



AMERICAN HOUSING
SURVEY

Dependent Interviewing: 1985 to 2013

LAST UPDATED: MARCH 2019

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
U.S. CENSUS BUREAU
U.S. DEPARTMENT OF COMMERCE



PD&R



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1. Overview

The purpose of this document is to explain how the Department of Housing and Urban Development (HUD) and the U.S. Census Bureau (Census Bureau) implemented dependent interviewing in the American Housing Survey for 1985 - 2013.

The American Housing Survey (AHS) is a longitudinal survey in which the same housing units are surveyed repeatedly. Since it began in 1973, the AHS has been composed of a national longitudinal sample and independent metropolitan area longitudinal oversamples. From 1973 to 2013, there were two national longitudinal samples (1973–1983 and 1985–2013). During this time, the Census Bureau also took independent longitudinal oversamples for more than 60 metropolitan areas, each spanning various time periods.¹

Due to the longitudinal design of the AHS samples, HUD and the Census Bureau implemented a survey strategy called dependent interviewing. Dependent interviewing is the practice of using a respondent's answer to a question from a *prior* survey to “fill in” the response to the same question in the *current* survey, thereby improving consistency of responses and reducing respondent burden in the current survey.

To explain the history of the use of dependent interviewing in the AHS, it is helpful to consider three time periods. From 1973 through 1984, the AHS was conducted annually using a paper questionnaire. The national longitudinal sample was surveyed each year from 1973 through 1981, then again in 1983. The metropolitan area longitudinal oversamples were in most cases surveyed every two years, although some were surveyed less frequently.

From 1985 to 1995, AHS was still conducted using a paper questionnaire. The national longitudinal sample was surveyed every odd-numbered year, whereas the metropolitan area longitudinal oversamples (hereinafter referred to metropolitan area samples) were surveyed in both even- and odd-numbered years. It is important to note that some metropolitan area samples remained longitudinal (same sample as pre-1985), while others were brand new.

Beginning with the 1997 AHS, HUD and the Census Bureau replaced the AHS paper questionnaires with a Computer Assisted Personal Interview (CAPI). The electronic CAPI questionnaire made it easier to implement dependent interviewing because the collection instrument (the computer) could be programmed and pre-loaded with responses from the prior survey year. From 1997 through 2013, the national longitudinal sample continued to be surveyed in odd-numbered years. The metropolitan area samples continued to be surveyed in both even- and odd-numbered years from 1997 to 2004, then in odd-numbered years only from 2005 through 2013. Again, it is important to note that some metropolitan area samples remained longitudinal (same sample as pre-1985 or pre-1997), while others were brand new.

The remainder of this guide explains how HUD and the Census Bureau implemented dependent interviewing for these three periods, primarily focusing on 1997 through 2013. Sections 2 and 3 explain

¹ A help guide titled *Metropolitan Area Oversample Histories: 1973–2013* provides information about the time periods and geographic scope of the metropolitan area longitudinal samples.



the years prior to CAPI. Section 4 focuses on dependent interviewing from 1997 to 2013, explaining how HUD and the Census Bureau chose which questions would be eligible for dependent interviewing and the prior year responses that were eligible to use in the current year. Section 5 describes the techniques used to implement CAPI dependent interviewing. Section 6 lists the dependent interviewing technique used for questions whose responses appear in the AHS public use file (PUF) from 1997 to 2013.

2. 1973–1984

The survey began in 1973 as a paper questionnaire. Blank questionnaires were provided to Field Representatives (FRs), along with a control card for the sampled housing unit. The control card included the sample address and places to report basic household items, such as the roster of people living at the address. In 1974 and subsequent survey years, some items collected in the prior year were imprinted on the control card. Any corrections were indicated, and the control card was delivered along with the completed questionnaire for keying.

Six demographic items were imprinted on the Control Card: Age of Person *AGE*, Month/Year Person Moved In *MOVMM/MOVE*, Race of Person *RACE*, Sex of Person *SEX*, and Spanish Origin of Person *SPAN*.

The FR verified prior year response for *AGE*; the other five items were not re-asked after the response in the first survey year.

3. 1985–1995

A new national longitudinal panel was selected in 1985. The Census Bureau continued to use a paper questionnaire and control card for the AHS. The new control card contained the same six items that were previously imprinted on the control card, as well as two new items: Year Unit was Built *BUILT* and Square Footage of Unit *UNITSF*. Both of the new items were not re-asked after the response in the first survey year in which the housing unit appeared in the sample.

4. The CAPI Years (1997–2013)

The adoption of an electronic CAPI questionnaire in 1997 allowed HUD and the Census Bureau to greatly expand the use of dependent interviewing. To implement dependent interviewing for an AHS CAPI question, AHS managers at HUD and the Census Bureau made two key eligibility decisions. The first decision was whether a survey question was deemed eligible for dependent interviewing. The second decision, which we refer to as response eligibility, required a determination of the conditions under which a response from a prior year survey was considered eligible as a source of information for dependent interviewing in the current survey.

