verifying the weighting: fixed and variable. The fixed will be hard copy output that is supplied every year and does not change; the variable will likely be generated by LSB from a file DSD gives LSB access to.

The output required in sections XII.C-XII.G is fixed SAS output. Provide row and column totals for all counts and tallies in the fixed output (unless specified otherwise).

The SAS dataset file that LSB uses to generate our its variable output will need to have all intermediate weights and factors. We=ll want to have access to it at any point in the weighting procedure.

2. Output Requests

Provide LSB with a file of all data needed to derive the counts in all tables. It needs to include any items used in defining the cells in the tables. We=ll independently check the unweighted cell totals.

LSB will also need the prior year data for the Type A NI adjustment, first-stage, and second-stage cells.

B. Base Weights, Weighting Control Factors, and Sample Adjustment Factors

LSB will need access to the AHS-N weighting file from the current year as soon as you

1. store the BWs, the WCFs, and the SAFs; and
2. compute the final BW.

This file should contain the intermediate weights and factors that you saved in Sections IV-VI.

LSB will do the following:

1. Determine whether the right units are used in AHS-N weighting based on the supplemental sample flag.

2. Match the CY weighting file to the master file of AHS-N units on 1990 control Number to check the BWs and the WCFs (as well as the computation of the final WCF) on the CY weighting file.

3. Determine whether the correct SAFs are applied to the correct units.

4. Check the computation of the final BWs on the CY weighting file.

5. Check for records having high final BWs of 10,000 or over. Note that in the future, you may have to compute a Maximum Weight Adjustment Factor to adjust the weight if it got too high.

C. Type A Noninterview Adjustment Factor

Provide LSB with a printout and a SAS output file of the counts for each of the cells in Table I.2.-I.5. separately by census region. Provide row and column totals. Use the prior year data to define the Type A NI adjustment cells.

Sections XII.C.1 and XII.C.2 below describe our output request for the counts.

1. <u>Weighting Output Before Applying the Factor</u>

   Provide the following output before and after the collapsing procedure:

   a. Scale values
   b. I_c and I_u
   c. NI_c and NI_u
   d. F_c.

Use the final BW for the weights before and after the collapsing procedure.

2. Weighting Output After Applying the Factor

Provide the following output after applying the Type A NI adjustment factor for each of the original (i.e., uncollapsed) cell:

a. I_c
b. NI_c
c. F_c.

Use the weight after applying the Type A NI adjustment factor..

D. First-Stage Ratio-Estimation Factor

Provide LSB with an output using weights based on both census and OMB region first stage factors for each item in this section.

Provide LSB with a printout and a SAS output file of the following information:

1. Unweighted and weighted sample counts, from NSR PSUs only, for each first-stage RE cell both before and after application of the first-stage REF. Provide these counts separately for the following:

   a. Interviews
   b. Type B NIs
   c. Type C NIs
   d. Ineligible vacants.

2. Unweighted and weighted sample counts, of interviewed units, for both SR and NSR PSUs combined after application of the first-stage REF, for each of the cells used in the second-stage RE procedure.

3. Unweighted and weighted sample counts, of interviewed units, for both SR and NSR PSUs combined after application of the first-stage REF, for each of the cells used in the third-stage RE procedure. Provide these counts separately for occupied and vacant units.

   Use the product of the following weighting components for the weight before application of the first-stage REF:

   a. Final BW

b. Type A NI adjustment factor.

Use the product of the following weighting components for the weight after application of the first-stage REF:

a. Final BW
b. Type A NI adjustment factor
c. First-stage REF.

4. Unweighted and weighted sample counts of SR PSUs before and after the application of the first-stage REF.

E. Second-Stage Ratio-Estimation Factor

Provide LSB with a printout and a SAS output file for the following groups both before and after the application of the second-stage REF:

- Old Construction
- Conventional new construction
- Mobile home new construction.

1. Old Construction

   Provide the following output:

   a. Control total used for each second-stage cell. Also, provide the total housing unit control supplied by LSB.

      NOTE: You can calculate the old construction controls once using the census weights. Then you use the controls when you compute factors using both the census and OMB weights.

   b. Scale values used for each second-stage cell.

   c. Total weighted sample estimate used in calculating the factor and total unweighted count in each cell in Table III. Include occupied and vacant interviews for old constrcution.

   d. Second-stage REF in each cell.

2. Conventional New Construction

   Provide the following output:

   a. Control total used for each second-stage cell.

   b. Scale values used for each second-stage cell.

   c. Total weighted sample estimate used in calculating the factor and total unweighted count in each cell in Table III by year built and units in structure. Provide these counts separately for each of the following types of units:

      i. Interviews
      ii. Type B NIs, excluding those mentioned in Attachment E

iii. Type C NIs, excluding those mentioned in Attachment E
iv. Ineligible vacants
v. Public housing units.

Note that the public housing units are part of the total weighted sample estimate that were excluded from the computation of the factor.

d. Second-stage REF in each cell.

e. Weighted sample estimates and unweighted counts of the Type B NIs listed in Attachment E.

f. Weighted sample estimates and unweighted counts of the Type C NIs listed in Attachment E.

3. Mobile Home New Construction

Provide the following output:

a. Control total used for each second-stage cell.

b. Scale values used for each second-stage cell.

c. Total weighted sample estimate used in calculating the factor and total unweighted count in each cell in Table III by model year. Provide these counts separately for each of the following types of units:

i. Interviews
ii. Type B NIs
iii. Type C NIs
iv. Mobile home losses.

Note that the Type B and Type C NIs are those that were used to compute the factor.

d. Second-stage REF in each cell.

e. Weighted sample estimates and unweighted counts of mobile home losses that were used in each NC cell.

F. Third-Stage Ratio-Estimation Factor

Provide output using weights based on both census and OMB region first-stage factors

for this section.

1. Weighting Output Before Applying the Factor

Provide LSB with a printout and an SAS output file of the following in each cell (both before and after collapsing) from the third-stage R-E procedure:

a. Control totals used for each third-stage cell.

b. Scale values used for each third-stage cell.

c. Weighted sample estimates and unweighted counts before application of the third-stage Hispanic factor for each cell in Table IV.1.

d. Third-stage Hispanic factors

e. Weighted sample estimates and unweighted counts before application of third-stage Black factor for each cell in Table IV.2.

f. Third-stage Black factors

g. Weighted sample estimates and unweighted counts before the application of the third-stage vacant factor for each cell in Table IV.3.

h. Third-stage vacant factors.

2. Weighting Output After Applying the Factor

Provide LSB with a printout and an ASCII of the output in each cell from the 3rd stage R-E procedure:

a. Weighted sample estimates after application of the third-stage Hispanic factor for each cell in Table IV.1.

b. Weighted sample estimates after application of the third-stage black factor for each cell in Table IV.2.

c. Weighted sample estimates after application of the third-stage vacant factor for each cell in Table IV.3.

d. Sample estimates in the second-stage R-E cells with and without the following units after application of all third-stage factors:

i. Type B NIs (except those listed in Attachment E for conventional NC and those that weren=t used to compute the second-stage REF for MH NC).
ii. Type C NIs (except those listed in Attachment E and those that weren=t used to compute the second-stage REF for MH NC).
iii. Ineligible vacants.

For sample estimates in the second-stage R-E cells with Type B and Type C NIs, include all units used to compute the second-stage REF.

e. The difference between and the ratio of the second-stage control totals and the weighted sample estimates, for all second-stage cells, after all third-stage factors are applied. Include all units used to compute the second-stage REF.

G. Raking Procedure

Provide LSB with the output for the second-stage and third-stage R-E procedure each time through the raking. You don=t need to stop the raking each time to provide the raking output.