This evaluation changed over time as the technology used to develop the AHS questionnaire advanced. Continual improvements and upgrades to the software used for AHS interviewing further decreased the cost of implementing increasingly complex dependent interviewing techniques for more recent years.

4.1. Determining Question Eligibility

Determining which questions are eligible for CAPI dependent interviewing is both an art and a science. AHS managers at HUD and the Census Bureau made these determinations based upon their experience,



their intuition, and when available, data from prior surveys. Specifically, HUD and the Census Bureau evaluated questions using three criteria.

First, HUD and the Census Bureau evaluated the AHS questions based on how frequently we expected the answers to change. Some questions have responses that generally do not change, change predictably, or change infrequently. For example, responses to questions such as the presence of a basement or the type of foundation for a manufactured/mobile home are unlikely to change.

Second, HUD and the Census Bureau analyzed the potential bias that dependent interviewing would introduce. By incorporating dependent interviewing, there is a potential decrease in variability or artificial leveling of responses that may occur. In fact, the effects of dependent interviewing were studied by comparing the 2013 data to data collected using the new sample in 2015 (Gustafson and Brassell, 2018). In the research, notable differences were found even when the analysts accounted for changes in sample design between the two survey years.

For example, in 2013, the AHS introduced a dependent interviewing question for respondents who reported at least one separate dining room. Comparing the 2011 and 2013 data, analysts found that the number of respondents who switched the number of separate dining rooms in the home from one or more to zero was markedly smaller than in previous years. In addition to reducing the variability of responses, the research also suggested a reduction in item nonresponse over time.

The third criterion to evaluate questions for dependent interviewing potential was to evaluate the complexity and risks of adding dependent interviewing to the CAPI questionnaire. HUD and the Census Bureau evaluated the costs and benefits of adding a new question to an already complex questionnaire.

4.2. Determining Response Eligibility

In addition to occupied housing units, Census Bureau FRs collect information for vacant housing units and for households who are occupying the sampled housing unit but usually live someplace else (referred to as usual residence elsewhere (*URE*) households). All three housing types appear in the AHS PUF.

For the AHS, HUD and the Census Bureau adopted a global eligibility rule that applies to all AHS questions selected for dependent interviewing. That rule is that only *valid* responses collected from *occupied* housing units are eligible to be used for dependent interviewing. Responses collected from vacant or *URE* interviews are not eligible to be used for dependent interviewing. Question responses that are imputed due to a missing response from an otherwise completed interview are also not eligible to be used for dependent interviewing.

In addition to the global response eligibility rule that applied uniformly to all AHS questions, there was a second response eligibility decision made for each individual question: whether to require that prior year answers come from the *same* household (or person).

To understand the nature of why this decision had to be made, it is useful to recall a few characteristics of the AHS. First, the AHS was (and still is) a longitudinal survey administered to the same housing units every survey cycle (every two or every four years). Because formerly interviewed households may move, this means that a household interviewed in, for example, the 2013 AHS may be a *different* household than the one interviewed for the 2011 AHS.

Second, the AHS questionnaire included questions about the housing unit, the householder, the household, actions taken by the household, and persons within the household. This means that while



some basic characteristics about the home may be stable from survey to survey, many characteristics and actions of the household living in that home are more likely to change.

From 1997 through 2013, HUD and the Census Bureau adopted a flexible approach. For some questions, only a prior year survey response from the *same* household was eligible as a source of information for dependent interviewing in the current survey. For other questions, a prior year survey response from *any* household was eligible. For a handful of questions specific to persons within the household, only a prior year survey response about the same person was eligible as a source of information for dependent interviewing in the current survey.

5. Types of Dependent Interviewing

Once HUD and the Census Bureau determined that a question was eligible for dependent interviewing and determined the response eligibility (that is, any household, same household, same person), the final decision made was the technical approach for implementing dependent interviewing, hereinafter referred to as techniques. There were three basic techniques to implement dependent interviewing in the American Housing Survey from 1997 through 2013, and two of the techniques had multiple types depending on the nature of the survey question.

5.1. Do Not Re-ask

The Do Not Re-ask (DNR) dependent interviewing technique is when a question is skipped in the current survey year if a valid response was obtained in the prior survey year. DNR was applied only when the response to a question is highly unlikely to change between surveys. Examples of this included the purchase price of the housing unit or a person’s country of birth.

There are seven types of DNR techniques. For the purposes of clarity within the tables in section 6, each type is given a unique code. Exhibit 5.1 provides the codes and descriptions of the types of DNR dependent interviewing techniques.

Exhibit 5.1. DNR Interviewing Techniques

| Code | Description |
|-------|--|
| DNR-a | Do not re-ask under any circumstances. |
| DNR-s | Do not re-ask if the person reported being a citizen in the prior survey year. |
| DNR-y | Do not re-ask if the prior year response was “yes.” |
| DNR-v | Do not re-ask if the current housing unit is vacant or if a URE interview and prior year value of <i>SUBRNT</i> ² was reported. |
| DNR-p | Do not re-ask if the prior year value of <i>PROJ</i> was “yes.” |
| DNR-c | Do not re-ask if current year <i>TYPE</i> agrees with prior year <i>NUNIT2</i> . |
| DNR-m | Do not re-ask if a previously recorded mortgage has been verified and it has not been refinanced. |

² A full description of *SUBRNT* and any other variables listed here without additional documentation can be found in the AHS e-codebook tool at <https://www.census.gov/programs-surveys/ahs/tech-documentation/codebooks/ahs-codebook-tool.html>.



5.2. Verification of Prior Year Response

For some questions, a response in the current survey year could be different than a response in the prior year survey, but HUD and the Census Bureau expected differences to be either infrequent or predictable. For instance, a response to a survey question about a person’s age is expected to be different than the prior survey response, but in a predictable way.

For these types of questions, the respondent is asked to verify that his or her current response to the question is the same as it was in the previous survey. The general language used in verification questions is, “Last year, we recorded your response as XXX. Is that response still true?”

There are four types of verifications, each with a unique code. Exhibit 5.2 provides the code and description of the type of verification. The codes appear in Section 6 of this help guide.

Exhibit 5.2. Verification Interviewing Techniques

| Code | Description |
|------|---|
| V-a | Verify prior year response for all response categories. |
| V-s | Verify prior year response, except in instances where the prior year response was “other.” |
| V-t | Verify prior year response, but only if tenure changed from “renter-occupied” to “owner-occupied.” |
| V-y | Verify prior year response, but only in instances where the prior year response was “yes.” |
| V-m | Re-ask after verifying that payments are still being made on a previously recorded mortgage. Re-asked questions are used to determine if any changes have been made to the terms of the loan. |
| V-md | Re-ask for a verified mortgage only if the terms of the loan have changed (payment, interest rate, etc.). |

5.3. Bounding for Home Improvement Projects

Homeowners in the AHS were asked questions about home improvement projects they undertook in the prior two years. Although the questions were designed to capture *new* home improvement projects, sometimes respondents reported a project that matched a project they reported in the prior year AHS. This is known as “telescoping,” the tendency of respondents to remember events as occurring more recently than the actual date of occurrence.

To ensure only new home improvement projects were captured, a type of dependent interviewing called bounding was used. Simply put, for any home improvement project that matched a prior project, the respondent was asked whether the project was the same or different from one reported in the previous survey. If the project was the same as the one reported in the previous survey, no further questions are asked about the project, and the responses related to the project are not considered valid data.

The code “B” indicates when a variable is bounded and appears in section 6.

6. Dependent Interviewing Legend

The exhibits below show the type of dependent interviewing associated with each PUF variable. The exhibits are organized by topic and sub-topic, and these topics and sub-topics are the same as the ones used in the AHS Codebook.

Dependent interviewing in the national longitudinal sample from 1997–2013 was straightforward. Because the national longitudinal sample was surveyed every two years, response data was always available from a prior survey year.



Implementing dependent interviewing for metropolitan area samples between 1997 and 2013 required some deviation from the strategy used in the national longitudinal sample. Some metropolitan areas were surveyed frequently enough to allow dependent interviewing to occur as it did in the national longitudinal sample. As the gap between the current survey year and most recent survey year increased, adjustments were made, however. For instance, if a survey question changed between the current survey year and the most recent survey year, then the question was not eligible for dependent interviewing. In rare situations, HUD and the Census Bureau removed all dependent interviewing in a metropolitan area sample when there was a large gap between the current survey year and the most recent survey year. For instance, HUD and the Census Bureau included the Rochester, NY metropolitan area in the 2013 AHS sample, using housing units in which occupants were last interviewed in 1998. HUD and the Census Bureau deemed that gap to be too large for dependent interviewing to be effective. As such, responses collected in 1998 were not used in 2013 for housing units in the Rochester, NY metropolitan area longitudinal oversample.

The frequency of data collection in metropolitan area samples varies considerably. AHS users are strongly encouraged to consult the AHS Help Guide [Metropolitan Area Oversample Histories: 1973–2013](#) to determine the longitudinality of metropolitan area samples.