LSB will verify the output to determine whether

1. the pre-determined criteria mentioned in Section XI are satisfied,
2. the criteria are applied within each region, and
3. the same set of third-stage cells are collapsing in every rake.

The raking output must contain the same output as specified for the second-stage and third-stage R-E procedure for each raking procedure. Use the weighting modifications for the sample estimate as specified in the raking procedure.

The raking output must also contain the differences in the factors from one raking to the next.

XIII. REFERENCES AND CONTACT PERSON

Working draft dated March 7, 1997 from Preston Jay Waite to Chester E. Bowie titled, "American Housing Survey - National Sample (AHS-N): Assignment of Base Weights to the Master File" is reference 1 of this memorandum.

Working draft dated April 10, 1997 from Preston Jay Waite to Chester E. Bowie titled, "American Housing Survey-National Sample (AHS-N): Units Requiring Weighting Control Factor (WCF) Information" is reference 2 of this memorandum.

Working draft dated November 6, 1998 from Chester E. Bowie to Alan R. Tupek titled "American Housing Survey-National Sample (AHS-N): 1997 Weighting - Sample Adjustment Factors (SAFs)" is reference 3 of this memorandum.

Working draft dated April 14, 1997 from Preston Jay Waite to Chester E. Bowie titled, "American Housing Survey-National Sample (AHS-N): File of Prior Year Data Needed for Weighting" is reference 4 of this memorandum.

Memorandum for documentation from James Hartman, Robert Abramson, and Alphonso Mason titled, A1997 American Housing Survey - National Sample (AHS-N): Control Totals for Mobile Home and Conventional New Construction Cells@ is reference 5 of this memorandum.

Working draft dated _____ from Alan R. Tupek to Chester E. Bowie titled, "American Housing Survey - National Sample (AHS-N): Assignment of Second-Stage Ratio-Estimation Cell Information to Type B and Type C Noninterivews" is reference 6 of this memorandum.

Working draft dated _____ from Alan R. Tupek to Chester E. Bowie titled, "American Housing Survey - National Sample (AHS-N): File of Mobile Home Losses" is reference 7 of this memorandum.

Working draft dated _____ from Preston Jay Waite to Chester E. Bowie titled, "Specifications for Third-Stage Ratio Estimation Cell Counts and Proportions" is reference 8 of this memorandum.

Working draft for documentation dated _____ from Alphonso M. Mason titled "American Housing Survey - National Sample (AHS-N): 1997 Weighting Operations" is reference 9 of this memorandum.

If you have any questions, please contact Alphonso Mason, Room 3785-3, ext. x3567.

Attachment A
Attachment B
Attachment C(15)
Attachment D
Attachment E
Attachment F(16)
Attachment G
Attachment H

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Attachment A

Variable Names for the Weighting Components on the AHS-N Weighting File

Weighting Component	Variable Name
Base Weight (BW)	BASICWGT
Address Segment WCF	NADDRWCF
Address EDs in Sample with Certainty WCF	NCERTWCF
Coverage Improvement (CI) Address Segment WCF	NCIADWCF
CI Area Segment WCF	NCIARWCF
Large Cluster Subsampling WCF	NLCSFWCF
Permit Issuing CI Less than 3 measures WCF	NPIL3WCF
1990-Design Permit Subsampling WCF	NPR90WCF
Permit Segment WCF	NPRMTWCF
Subsampling WCF	NSUBLWCF
Unit Segment WCF	NUNITWCF
Unit Segments Less than 4 Units WCF	NUSL4WCF
Sample Adjustment Factor (SAF)	SAMPFAC
Type A NI Adjustment Factor	TANFAC
First-Stage REF (Census and OMB regions)	CST1FC, OST1FC
Second-Stage REF (pre-raking or Rake "0") (Census and OMB regions)	CST2FC0, OST2FC0
Third-Stage REF (pre-raking or Rake "0") (Census and OMB regions)	Hispanic/Non-Hispanic:CS3HFC0,OS3HFC0 Black/Non-Black: CS3BFC0, OS3BFC0 Vacant: CS3VFC0, OS3VFC0
Second-Stage REF (Rake *i*) (Census and OMB regions)	CST2FC*i*, OST2FC*i* (*i* = 1,2,...,n = total # of rakes)
Third-Stage REF (Rake *i*) (Census and OMB regions)	Hispanic/Non-Hispanic: CS3HFC*i*, OS3HFC*i* Black/Non-Black: CS3BFC*i*, OS3BFC*i* Vacant: CS3VFC*i*, OS3VFC*i* (*i* = 1,2,...,n = total # of rakes)
Final Weight (Census and OMB regions)	CFINWGT, OFINWGT

Note: the BW and the WCFs come from the AHS-N master file while the other components are generated

during the weighting procedure.

Attachment B

Procedure For Collapsing Cells

Use the following procedure for collapsing cells. Do this procedure separately within region.

Step 1 Start with the cell having the smallest scale value.

Step 2 If the cell satisfies both conditions,

1. $I_u \geq 30$ if $NI_u > 0$ and

2. $F_c < 1.5000$

Go to Step 7. Otherwise, go to Step 3.

Step 3 Collapse the cell with a cell having the nearest scale value (smallest absolute difference).

Step 4 Compute the scale value for the collapsed cell by taking the average of the two scale values.

Step 5 Compute F_c for the collapsed cell.

Step 6 Go to Step 2.

Step 7 Select the cell with the next highest scale value.

Step 8 Go to Step 2.

Repeat the steps until all cells or collapsed cells satisfy the conditions in Step 2.

For Ratio-Estimation cells we have different criteria for Step 2.

Table I.1. Type-A NI Adjustment Cells and Scale Values for 1997 URE Units

Type of URE	Owner	Renter
Ineligible Vacant	10	20
Other	40	50

NOTE: we=re no longer using Table I.1.

Table I.2. 1997 Type A NI Adjustment Cells and Scale Values for 1997 NonBURE Occupied Units with No Prior Year Data Available[1]

	Inside MSA		Outside MSA*
Type of Segments/Units	Inside Central City*	Outside Central City*	
All Segments (except Permit Segments*)			
Owner			
Mobile Home	1510	1530	1540
NonBMobile Home	1650	1670	1680
Renter			
Mobile Home	1600	1580	1570
NonBMobile Home	1740	1720	1710
Permit Segments			
Owner	1810	1830	1840

[1] The universe for Table I.2 is regular occupied interviews and Type A NIs having current year data (denoted by a missing value of the prior year data flag variable PYSURVYR on the AHS-N weighting file).

Renter	1900	1880	1870

Table I.3. Type A NI Adjustment Cells and Scale Values for 1997 Non-URE Occupied Units with Prior Year Data Available about Prior Year Status for Owner-Occupied or Year-Round Vacants For Sale[2]

Residence and Units in Structure*	Number of Rooms*			
	1-4	5	6	7+
MSA - Central City*				
1 unit structure	10	11	13	14
2 + unit structures	20	21	23	24
Balance MSA - Urban*				
Mobile Homes	250	251	253	254
1 unit structure	40	41	43	44
2 + unit structures	50	51	53	54
Balance MSA - Rural*				
Mobile Homes	270	271	273	274

[2] The universe for Table I.3 is regular occupied interviews and Type A NIs both having prior year data (denoted by values other than missing in prior year data flag variable PYSURVYR) and one of the following:

1. a value of 1 in the prior year tenure status variable PYTENURE (for owner-occupied units); or

2. a value of 3 in the prior year vacancy status variable PYVACNCY (for Y-R vacants for sale) on the AHS-N weighting data file.