Exhibit 6.1. Occupancy and Tenure

| PUF Variable | Description | Response Eligibility Requirement | 1997 | 1999 | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 |
|--------------|---------------------------------------|----------------------------------|------|------|------|------|------|-------|-------|-------|-------|
| CONDO | Flag indicating unit is a condominium | Any HH | | | | | | V-a | V-a | V-a | V-a |
| OWNHERE | Owner/ resident manager lives on-site | Any HH | | | | | | V-y | V-y | V-y | V-y |
| OWNLOT | Flag indicating owner owns the lot | Any HH | | | | | | DNR-a | DNR-a | DNR-a | DNR-a |

Exhibit 6.2. Structural

| PUF Variable | Description | Response Eligibility Requirement | 1997 | 1999 | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 |
|--------------|--|----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| ACCESSB | Entry system required to access building | Any HH | | | | | | V-y | V-y | | |
| ACCESSC | Entry system required to access community | Any HH | | | | | | V-y | V-y | | |
| ANCHOR | Method used to anchor mobile home | Any HH | | | | | | V-y | V-y | V-y | V-y |
| CLIMB | Number of floors from main entrance to apartment | Any HH | | V-a | V-a | V-a | V-a | V-a | V-a | V-a | V-a |
| GARAGE | Flag indicating unit has a garage or carport | Any HH | | | | | | V-y | V-y | V-y | V-y |
| LOT | Square footage of lot | Any HH | | V-a | V-a | V-a | V-a | V-a | V-a | V-a | V-a |
| PORCH | Flag indicating unit has porch or deck or balcony or patio | Any HH | | V-y | V-y | V-y | V-y | V-y | V-y | V-y | V-y |
| BUILT | Year unit was built | Any HH | DNR-a | V-t | V-t | V-t | V-t | V-t | V-t | V-t | V-t |
| FRSIT | First site mobile home ever placed on | Any HH, Same unit | | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |
| NUNIT2 | Structure type | Any HH | | | DNR-c | DNR-c | DNR-c | DNR-c | DNR-c | DNR-c | DNR-c |

| PUF Variable | Description | Response Eligibility Requirement | 1997 | 1999 | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 |
|--------------|--|----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| NUNITS | Number of units in building | Any HH | V-a | V-a | V-a | V-a | V-a | V-a | V-a | V-a | V-a |
| BATHS | Number of full bathrooms in unit | Same HH | | | | | | | | | V-a |
| BEDRMS | Number of bedrooms in unit | Same HH | | | | | | | | | V-a |
| CELLAR | Unit has a basement | Any HH | | V-s | V-s | V-s | V-s | | | | |
| DENS | Number of dens or libraries in unit | Same HH | | | | | | | | | V-a |
| DINING | Number of dining rooms in unit | Same HH | | | | | | | | | V-a |
| FAMRM | Number of family rooms, great rooms, or TV rooms in unit | Same HH | | | | | | | | | V-a |
| FLOORS | Number of floors within the unit | Any HH | | V-a | V-a | V-a | V-a | V-a | V-a | V-a | V-a |
| HALFB | Number of half bathrooms in unit | Same HH | | | | | | | | | V-a |
| KITCH | Number of kitchens in unit | Same HH | | | | | | | | | V-a |
| LAUNDY | Number of laundry or utility rooms in unit | Same HH | | | | | | | | | V-a |
| LIVING | Number of living rooms in unit | Same HH | | | | | | | | | V-a |
| MHSETQ | Type of mobile home foundation | Any HH | | | | | | V-a | V-a | V-a | V-a |
| OTHFN | Number of other finished rooms in unit | Same HH | | | | | | | | | V-a |
| OTHRUN | Number of other unfinished rooms in unit | Same HH | | | | | | | | | V-a |
| RECRM | Number of recreation rooms in unit | Same HH | | | | | | | | | V-a |
| UNITSF | Square footage of unit | Any HH | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |

Exhibit 6.3. Equipment and Appliances

| PUF Variable | Description | Response Eligibility Requirement | 1997 | 1999 | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 |
|--------------|---|----------------------------------|-------|------|------|------|------|------|------|------|------|
| BURNER | Unit has working built-in cooking burners | Any HH | V-y | V-y | V-y | V-y | V-y | V-y | V-y | V-y | V-y |
| CFUEL | Fuel used most for cooking | Any HH | | V-s | V-s | V-s | V-s | V-s | V-s | V-s | V-s |
| COOK | Unit has working cookstove or range/oven | Any HH | V-y | V-y | V-y | V-y | V-y | V-y | V-y | V-y | V-y |
| DFUEL | Fuel used by clothes dryer | Any HH | | V-s | V-s | V-s | V-s | V-s | V-s | V-s | V-s |
| DISH | Unit has working dishwasher | Any HH | | V-a | V-a | V-a | V-a | V-a | V-a | V-a | V-a |
| DISPL | Unit has working garbage disposal | Any HH | | V-a | V-a | V-a | V-a | V-a | V-a | V-a | V-a |
| DRY | Unit has working clothes dryer | Any HH | | V-a | V-a | V-a | V-a | V-a | V-a | V-a | V-a |
| OVEN | Unit has a working microwave oven | Same HH | V-y | V-y | V-y | V-y | V-y | V-y | V-y | V-y | V-y |
| REFR | Unit has a working refrigerator | Any HH | V-y | V-y | V-y | V-y | V-y | V-y | V-y | V-y | V-y |
| SINK | Unit has kitchen sink | Any HH | DNR-y | V-y | V-y | V-y | V-y | V-y | V-y | V-y | V-y |
| TRASH | Unit has working built-in trash compactor | Any HH | | V-a | V-a | V-a | V-a | V-a | V-a | V-a | V-a |



| PUF Variable | Description | Response Eligibility Requirement | 1997 | 1999 | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 |
|--------------|--|----------------------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| WASH | Unit has a working washing machine | Any HH | | V-a | V-a | V-a | V-a | V-a | V-a | V-a | V-a |
| AFUEL | Type of fuel used for air conditioning | Any HH | | V-s | V-s | V-s | V-s | V-s | V-s | V-s | V-s |
| AIRSYS | Central air conditioner | Any HH | | V-y | V-y | V-y | V-y | V-y | V-y | V-y | V-y |
| HEQUIP | Main heating equipment | Any HH | | V-s,y | V-s,y | V-s,y | V-s,y | V-s,y | V-s,y | V-s,y | V-s,y |
| HFUEL | Fuel used most for heating unit | Any HH | | V-s | V-s | V-s | V-s | V-s | V-s | V-s | V-s |
| SEWDIS | Type of sewage disposal | Any HH | | | | | | V-y | V-y | V-y | V-y |
| WATER | Source of water for unit | Any HH | | V-s | V-s | V-s | V-s | V-s | V-s | V-s | V-s |
| WELL | Well drilled or dug | Any HH | | V-a | V-a | V-a | V-a | V-a | V-a | V-a | V-a |
| WFUEL | Fuel used most to heat water | Any HH | V-s | V-s | V-s | V-s | V-s | V-s | V-s | V-s | V-s |

Exhibit 6.4. Housing Problems

| PUF Variable | Description | Response Eligibility Requirement | 1984 to 1995 | 1997 | 1999 | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 |
|--------------|--|----------------------------------|--------------|------|------|------|------|------|-------|-------|------|------|
| PLUGS | Flag indicating every room has working electrical plug | Any HH | | V-y | V-y | V-y | V-y | V-y | V-y | V-y | V-y | V-y |
| TALWIR | Aluminum wiring inspected before purchase | Same HH | | | | | | | DNR-a | DNR-a | | |
| PUBSEW | Unit connected to public sewer | Any HH | | | V-y | V-y | V-y | V-y | V-y | V-y | V-y | V-y |

Exhibit 6.5. Demographics³

| PUF Variable | Description | Response Eligibility Requirement | 1997 | 1999 | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 |
|--------------|--|----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| AGE | Age of person | Same Per | V-a | V-a | V-a | V-a | V-a | V-a | V-a | V-a | V-a |
| CITSHIP | US citizenship of person | Same Per | | | | DNR-s | DNR-s | DNR-s | DNR-s | DNR-s | DNR-s |
| GRAD | Educational level of person | Same Per | V-a | V-a | V-a | V-a | V-a | V-a | V-a | V-a | V-a |
| INUSYR | Year person came to the US | Same Per | | | | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |
| MAR | Marital status of person | Same Per | V-a | V-a | V-a | V-a | V-a | V-a | V-a | V-a | V-a |
| MOVE | Year person moved in | Same Per | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |
| MOVM | Month person moved in | Same Per | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |
| NATVTY | Country of birth of person | Same Per | | | | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |
| PAR | Line number of parent of person | Same Per | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |
| RACE | Race of person | Same Per | DNR-a | DNR-a | DNR-a | | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |
| REL | Relationship of person to reference person | Same Per | | | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |
| SEX | Sex of person | Same Per | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |

³ Though person-level DNR-a questions are never directly re-asked, the interviewer is shown a roster verification screen where they are given the opportunity to change prior year responses if they are not accurate.

| PUF Variable | Description | Response Eligibility Requirement | 1997 | 1999 | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 |
|--------------|---|----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| SPAN | Spanish origin of person | Same Per | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |
| SPOUS | Line number of spouse of reference person | Same Per | | | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |
| FRSTOC | Current occupants are first occupants | Any HH | | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |

Exhibit 6.6. Housing Costs

| PUF Variable | Description | Response Eligibility Requirement | 1997 | 1999 | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 |
|--------------|--|----------------------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| CPRICE | Cost of construction plus value of land | Same HH | | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |
| CUSHOM | How owner obtained unit | Same HH | | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |
| DWNPAY | Main source of down payment on unit | Same HH | | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |
| DOWNPCT | Down payment percentage | Same HH | | | | | | | DNR-a | DNR-a | DNR-a |
| FRSTHO | Ever owned home before | Same HH | | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |
| LPRICE | Purchase price of unit and land | Same HH | | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |
| MCNT | Number of regular mortgages and home equity lump sum loans | Same HH | | | | | | | | | DNR-m |
| MG | Any regular mortgages on this property | Same HH | | | | | | | | | DNR-m |
| PREOCC | Received unit as gift or purchased it | Same HH | | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a |
| REGMOR | Number of regular mortgages on unit | Same HH | | | | | | | | | DNR-m |
| TADJ | Purchase price changed due to inspection/test | Same HH | | | | | | DNR-a | DNR-a | DNR-a | DNR-a |
| TREP | Repairs made because of inspection/test | Same HH | | | | | | DNR-a | DNR-a | DNR-a | DNR-a |
| WHNGET | Year unit bought/obtained/received | Same HH | | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | DNR-a | V-m |
| PROJ | Building owned by public housing authority | Any HH | | | | | | | | DNR-y | DNR-y |
| RENEW | Income info required for lease renewal | Any HH | | | | | | | | DNR-p | DNR-p |
| VCHER | Received voucher to help pay rent | Any HH | | | | | | | | DNR-p | DNR-p |
| APPLY | Was your household assigned to this specific unit or were you allowed to choose it | Any HH | | | | | | | | DNR-p | DNR-p |
| SUBRNT | Government subsidizes rent for unit | Any HH | | | | | | | | DNR-v | DNR-v |



Exhibit 6.7. Home Improvement

| PUF Variable | Description | Response Eligibility Requirement | 1997 | 1999 | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 |
|--------------|--|----------------------------------|------|------|------|------|------|------|------|------|------|
| RAS | Type of alteration/repair - 1999 version | Same HH | B | B | B | B | B | B | B | B | B |

Exhibit 6.8. Neighborhood Features

| PUF Variable | Description | Response Eligibility Requirement | 1997 | 1999 | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 |
|--------------|---|----------------------------------|------|------|------|------|-------|-------|-------|------|-------|
| AGERES | Flag indicating community is age restricted | Any HH | | | | | | V-y | V-y | | |
| GATED | Flag indicating housing is gated or surrounded by walls or fences to prevent access by persons other than residents | Any HH | | | | | | V-y | V-y | | |
| COMMREC R | Community recreational facilities available (recode) | Any HH | | | | | DNR-y | | | | |
| SHPCLS | Neighborhood stores within 15 minutes | Any HH | | | | | | V-y | V-y | | |
| EAPTBL | Apartment buildings within 1/2 block of unit | Any HH | | | | | | V-y | V-y | | V-y |
| EBARCL | Buildings w/ bars on windows within 1/2 block of unit | Any HH | | | | | | V-y | V-y | | V-y |
| ECOM1 | Business/institutions within 1/2 block | Any HH | | | | | | V-y | V-y | | V-y |
| ECOM2 | Factories/other industry within 1/2 block | Any HH | | | | | | V-y | V-y | | V-y |
| ELOW1 | Single-family town/rowhouses in 1/2 blk | Any HH | | | | | | V-y | V-y | | V-y |
| EPRKG | Parking lots within 1/2 block of unit | Any HH | | | | | | V-y | V-y | | V-y |
| ESFD | Single family homes within 1/2 block | Any HH | | | | | | V-y | V-y | | |
| ETRANS | Railroad/airport/4-lane hwy within 1/2 block | Any HH | | | | | | V-y | V-y | | V-y |
| EWATER | Bodies of water within 1/2 block of unit | Any HH | | | | | DNR-a | DNR-a | DNR-a | | DNR-a |
| FLOODPLN | Unit in a flood plain | Any HH | | | | | DNR-a | DNR-a | DNR-a | | |
| WFPROP | Unit is waterfront property | Any HH | | | | | | V-y | V-y | | V-y |
| SCHCLS | Neighborhood public elementary school within 1 mile | Any HH | | | | | | V-y | V-y | | |