Non-mobile Homes	145	146	148	149
Non**B**MSA **B** Urban*	65	66	68	69
Non**B**MSA **B** Rural*				
Mobile Homes	280	281	283	284
Non-mobile Homes	155	156	158	159

Table I.4. Type A NI Adjustment Cells and Scale Values for 1997 Non-MSA/CMSA Occupied Units with Prior Year Data Available about Prior Year Status for Renter-Occupied or Year-Round Vacants For Rent [3]

Residence and Units in Structure	Number of Rooms					
	1-2	3	4	5	6	7+
MSA-CMSA Central City						
1 unit structures	500	501	503	506	508	509
2-4 unit structures	530	531	533	536	538	539
5-19 unit structures	545	546	548	551	553	554
20+ unit structures	570	571	573	576	578	579
Balance MSA-CMSA Urban						
1 unit structures	650	651	653	656	658	659
2-4 unit structures	680	681	683	686	688	689
5-19 unit structures	695	696	698	701	703	704
20+ unit structures	720	721	723	726	728	729
Balance MSA-CMSA Rural						
1 unit structures	935	936	938	941	943	944
2+ unit structures	950	951	953	956	958	959
Non-MSA-CMSA Urban						
1 unit structures	785	786	788	791	793	794
2-4 unit structures	805	806	808	811	813	814
5+ unit structures	820	821	823	826	828	829
Non-MSA-CMSA Rural						
1 unit structures	972	973	975	978	980	981

[3] The universe for Table I.4 is regular occupied interviews and Type A NIs having both prior year data (denoted by values other than missing in prior year data flag variable PYSURVYR) and one of the following:

1. a value of 2 or 3 in the prior year tenure status variable PYTENURE (for owner-occupied units); or

2. a value of 1or 2 in the prior year vacancy status variable PYVACNCY (for Y-R vacants for rent) on the AHS-N weighting data file.

2+ unit structures	987	988	990	993	995	996

Table I.5. Type A NI Adjustment Cells And Scale Values For 1997 NonBURE Occupied Units With Prior Year Data Available about Prior Year Status for Other YearBRound Vacants or Seasonal and Migratory Vacants[4]

Type of Vacant*	Inside MSA		Outside MSA
	Inside Central City	Outside Central City	
Other YearBRound Vacants*	3010	3030	3040
Seasonal and Migratory Vacants*	3110	3130	3140

[4] The universe for Table I.5 is regular occupied interviews and Type A NIs both having prior year data (denoted by values other than missing in prior year data flag variable PYSURVYR) and a value of 4, 5, 6, 7, 8, 9, 10, or 11 in the prior year vacancy status variable PYVACNCY (for other Y-R vacants or seasonal and migratory vacants) on the AHS-N weighting data file.

Table II.1 First-Stage Factors for the Northeast Region

Area	Owner	Renter	Vacant
MSA - Central City	0.59587	0.71085	0.79348
Balance MSA - Urban	0.76707	0.78993	0.79348
Balance MSA - Rural	0.84231	0.78613	0.79348
Non-MSA - Urban	1.28771	1.31179	1.53772
Non-MSA - Rural	1.02651	0.97065	0.65764

Table II.2 First-Stage Factors for the Midwest Region

Area	Owner	Renter	Vacant
MSA - Central City	0.96722	0.93349	0.90245
Balance MSA - Urban	1.12648	1.17442	1.09787
Balance MSA - Rural	1.00778	0.93853	1.04735
Non-MSA - Urban	1.00639	0.98762	1.11161
Non-MSA - Rural	1.01874	0.99797	1.02663

Table II.3. First-Stage Factors for the South Region

Area	Non-Black Non-Hispanic*		Black Non-Hispanic*		Hispanic		
	Owner	Renter	Owner	Renter	Owner	Renter	Vacant
MSA - Central City	1.12922	1.11361	1.04132	1.04832	1.24172	1.21952	1.07512
Balance MSA - Urban	0.88988	0.98469	0.94768	1.05592	0.88988	0.98469	0.83419
Balance MSA - Rural	1.14949	1.20911	1.61407	1.61407	1.14949	1.20911	1.10893
Non-MSA - Urban	0.96023	0.93972	0.93329	0.92760	1.17485	1.08767	0.58200
Non-MSA - Rural	0.98444	0.98267	0.90853	0.90942	1.38638	1.16735	0.95295

Table II.4. First-Stage Factors for the West Region

Area	Non-Hispanic*		Hispanic		Vacant
	Owner	Renter	Owner	Renter	
MSA - Central City	0.89699	0.92879	0.77724	0.88964	0.83406
Balance MSA - Urban	0.81404	0.70904	0.81404	0.70904	0.79989
Balance MSA - Rural	0.92183	0.92470	0.92183	0.92470	1.05637
Non-MSA - Urban	1.15524	1.26790	1.03929	1.22645	1.36865
Non-MSA - Rural	1.00053	1.11913	0.63165	1.06334	1.01234

Table II.5. First-Stage Factors for the Boston OMB Region

Area	Owner	Renter	Vacant
Urban*	1.13858	1.04877	1.36411
Rural*	1.03758	.93098	1.36411

Table II.6. First-Stage Factors for the New York OMB Region

Area	Owner	Renter	Vacant
MSA-Central City	.53924	.57943	.41534
Balance MSA - Urban	.59821	.57171	.41634
Balance MSA - Rural	.51502	.49231	.41634
Non-MSA - Urban	1.86819	1.81724	.83406
Non-MSA-Rural	1.62289	1.39672	.83406

Table II.7 First-Stage Factors for the Philadelphia OMB Region

Area	Black		Non-Black		Vacant
	Owner	Renter	Owner	Renter	
MSA-Central City	.86894	1.01676	.86894	1.01676	.95754
Balance MSA - Urban	.86608	1.05412	.86608	1.05412	.95754
Balance - Rural	1.10718	1.13710	1.10718	1.13710	1.97030
Non-MSA - Urban	1.02104	1.09414	1.02104	1.09414	.40409
Non- MSA - Rural	.67932	.58794	.90093	.89047	.40409

Table II.8 First-Stage Factors for the Atlanta OMB Region

Area	Black		Non-Black		Vacant
	Owner	Renter	Owner	Renter	
MSA-Central City	.95114	1.02967	.93202	.98291	.89745
Balance MSA - Urban	1.05321	1.10267	.93833	1.06293	.83486
Balance MSA- Rural	1.55459	1.55459	1.06019	1.16829	.97415
Non-MSA - Urban	1.00513	.97984	1.01854	1.01104	.88401
Non-MSA - Rural	.94533	.98590	.97583	.98183	.95361

Table II.9 First-Stage Factors for the Chicago OMB Region

Area	Black		Non-Black		Vacant
	Owner	Renter	Owner	Renter	
MSA-Central City	1.15650	1.14155	1.37655	1.36237	1.25694
Balance MSA - Urban	1.20106	1.21066	1.20106	1.21066	1.19590
Balance MSA - Rural	1.11170	1.04763	1.11170	1.04763	1.09515
Non-MSA - Urban	.85062	.84832	.85062	.84832	.95224

Non-MSA - Rural	.88954	.87680	.88954	.87680	.89051

Table II.10. First-Stage Factors for the Dallas OMB Region

Area	Hispanic		Black Non-Hispanic		Non-Black Non-Hispanic		Vacant
	Owner	Renter	Owner	Renter	Owner	Renter	
MSA-Central City	1.35890	1.29579	.98671	.92295	1.50176	1.40183	1.29784
Balance MSA - Urban	.93468	.94756	.98671	.92295	.93468	.94756	.88204
Balance MSA - Rural	1.66276	1.61196	.98671	.92295	1.66276	1.61196	1.44435
Non-MSA - Urban	1.00938	1.00680	.80375	.79563	.87273	.82896	.84228
Non-MSA - Rural	.71620	.99763	.99470	.93395	.96936	.97021	.95520