Exhibit 6.9. Mortgage Details

| PUF Variable | Description | Response Eligibility Requirement | 1997 | 1999 | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 |
|--------------------------------------|--|----------------------------------|------|------|------|------|------|------|------|------|-------|
| ADJDEP ADJDEP2 ADJDEP3 | / / Mortgage reference rate for first / second / third mortgage | Same HH | | | | | | | | | DNR-m |
| ADJRTF ADJRTF2 ADJRTF3 | / / Frequency of interest rate change for first / second / third mortgage | Same HH | | | | | | | | | DNR-m |
| AMMORT AMMRT2 AMMRT3 AMMRT4 | / / Amount borrowed for first / second / third / fourth or other mortgage | Same HH | | | | | | | | | DNR-m |
| ARM / ARM2 AMR3 | First / second / third mortgage payment varies with interest rate | Same HH | | | | | | | | | DNR-m |
| BALAMT BALAMT2 BALAMT3 | / / First / second / third mortgage final balloon payment | Same HH | | | | | | | | | DNR-m |
| BLOON BLOON2 BLOON3 | / / First / second / third mortgage payment varies because last payment is largest | Same HH | | | | | | | | | DNR-m |
| FIXED FIXED2 FIXED3 | / / First / second / third mortgage payment varies due to changes in taxes or insurance or decline in principal balance | Same HH | | | | | | | | | DNR-m |
| TERM TERM2 TERM3 | / / Term of first / second / third mortgage | Same HH | | | | | | | | | DNR-m |
| MGRESA MGRESA2 MGRESA3 | / / Shopped around before choosing lender for first / second / third mortgage | Same HH | | | | | | | | | DNR-m |
| MRTYP1 MRTYP2 MRTYP3 | / / First / second / third mortgage is a regular or lump sum loan | Same HH | | | | | | | | | DNR-m |
| MLNDWN MLNDWN2 MLNDWN3 | / / Chose first / second / third mortgage believing interest rates would go down | Same HH | | | | | | | | | DNR-m |
| MLNINT MLNINT2 MLNINT3 | / / Chose first / second / third mortgage because of interest rate | Same HH | | | | | | | | | DNR-m |
| MLNPM MLNPM2 MLNPM3 | / / Chose first / second / third mortgage because of payment amount | Same HH | | | | | | | | | DNR-m |
| MLNOTH MLNOTH2 MLNOTH3 | / / Chose first / second / third mortgage for other reason | Same HH | | | | | | | | | DNR-m |
| MLNCLS MLNCLS2 MLNCLS3 | / / Chose first / second / third mortgage because of low closing costs | Same HH | | | | | | | | | DNR-m |
| ORINTF ORINTF2 ORINTF3 | / / Original interest rate on first / second / third mortgage – fraction | Same HH | | | | | | | | | DNR-m |
| ORINTR ORINTR2 ORINTR3 | / / Original interest rate on first / second / third mortgage | Same HH | | | | | | | | | DNR-m |

| PUF Variable | Description | Response Eligibility Requirement | 1997 | 1999 | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 |
|------------------------------|---|----------------------------------|------|------|------|------|------|------|------|------|-------------|
| ORINTW ORINTW2 ORINTW3 | / Original interest rate on first / second / third mortgage - whole number | Same HH | | | | | | | | | DNR-m |
| ADJPM ADJPM2 ADJPM3 | / Mortgage payment changed / because interest rate changed on first / second / third mortgage | Same HH | | | | | | | | | DNR-m, V-md |
| FRSTRM FRSTRM2 FRSTRM3 | / Number of years first / second / third mortgage has fixed principal and interest | Same HH | | | | | | | | | DNR-m |
| FXDPM FXDPM2 FXDPM3 | / First / second / third mortgage payment changed because the lender no longer allows you to decide how much to pay | Same HH | | | | | | | | | DNR-m, V-md |
| INSPM INSPM2 INSPM3 | / First / second / third mortgage payment changed because property taxes or homeowner's insurance changed | Same HH | | | | | | | | | DNR-m, V-md |
| INTPM INTPM2 INTPM3 | / First / second / third mortgage payment changed from interest only to interest plus payment to reduce balance | Same HH | | | | | | | | | DNR-m, V-md |
| LENMOD LENMOD2 LENMOD3 | / First / second / third mortgage payment changed because the lender modified it to prevent foreclosure | Same HH | | | | | | | | | DNR-m, V-md |
| MINPM MINPM2 MINPM3 | / First / second / third mortgage payment changed because the minimum payment choices increased | Same HH | | | | | | | | | DNR-m, V-md |
| RATEPM RATEPM2 RATEPM3 | / First / second / third mortgage payment changed from fixed rate to adjustable rate or vice versa | Same HH | | | | | | | | | DNR-m, V-md |
| OTRPM OTRPM2 OTRPM3 | / First / second / third mortgage payment changed because of something else | Same HH | | | | | | | | | DNR-m, V-md |
| PTCHAM PTCHAM2 PTCHAM3 | / Payment change amount for first / second / third mortgage | Same HH | | | | | | | | | DNR-m, V-md |
| PTCHYR PTCHYR2 PTCHYR3 | / Payment amount changed in last / year for the first / second / third mortgage | Same HH | | | | | | | | | DNR-m, V-md |
| TIMBOM TIMBOM2 TIMBOM3 | / First / second / third mortgage payment varies due to payment option | Same HH | | | | | | | | | DNR-m |
| VARM VARM2 VARM3 | / First / second / third mortgage payment varies for some other reason | Same HH | | | | | | | | | DNR-m |
| HEBAL1 HEBAL2 HEBAL3 | / Outstanding loan borrowed / against first / second / third home equity line of credit | Same HH | | | | | | | | | DNR-m |
| HECR1 HECR2 HECR3 | / Credit limit on first / second / third home equity line of credit | Same HH | | | | | | | | | DNR-m |
| HELC | Has a home equity line of credit | Same HH | | | | | | | | | DNR-m |