Table II.11. First-Stage Factors for the Kansas City OMB Region

Area	Owner	Renter	Vacant
MSA-Central City	.58382	.53162	.58663
Balance MSA - Urban	.70916	.77508	.58663
Balance MSA - Rural	.64830	.59882	.58663
Non-MSA - Urban	1.69395	1.67462	1.89323
Non-MSA-Rural	1.41692	1.29914	1.94766

Table II.12. First-Stage Factors for the Denver OMB Region

Area	Owner	Renter	Vacant
MSA-Central City	.78780	.89951	.85561
Balance MSA - Urban	.94784	1.24066	1.01637
Balance MSA - Rural	1.06942	1.24066	1.01637
Non-MSA - Urban	.80791	.79498	.88866
Non-MSA-Rural	.86771	.81216	1.04163

Table II.13. First-Stage Factors for the San Francisco OMB Region

Area	Owner	Renter	Vacant
MSA-Central City	1.01155	.98402	.75102
Balance MSA - Urban	.59852	.54749	.75102
Balance MSA - Rural	.68239	.63683	.75102
Non-MSA - Urban	1.51788	1.68256	1.85210
Non-MSA-Rural	2.09205	2.31365	2.37806

Table II.14. First-Stage Factors for the Seattle OMB Region

Area	Owner	Renter	Vacant
MSA-Central City	.95868	.93165	.76938
Balance MSA - Urban	1.08474	.88223	1.32464
Balance MSA - Rural	1.00571	1.05919	1.32464
Non-MSA - Urban	1.32969	1.45608	1.42661
Non-MSA-Rural	.97125	1.11295	.80694

Table III. Second-Stage Ratio-Estimation Cells

Type Of Unit	Northeast	Midwest	South	West
Old Construction Total HUs				
Occupied HUs[5]				
Vacant HUs[4]				
New Construction Conventional HUs - Jan 1980-Dec 1984 1 unit structures				
2+ unit structures				
Conventional HUs - Jan 1985-Dec 1989 1 unit structures				
2+ unit structures				
Conventional HUs - Jan 1990-Dec 1994 1 unit structures				
2+ unit structures				
Conventional HUs - Jan 1995-Dec 1999 1 unit structures				
2+ unit structures				
Conventional HUs - Jan 2000-Dec 2004 1 unit structures				
2+ unit structures				
New Construction - Mobile Homes model year 1980-1984				
model year 1985-1989				
model year 1990-1994				
model year 1995-1999				
model year 2000-2004				

[5] Don=t compute second-stage ratio-estimate factors for these cells. Use these cells to provide output only.

Table IV.1. Third-Stage Ratio Estimation Cells and Scale Values for Hispanic Control Totals

Tenure-Race-Age* of Head-Of-Household Status*	Region			
	Northeast	Midwest	South	West
Owner				
Non-Hispanic				
Husband and Wife				
Under 25	10	135	360	485
25-34	20	145	370	495
35-44	26	151	376	501
45-54	30	155	380	505
55-64	33	158	383	508
65+	35	160	385	510
Other Male				
Under 25	50	175	400	525
25-34	60	185	410	535
35-44	66	191	416	541
45-54	70	195	420	545
55-64	73	198	423	548
65+	75	200	425	550
Other Female				
Under 25	90	215	440	565
25-34	100	225	450	575
35-44	106	231	456	581
45-54	110	235	460	585
55-64	113	238	463	588
65+	115	240	465	590
Hispanic				
Husband and Wife	690	750	810	870
Other Male	710	770	830	890
Other Female	720	780	840	900

Table IV.1. (cont'd)

Third-Stage Ratio Estimation Cells and Scale Values for Hispanic Control Totals

Tenure-Race-Age of Head-Of-Household Status	Region			
	Northeast	Midwest	South	West
Renter				
Hispanic				
Husband and Wife				
Under 25	950	1075	1300	1425
25-34	960	1085	1310	1435
35-44	966	1091	1316	1441
45-54	970	1095	1220	1345
55-64	973	1098	1323	1448
65+	975	1100	1325	1450
Other Male				
Under 25	990	1115	1340	1465
25-34	1000	1125	1350	1475
35-44	1006	1131	1356	1481
45-54	1010	1135	1360	1485
55-64	1013	1138	1363	1488
65+	1015	1140	1365	1490
Other Female				
Under 25	1030	1155	1380	1505
25-34	1040	1165	1390	1515
35-44	1046	1171	1396	1521
45-54	1050	1175	1400	1525
55-64	1053	1178	1403	1528
65+	1055	1180	1405	1530
Hispanic				
Husband and Wife	1630	1690	1750	1810
Other Male	1650	1710	1770	1830
Other Female	1660	1720	1780	1840

Table IV.2.

Third-Stage Ratio Estimation Cells and Scale Values for Black Control Totals

Tenure-Race-Age Of Head-Of-Household Status	Region			
	Northeast	Midwest	South	West
Owner				
White and Other				
Husband and Wife				
Under 25	10	135	360	485
25-34	20	145	370	495
35-44	26	151	376	501
45-54	30	155	380	505
55-64	33	158	383	508
65+	35	160	385	510
Other Male				
Under 25	50	175	400	525
25-34	60	185	410	535
35-44	66	191	416	541
45-54	70	195	420	545
55-64	73	198	423	548
65+	75	200	425	550
Other Female				
Under 25	90	215	440	565
25-34	100	225	450	575
35-44	106	231	456	581
45-54	110	235	460	585
55-64	113	238	463	588
65+	115	240	465	590
Black				
Husband and Wife	690	750	810	870
Other Male	710	770	830	890
Other Female	720	780	840	900

Table IV.2. (cont'd)

Third-Stage Ratio Estimation Cells and Scale Values for Black Control Totals

Tenure-Race-Age Of Head-Of-Household Status	Region			
	Northeast	Midwest	South	West
Renter				
White and Other				
Husband and Wife				
Under 25	950	1075	1300	1425
25-34	960	1085	1310	1435
35-44	966	1091	1316	1441
45-54	970	1095	1320	1445
55-64	973	1098	1323	1448
65+	975	1100	1325	1450
Other Male				
Under 25	990	1115	1340	1465
25-34	1000	1125	1350	1475
35-44	1006	1131	1356	1481
45-54	1010	1135	1360	1485
55-64	1013	1138	1363	1488
65+	1015	1140	1365	1490
Other Female				
Under 25	1030	1155	1380	1505
25-34	1040	1165	1390	1515
35-44	1046	1171	1396	1521
45-54	1050	1175	1400	1525
55-64	1053	1178	1403	1528
65+	1055	1180	1405	1530
Black				
Husband and Wife	1630	1690	1750	1810
Other Male	1650	1710	1770	1830
Other Female	1660	1720	1780	1840

Table IV.3.