| PUF Variable | Description | Response Eligibility Requirement | 1997 | 1999 | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 |
|----------------------------|--|----------------------------------|------|------|------|------|------|------|------|------|-------|
| HELGN | Number of home equity lines of credit | Same HH | | | | | | | | | DNR-m |
| HELUMN | Number of home equity lump sum loans | Same HH | | | | | | | | | DNR-m |
| HELUMP | Has a lump sum home equity loan | Same HH | | | | | | | | | DNR-m |
| IO / IO2 / IO3 | First / second / third mortgage payment varies because it is interest only now but will need to be paid down later | Same HH | | | | | | | | | DNR-m |
| GPMWP / GPMWP2 / GPMWP3 | First / second / third mortgage payment varies according to a set schedule | Same HH | | | | | | | | | DNR-m |
| HYBMYR / HYBMYR2 / HYBMYR3 | Number of years adjustable rate was fixed for first / second / third mortgage | Same HH | | | | | | | | | DNR-m |
| MXDJTM / MXDJTM2 / MXDJTM3 | Limit on number of times the interest rate can change on first / second / third mortgage | Same HH | | | | | | | | | DNR-m |
| MXINTF / MXINTF2 / MXINTF3 | Maximum interest rate allowed on first / second / third mortgage - fraction | Same HH | | | | | | | | | DNR-m |
| MXINTR / MXINTR2 / MXINTR3 | Maximum interest rate allowed on first / second / third mortgage | Same HH | | | | | | | | | DNR-m |
| MXINTW / MXINTW2 / MXINTW3 | Maximum interest rate allowed on first / second / third mortgage - whole number | Same HH | | | | | | | | | DNR-m |
| FMRPMT / FMRPMT2 / FMRPMT3 | Payment frequency of first / second / third mortgage | Same HH | | | | | | | | | DNR-m |
| PRIPMT / PRIPMT2 / PRIPMT3 | Principal included in payments towards first / second / third mortgage | Same HH | | | | | | | | | DNR-m |
| INTPMT / INTPMT2 / INTPMT3 | Interest included in payments towards first / second / third mortgage | Same HH | | | | | | | | | DNR-m |
| TAXPMT / TXPMT2 / TXPMT3 | Real estate taxes included in first / second / third mortgage payment | Same HH | | | | | | | | | DNR-m |
| INSPMT / INPMT2 / INPMT3 | Homeowner's insurance included in first / second / third mortgage payment | Same HH | | | | | | | | | DNR-m |
| EXTLON / EXTLN2 / EXTLN3 | Refinanced for the option to suspend or temporarily reduce payments towards first / second / third mortgage | Same HH | | | | | | | | | DNR-m |
| GTCASH / GTCAS2 / GTCAS3 | Refinanced first / second / third mortgage to receive cash | Same HH | | | | | | | | | DNR-m |
| INCPER / INCPR2 / INCPR3 | Refinanced first / second / third mortgage to increase payment period | Same HH | | | | | | | | | DNR-m |

| PUF Variable | Description | Response Eligibility Requirement | 1997 | 1999 | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 |
|----------------------------|--|----------------------------------|------|------|------|------|------|------|------|------|-------|
| LOWINT LOWIN2 LOWIN3 | / / Refinanced first / second / third mortgage to get lower interest rate | Same HH | | | | | | | | | DNR-m |
| REDMON REDMO2 REDMO3 | / / Refinanced first / second / third mortgage to reduce monthly payment | Same HH | | | | | | | | | DNR-m |
| REDPAY REDPA2 REDPA3 | / / Refinanced first / second / third mortgage to reduce the repayment period | Same HH | | | | | | | | | DNR-m |
| OTHREF OTREF2 OTREF3 | / / Refinanced first / second / third mortgage for other reason | Same HH | | | | | | | | | DNR-m |



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U.S. Department of Housing and Urban Development
Office of Policy Development and Research
Washington, DC 20410-6000



March 2019