Third-Stage Ratio Estimation Cells and Scale Values for Vacant Units (Including UREs)

Type of Vacancy	Inside (P)MSAs		Outside (P)MSAs
	Inside Central City	Outside Central City	
Year-Round Vacants			
For Sale*	1200	1210	1230
For Rent*	1280	1290	1310
Other*	1360	1370	1390
Seasonal and Migratory Vacants*	1440	1450	1470

Attachment D

States and 1980 codes in OMB Regions[6]

I. Boston
- (9)-Connecticut
- (23)-Maine
- (25)-Massachusetts
- (33)-New Hampshire
- (44)-Rhode Island
- (50)-Vermont

II. New York
- (34)-New Jersey
- (36)-New York

III. Philadelphia
- (10)-Delaware
- (11)-D.C.
- (24)-Maryland
- (42)-Pennsylvania
- (51)-Virginia
- (54)-West Virginia

IV. Atlanta
- (1)-Alabama
- (12)-Florida
- (13)-Georgia
- (21)-Kentucky
- (28)-Mississippi
- (37)-North Carolina
- (45)-South Carolina
- (47)-Tennessee

V. Chicago
- (17)-Illinois
- (18)-Indiana
- (26)-Michigan
- (27)-Minnesota

VI. Dallas
- (5)-Arkansas
- (22)-Louisiana
- (35)-New Mexico
- (40)-Oklahoma
- (48)-Texas

VII. Kansas City
- (19)-Iowa
- (20)-Kansas
- (29)-Missouri
- (31)-Nebraska

VIII. Denver
- (8)-Colorado
- (30)-Montana
- (38)-North Dakota
- (46)-South Dakota
- (49)-Utah
- (56)-Wyoming

IX. San Francisco
- (4)-Arizona
- (6)-California
- (15)-Hawaii
- (32)-Nevada

X. Seattle
- (2)-Alaska
- (16)-Idaho
- (41)-Oregon
- (53)-Washington

[6] A Roman numeral represents the OMB Region Number.

(39)-Ohio
(55)-Wisconsin

List of Units Excluded from the Sample Estimate During the Second-Stage Part of AHS-N Weighting[7]

Unit	Reason
All Type A NIs	All Type A NIs are already represented in the Type-A NI adjustment part of the weighting.
Type B NIs in address*, special place*, unit*, or HUCS* segments (SEGMTYPE = '1', '2', '3', or '6', respectively) that were non-mobile homes in the prior year	A Type B NI in a unit, special place, address, or HUCS segment that was a non-MH in the prior year is old construction.
CY Type B-10 (permit granted, construction not started) or B-11 (under construction, not ready)	A Type B-10 and B-11 unit was never a HU in the first place, and therefore cannot be a loss.
CY Type B-13 (unoccupied site for mobile home or tent) if there was never a mobile home (MH)	A Type B-13 that never had a MH on the site before couldn=t be lost.
CY Type B-12 (permanent or temporary business or commercial storage), B-14 (other unit converted to nonstaff), or B-17 (other Type B NI) if they were never an interview	A Type B-12, B-14, or B-17 that was never an interview was never a HU in the past and therefore can=t be a loss.
CY interviews and noninterviews* that were a Type B-12 or B-14 in the first year in sample in permit (SEGMTYPE = '4') or coverage improvement area* (SEGMTYPE = '7') segments	These types of units are not included in the SOC 2nd-stage controls.
Type B-15 (occupancy prohibited) or B-16 (interior exposed to the elements) in coverage improvement area segment if they were never an interview.	A Type B NI that was never an interview couldn=t be lost.
Type C NIs in address, special place, unit, or HUCS segments that were non-mobile homes in the prior year	A Type C NI in a unit, special place, address, or HUCS segment that was a non-MH in the prior year is old construction.
Type C-31 (House or MH moved) if there was never an interview	A Type C-31 unit that never had an interview was never a HU, and therefore cannot be a loss.
Type C-36 (permit abandoned)	A Type C-36 unit was never a HU in the first place, and therefore cannot be a loss.
Type C-37 (other Type-C NI)	A Type C-37 unit is not in sample.
Type C-38 (unit eliminated in subsampling).	A Type C-38 unit is already represented by

[7] For a list of Type-B and Type-C NIs that are being used in the sample estimate, refer to Section IV of reference 5 of this memorandum.

Unit	Reason
	another sample unit.

GLOSSARY OF TERMS

Address Segment

An address segment is made up of housing units in areas where most of the address listings contain complete addresses. Units in an address segment have a value of 3 in segment type variable SEGMTYPE on the AHS-N master file and weighting file. See *Segment Type*.

Age (Third-Stage)

The age of the head of household or reference person is determined by variable AGE on the AHS-N weighting file.

Balance MSA - Rural

Units having a value of 2 in 1980 design MSA status variable MSASTA80 and a value of 2 in 1980 design urban/rural variable URBRUR80 on both the AHS-N master file and weighting file.

Balance MSA - Urban

Units having a value of 2 in 1980 design MSA status variable MSATA80 and value of 1 in 1980 design urban/rural variable URBRUR80 on both the AHS-N master file and weighting file.

Base Weight

A base weight (BW) indicates how many housing units in the population are represented by each unit in the sample. It equals the inverse of the probability of selection for a housing unit. With rare exceptions, the BW is 2,148 in AHS-N weighting (see *Weighting*). The BW is given by the variable BASICWGT on both the AHS-N master file and weighting file.

Since *systematic selection* of sample housing units is used in AHS-N, the BW is also equal to the *sampling interval* (SI) or *take every* (TE).

Basic Sample

A basic sample in the AHS-N consists of mainly F4 (basic) and F8 (coverage improvement) sample housing units. The F4 and F8 samples were introduced in 1985 and are interviewed every two years. This sample includes units sent out in the current enumeration as well as all prior year Type C NIs. The supplemental sample flag for the basic sample on the AHS-N weighting file is blank.

Black/Non-Black Head of Household (Third-Stage)

The race of the head of household person (or reference person) is determined by the current year race variable RACE on the AHS-N weighting file. See *Race (Third-Stage) and Head of Household Status*.

Black/Non-Black Units

See *Race (First Stage)*, *Race (Third-Stage)*, and *Interviewed Housing Units*.

Black Non-Hispanic Units (First-Stage)

Used for only first-stage housing units in the South Census region and in the Dallas OMB region and defined by the following:

1. RACE = 2 and SPAN = 2 (for regular occupied interviews) or
2. PYRACE = 2 and PYSPAN = 2 (for Type B and Type C NIs that were regular occupied interviews in the prior year) on both the AHS-N weighting and prior year data files.

Control Number (1990 design)

A unique 13-character field (CTRLNM13 on both the AHS-N master file and weighting files) that identifies each sample housing unit for AHS-N and contains the

1. Primary Sampling Unit (PSU) - first through fifth character of control number, denoted by the variable PSU90 on the AHS-N master file and weighting file (see *PSU*),
2. Segment number - sixth through ninth character of control number (assigned to each segment so that it is uniquely identifiable within survey and PSU),
3. Serial number - 10th through 11th character of control number (assigned to each HU or special place located in an enumeration district), and
4. Sample Designation - 12th through 13th character of control number (assigned to measures to indicate survey and sample).

Conventional New Construction

Non-mobile home housing units (current or prior year) constructed after the 1980 Census, defined by

1. values other than 2 and 3 in type of housing unit variable TYPE (or PYTYPE) and
2. 1980 or later in year built variable BUILT (PYBUILT) on the AHS-N weighting file.

See *Type of Housing Unit* for the range of values under both TYPE and PYTYPE.

Coverage Improvement Address Segment

A CI (address) segment is made up of housing unit additions in address enumeration districts (EDs) that were added to the housing inventory since the 1980 Census. This segment includes all additions except new construction (which are included in the permit segment frame (see *Permit Segment*)). Units in this segment have a value of 8 in segment type variable SEGMTYPE on the AHS-N master file and weighting file. See *Segment Type*.

Coverage Improvement Area Segment

A CI (area) segment is made up of housing unit additions in area EDs that were added to the housing inventory since the 1980 Census. This segment includes all additions in

- permit issuing CI (area) segments except new construction (which are included in the permit segment frame (see *Permit Segment*)) and
- non-permit issuing CI (area) segment including new construction.

Units in a CI (area) segment have a value of 7 in segment type variable SEGMTYPE on the AHS-N master file and weighting file. See *Segment Type*.

Head of Household Status (Third-Stage)

Head of household (reference person) status consists of the following categories:

- Husband and Wife - MAR = 1 or 2
- Other Male (Not married) - MAR ... (1 or 2) and SEX = 1
- Other Female (Not married) - MAR ... (1 or 2) and SEX = 2 on the AHS-N weighting file.

Hispanic/Non-Hispanic Head of Household (Third-Stage)

The Hispanic origin of the head of household (reference person) is determined by the CY variable SPAN on the AHS-N weighting file. See *Hispanic Origin (Current Year)* for values of occupied units are either Hispanic and non-Hispanic.

Hispanic/Non-Hispanic Units (First-Stage)

For first-stage housing units in the South and West regions, they=re defined by the following (both on the AHS-N weighting and prior year data files):

1. Hispanic (South and West regions):
   - Regular occupied interviews: SPAN = 1
   - Type B and Type C noninterviews: PYSPAN = 1.
2. Non-Hispanic (West region only):
   - Regular occupied interviews: SPAN = 2
   - Type B and Type C noninterviews that were regular occupied interviews in the prior year: PYSPAN = 2.

Hispanic/Non-Hispanic Units (Third-Stage)

For third-stage housing units, they are regular occupied housing units determined by the Hispanic origin of the head of household (reference person). See *Hispanic/Non-Hispanic*

Head of Household and *Hispanic Origin (Current Year)* for values of occupied units are either Hispanic and non-Hispanic.

Hispanic Origin (Current Year)

Hispanic origin of a householder is determined by variable SPAN on the AHS-N weighting file. Hispanic: SPAN = 1; Non-Hispanic: SPAN = 2.

Hispanic Origin (Prior Year)

Hispanic origin of a householder is determined by variable PYSPAN on the prior year and current year AHS-N weighting files.
Hispanic: PYSPAN = 1; Non-Hispanic: PYSPAN = 2.

HUCS Segment

A HUCS segment is made up of housing units that were missed or inadequately defined in the 1980 Census but were identified by the Housing Unit Coverage Study. Units in a HUCS segment have a value of 6 in segment type variable SEGMTYPE on both the AHS-N master and weighting files. See *Segment Type*.

Ineligible Vacant Units

Vacant units that are not intended for occupancy as separate living quarters. This classification refers to URE or vacants in permanent housing units in transient hotels or motels, boats, recreational vehicles, caves, or tents and railroad cars. They have a value of 5, 7, 8, or 9 in type of living quarters variable TYPE and a value of 2 or 3 in interview status variable STATUS on the AHS-N weighting file.

Inside Central City

Units having a value of 1 in 1980-design MSA status variable MSASTA80 on both the AHS-N master file and weighting file.

Interviewed Housing Units

Interviewed housing units consist of units that are

- regular occupied - STATUS = 1
- URE occupied - STATUS = 2
- (regular) vacant - STATUS = 3.

Metropolitan Supplemental Sample

F4 and F5 sample housing units from the six metropolitan areas in the United States (Los Angeles, Chicago, Detroit, Philadelphia, Northern New Jersey, and New York City) that are not part of the AHS-N basic sample. It is not used this enumeration.

Mobile Home Loss

A mobile home that was lost to demolition, fire, or natural disaster before the current interview. At one point, a MH existed on the property before it became a loss. Now, another HU (MH or non-MH) replaced that loss MH at the time of interview. If not, there may be a vacant lot where the loss MH stood. A mobile home loss unit has

- a value of 2 in status of old mobile home variable MHHIS and
- a model year of 1980 or later in PY year built variable PYBUILT on the AHS-N weighting file.

Mobile Homes

Current year mobile homes are housing units having a value of 2 or 3 in CY type of housing unit variable TYPE on the AHS-N weighting file.

Prior year mobile homes are housing units having a value of 2 or 3 in PY type of housing unit variable PYTYPE on the prior year and current year AHS-N weighting files.

Model Year

Year built of mobile homes based on the manufacturer=s model year. See *Year Built.*

MSA - Central City

Units having a value of 1 in 1980 design MSA status variable MSASTA80 on the both the AHS-N master file and weighting file.

MSA Status

MSA status for housing units is determined by 1980 design variable MSASTA80 on the AHS-N master file and weighting file.

- 1 = Inside Central City (MSA-Central City)
- 2 = Outside Central City (Balance MSA)
- 3 = Outside MSA (Non-MSA).

New Construction Mobile Homes

Mobile home housing units (current year or prior year) constructed after the 1980 Census, defined by

1. a value of 2 or 3 in type of housing unit variable TYPE (or PYTYPE) and
2. 1980 or later in CY year built variable BUILT (or PYBUILT) on the AHS-N weighting file.

Non-Hispanic Non-Black Units (First-Stage)

Used for only first-stage housing units in the South region or in the Dallas OMB region; defined by the following (on both the AHS-N weighting and prior year data files):

1. Regular occupied interviews: RACE = 1, 3, 4, or 5 and SPAN = 2
2. Type B and Type C NIs that were regular occupied interviews in the prior year: PYRACE = 1, 3, 4, or 5 and PYSPAN = 2.

Non-Mobile Homes

Current year non-mobile homes are conventional housing units having values other than 2 and 3 in CY type of housing unit variable TYPE on the AHS-N weighting file.

Prior year non-mobile homes are conventional housing units having values other than 2 and 3 in PY type of housing unit variable PYTYPE on the prior year and current year AHS-N weighting files.

Non-MSA-Rural

Units having a value of 3 in 1980 design variable MSASTA80 and a value of 2 in 1980 design urban/rural variable URBRUR80 on both the AHS-N master file and weighting file.

Non-MSA-Urban

Units having a value of 3 in 1980 design variable MSASTA80 and a value of 1 in 1980 design urban/rural variable URBRUR80 on both the AHS-N master file and weighting file.

Non-URE Occupied Units

Units that are regular occupied. See *Interviewed Housing Units* for a value of regular occupied units.

Noninterviews

Units are classified as noninterviews when we expect to get interviews but don=t for one of the following reasons:

1. Type A - no one home, temporarily absent, refused, unable to locate, language problem, other occupied.

2. Type B - permit granted (construction not started), under construction (not ready), permanent or temporary business or commercial storage, unoccupied site for MH or tent, converted to institutional unit, occupancy prohibited, interior exposed to the elements.

3. Type C - demolished or disaster loss, house or MH moved, unit eliminated in structural conversion, merged (not in current sample), permit abandoned, unit eliminated in subsampling.

Units that are noninterviews have a value of 4 in interview status variable STATUS on the AHS-N weighting file. See *Type A Noninterviews, Type B Noninterviews,* and *Type C Noninterviews* for detailed descriptions and values.

NSR PSUs

Non-Self Representing PSU. PSUs selected from multi-PSU strata to represent all the PSUs in the strata. Units in NSR PSUs have a value of 2 or 3 in 1980 design type of PSU variable PSUTYP80 or a value of 2 in 1990-design type of PSU variable PSUTYP90 on both the AHS-N master file and weighting file.

Number of Rooms

The number of rooms for a HU is the recoded sum of the

1. Number of bedrooms (BEDRMS)
2. Number of kitchens (KITCH)
3. Number of living rooms (LIVING)
3. Number of dining rooms (DINING)
4. Number of family rooms (FAMRM)
5. Number of recreation rooms (RECRM)
6. Number of dens (DENS)
7. Number of business rooms (BUSIN)
8. Number of other finished rooms (OTHFN).

The number of rooms is used only in the Type A NI adjustment of AHS-N weighting. Only prior year values are used. For prior year housing units, number of rooms is determined by the variable PYROOMS on both the current year and prior year AHS-N weighting files. For current year housing units, the number of rooms is determined by the variable NMROOMS on the CY weighting file.

Occupied (Housing) Units

A housing unit is classified as occupied if a person or group of persons is living in it at the time of the interview or if the occupants are only temporarily absent, for example, on vacation. However, if the unit is occupied entirely by persons with a usual place of residence elsewhere, the unit is classified as vacant (see *URE*). Same as regular occupied units. See *Interviewed Housing Units.*

Old Construction

Housing units selected from the 1980 Census, consisting of address, unit, and special place segments (see *Address, Unit, Special Place segments*). They have a year built earlier than 1980 (BUILT < 1980 on the AHS-N weighting file).

Other Year-Round Vacants

See *Year-Round vacants* and *Vacancy Status* for the value of units that are other Year-Round vacants.

Outside Central City

Units having a value of 2 in 1980-design MSA status variable MSASTA80 on both the AHS-N master file and weighting file.

Outside MSA

Units having a value of 3 in 1980-design MSA status variable MSASTA80 on both the AHS-N master file and weighting file.

Owner-Occupied

An occupied housing unit is owner-occupied if the owner or co-owner lives in the unit, even if it's not mortgaged or not fully paid for. See *Owner-Occupied (Current Year)* and *Owner-Occupied (Prior Year)* for values of units that are owner-occupied.

Owner-Occupied (Current Year)

Units that are owner-occupied in the current enumeration have a value of 1 in tenure status variable TENURE on the AHS-N weighting file.

Owner-Occupied (Prior Year)

Units that are owner-occupied in the prior year have a value of 1 in prior year tenure status variable PYTENURE on the both current year and prior year AHS-N weighting files.

Permit Segment

A permit segment is made up of conventional HUs in the public and private sectors for which building permits were issued and the units were built since the 1980 census. Units in a permit segment have a value of 4 in segment type variable SEGMTYPE on the AHS-N master file and weighting file. See *Segment Type*.

Prior Year Type C Noninterviews

Type C NIs that were eligible housing units in the past before becoming ineligible in the prior year (see *Type C Noninterviews*). Units that are prior year Type C NIs have a value of 9 (prior year enumeration) in current year enumeration variable CYENUM and a value of 30, 31, 32, 33, 36, 37, or 38 in variable TYPEC on the AHS-N weighting file.

PSU

Primary Sampling Unit. Geographic sampling area made up of one or more contiguous counties or parts of counties. It is the first five characters of the 1990 design Control Number (see *Control Number*) and is represented as variable PSU90 on the AHS-N master file and weighting file.

Public Housing Units

A housing unit is classified as being in a public housing project if the structure in which the unit is located is owned by any local or State government agency, such as a housing and redevelopment authority or a housing development agency, and operated as public housing. Such units have a value of 1 in public housing project variable PROJ on the AHS-N weighting file.

During the second-stage of ratio-estimation, we exclude conventional new construction that are public housing units having a year built of 1988 or later (BUILT $ 1985 and PYBUILT $ 1988 on the AHS-N weighting file) from the sample estimate because our source of independent estimates for conventional NC, Survey of Construction, excludes them.

Race (Current Year).

See either *Race (First-Stage)* or *Race (Third-Stage)*.

Race (First-Stage)

Used only for first-stage housing units in the Philadelphia, Atlanta, and Chicago OMB regions and defined by the following (on the prior year and current year AHS-N weighting files):

1. Regular occupied interviews:
   - Black: RACE = 2
   - Non-Black: RACE = 1, 3, 4, or 5.
2. Type B and Type C NIs that were regular occupied interviews in the prior year:
   - Black: PYRACE = 2
   - Non-Black: PYRACE = 1, 3, 4, or 5.

Race (Prior Year)

See *Race (First-Stage)*.

Race (Third-Stage)

Race of the head of household (or reference person) is determined by the variable RACE on the AHS-N weighting file.

Black: RACE = 2; White and Other (or Non-Black): RACE = 1, 3, 4, or 5.

Ratio-Estimation

After we adjust the sample estimates for Type A NIs (see *Type A Noninterviews*), we use independent estimates from other Census surveys to improve the respective estimates during AHS-N weighting. We use ratios of the independent estimates and the sample estimates before application of the factor (ratio-estimation factors) to force the sample estimates into agreement with the independent estimates (controls).

In AHS-N weighting, we use these REFs in three stages:

1. **First-Stage.** Since we selected a sample of NSR PSUs from within each NSR stratum (see *NSR PSUs*), the sample estimates are adjusted to represent the entire NSR statum. The first-stage factors are applied to various residence-tenure categories or cells by region.
2. **Second-Stage.** The AHS-N sample estimates of new construction are adjusted to account for known sampling deficiencies (see *Undercoverage*). We control the sample estimates to independently-derived estimates for conventional HUs and MHs.
3. **Third-Stage.** The AHS-N sample estimates of occupied and vacant HUs are controlled to independent estimates from CPS (occupied units - for various tenure/hispanic origin and race of reference person combinations of cells by region) and HVS (vacant units - for geography/vacancy status combination of cells by region).

See sections XIII through X of these weighting specifications for further discussion of these three stages of ratio-estimation.

Region (Census)

Determined by variable REGION on both the AHS-N master file and weighting file.

- 1 = Northeast
- 2 = Midwest
- 3 = South
- 4 = West.

Region (OMB)

Determined by variable OMBREG on both the AHS-N master file and weighting file.

- 1 = Boston
- 2 = New York
- 3 = Philadelphia
- 4 = Atlanta
- 5 = Chicago
- 6 = Dallas
- 7 = Kansas City
- 8 = Denver
- 9 = San Francisco
- 10 = Seattle.

Regular Occupied Interview

See *Interviewed Housing Unit*.

Renter-Occupied

An occupied housing unit is renter-occupied if the unit is rented for cash rent or occupied without payment of cash rent. See *Renter-Occupied (Current Year)* and *Renter-Occupied (Prior Year*).

Renter-Occupied (Current Year)

Units that are renter-occupied in the current enumeration have a value of 2 or 3 in CY tenure status variable TENURE on the AHS-N weighting file.

Renter-Occupied (Prior Year)

Units that are renter-occupied in the prior year have a value of 2 or 3 in PY tenure status variable PYTENURE on both the prior year and current year AHS-N weighting file.

Rural

Housing units having a value of 2 in 1980-design urban/rural variable URBRUR80 on both the AHS-N master file and weighting file.

Rural Supplemental Sample

Housing units from the F5 rural sample which are not part of the AHS-N basic sample. It is not being used this enumeration.

Scale Values

Scale values are assigned to each cell to indicate the order and priority in which one cell will collapse with another. When a cell does not meet the criteria specified in the collapsing instructions, it must collapse with at least one other cell.

Seasonal and Migratory vacants

Seasonal vacant units are units that are intended by the owner to be occupied during certain seasons of the year. Migratory vacant units are units held for occupancy for migratory farm workers. They are not anyone=s usual residence and include units occupied entirely by persons with a usual residence elsewhere and vacant units. See *Vacancy Status* for values for these units.

Segment Type

The segment type of a housing unit is a frame to which a segment belongs. It is determined by variable SEGMTYPE on both the AHS-N master file and weighting file.

- 1 = Address
- 2 = Special Place (Group Quarters)
- 3 = Unit
- 4 = Permit
- 6 = HUCS
- 7 = Coverage Improvement - Area
- 8 = Coverage Improvement - Address.

See the individual segment types mentioned above for brief definitions.

Special Place Segment

A special place segment is made up of units that are different from a usual private home or apartment. Examples of units in special place segments include hospitals, hotels, motels, jails, orphanages, large rooming or boarding homes, college dormitories, fraternity and sorority houses, military barracks, and monasteries. Units in this segment have a value of 2 in segment type variable SEGMTYPE on both the AHS-N master file and weighting file. See *Segment Type*.

SR PSU

Self-Representing PSU. A PSU that is the only one in a stratum (see *PSU*). By design, an SR PSU is selected to represent the stratum with certainty. Units in SR PSUs have a value of 1 in the 1980-design Type of PSU variable PSUTYP80 or a value of 1 in 1990-design Type of PSU variable PSUTYP90 on both the AHS-N master file and weighting file.

Type A Noninterviews

Eligible units where the interviewer was unable to obtain the necessary information to complete an interview from an occupied unit. We adjust the weight of interviewed units which most closely resemble Type A NIs to help reduce the bias from these cases. Units that are Type A NIs have a value of 4 in interview status variable STATUS and a value of 1, 2, 3, 5, or 6 in noninterview reason variable NOINT on the AHS-N weighting file.

Type A Unable-to-Locate NIs

Units where the interviewer was unable to find them. We don=t include Type A Unable-to-Locate NIs in the Type A NI adjustment part of AHS-N weighting because we don't know if they're really Type A NIs; they may be either Type B or Type C NIs (see *Type B Noninterviews* and *Type C Noninterviews*). Units that are Type A Unable-to-Locate NIs have a value of 4 in interview status variable STATUS and a value of 4 in noninterview reason variable NOINT on the AHS-N weighting file.

Type B Noninterviews

Units that are not eligible for current interview but have a chance of returning for AHS-N interviews every survey year. If they become housing units again, they will be interviewed. Units that are Type B NIs have a value of 4 in interview status variable STATUS and a value of 10, 11, 12, 13, 14, 15, 16, or 17 in noninterview reason variable NOINT on the AHS-N weighting file.

Type C Noninterviews

Units that are not eligible for the AHS-N sample because they no longer exist or because of sampling reasons. They are not revisited in future years, and are dropped from the AHS-N sample. Units that are Type C NIs have a value of 4 in interview status variable STATUS and a value of 30, 31, 32, 33, 36, 37, or 38 in noninterview reason variable NOINT on the AHS-N weighting file.

Type of Housing Unit

For current year housing units, type of housing unit is determined by variable TYPE on the current year AHS-N weighting file. For prior year housing units, type of housing unit is determined by variable PYTYPE on the prior year AHS-N data file.

- 1 = house, apartment, flat
- 2 = MH, no permanent room added
- 3 = MH, 1 or more permanent rooms added
- 4 = HU in nontransisent hotel, motel
- 5 = HU, permanent in transisent hotel, motel
- 6 = HU in rooming house
- 7 = boat or recreational vehicle
- 8 = tent, cave or railroad car
- 9 = HU, not specified
- 10 = unoccupied site for MH, trailer, or tent
- 11 = Group Quarters.

Type of Vacancy

See *Vacancy Status*.

Undercoverage

Each housing unit in the AHS-N sample represents a large number of other housing units. However, the housing units in the survey don=t represent all the housing units in the country because of incomplete sampling lists; this is called undercoverage. Units that have known coverage deficiencies include MHs, conventional NC, NC in special places, whole structure additions, and conversions from nonresidential units. Because of undercoverage, we raise proportionally (i.e., ratio-estimate) the sample estimates from the survey to match the 1990-based independent estimates of the total number of housing units (control totals).

Unit Segment

A unit segment is made up of housing units in mostly rural areas where more than four percent of the addresses contained in the listings are incomplete or new construction is not monitored by building permits. Units in this segment have a value of 3 in segment type variable SEGMTYPE on the AHS-N master file and weighting file. See *Segment Type*.

Units in Structure

For current year housing units, units in structure is determined by variable NUNITS on the current year AHS-N weighting file.

For prior year housing units, units in structure is determined by variable PYNUNITS on both the prior year and current year AHS-N weighting files.

Urban

Units having a value of 1 in 1980 design urban/rural variable URBRUR80 on both the AHS-N master file and weighting file.

URE

Usual Residence Elsewhere. Housing unit which at the time of enumeration was occupied by a person or persons, all of whom have a usual home elsewhere. These persons would already have a chance of selection for the survey at their usual residence. Thus, a URE is counted as a vacant housing unit. A URE is also counted as an other year-round vacant unit (see *Vacancy Status*).

Units that are UREs have a value of 2 in interview status variable STATUS on the AHS-N weighting file.

Vacancy Status

Vacancy status for current year housing units is determined by variable VACANCY on the AHS-N weighting file.

Vacancy status for prior year housing units is determined by the variable PYVACNCY on the AHS-N prior year and current year weighting file.

Vacancy status consists of the following categories:

- 1 or 2 =Year-round vacants for rent
- 3 = Year-round vacants for sale
- 4, 5, 6, or 7 = Other (year-round) vacants (includes UREs)
- 8, 9, 10, or 11 = Seasonal and migratory vacants.

Vacant Unit

A housing unit is vacant if no one is living in it at the time of interview, unless its occupants are only temporarily absent. In addition, a vacant housing unit may be one that is occupied entirely by persons who have a usual residence elsewhere (see *URE*).

A vacant housing unit (i.e., regular vacant, not URE vacant) has a value of 3 in interview status variable STATUS on the AHS-N weighting file.

Vacant Units (First-Stage)

First-stage vacant housing units are defined by the following:

1. STATUS = 2 or 3 (URE and vacant interviews, plus ineligible vacants); or
2. Prior year vacancy status variable PYVACNCY (only for Type B and Type C NIs that were URE and vacant interviews in the prior year) on the AHS-N weighting file.

Weighting

Each housing unit in the AHS-N sample represents itself and over 2,000 other units. The exact number it represents is its Aweight@. We calculate the weight in several steps, as explained in sections IV through XI of these specifications (also see *Type A Noninterviews* and *Ratio-Estimation*). The purpose of these steps is to minimize both sampling error and error from incomplete data. The result of the steps is also to force consistency with some major categories of data in other Census Bureau surveys, so figures do actually depend on the other surveys.

Year Built

The year built of a housing unit refers to when the building was first constructed, not when it was remodeled or converted.

Year built for current year housing units is determined by the variable BUILT on the AHS-N weighting file.

Year built for prior year housing units is determined by the variable PYBUILT on the prior year and current year AHS-N weighting files.

Year-Round Vacants

Vacant housing units that are intended by the owner for occupancy at any time of the year. They can be either for sale, for rent, both, or other. See *Vacancy Status* for values of year-round vacant units.

Year-Round Vacants for Rent

See *Vacancy Status* for values of units that are Y-R vacants for rent.

Year-Round Vacants for Sale

See *Vacancy Status* for values of units that are Y-R vacants for sale.

GLOSSARY OF WORD ABBREVIATIONS

Abbreviations		Phrase
AHSBN	B	American Housing Survey B National Sample
BW	B	Base Weight
CI	B	Coverage Improvement Segment
CPS	B	Current Population Surveys Branch
CY	B	Current Year
DSD	B	Demographic Surveys Division
DSMD	B	Demographic Statistical Methods Division
HHES	B	Housing and Household Economic Statistics Division
HU	B	Housing Unit
HUCS	B	Housing Unit Coverage Study
HVS	B	Housing Vacancy Survey
LSB	B	Longitudinal Surveys Branch
MH	B	Mobile Home
MSA	B	Metropolitan Statistical Area
NC	B	New Construction
NI	B	NonInterview
NSR	B	NonBSelf Representing
OMB	B	Office of Management and Budget
(P)MSA	B	(Primary) Metropolitan Statistical Area
PSU	B	Primary Sampling Unit
PY	B	Prior Year
RBE	B	RatioBEstimation
REF	B	RatioBEstimation Factor
SAF	B	Sample Adjustment Factor
SOC	B	Survey Of Construction
SR	B	Self Representing
URE	B	Usual Residence Elsewhere
WCF	B	Weighting Control Factor

Y-R	**B**	**Y**ear-**R**ound

Table of Contents