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No. 175

MEMORANDUM FOR The Distribution List

From: Arnold Jackson *[signed]*
Acting Chief, Decennial Management Division

Subject: 2010 Census Evaluation of Small Multi-Unit Structures Report

Attached is the 2010 Census Evaluation of Small Multi-Unit Structures Report. The Quality Process for the 2010 Census Test Evaluations, Experiments, and Assessments was applied to the methodology development and review process. The report is sound and appropriate for completeness and accuracy.

If you have questions about this report, please contact Matthew Virgile at (301) 763-4745.

Attachment

February 13, 2012

2010 Census Evaluation of Small Multi-Unit Structures Report

U.S. Census Bureau standards and quality process procedures were applied throughout the creation of this report.

FINAL

Matthew Virgile

Decennial Statistical Studies Division

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Executive Summary

In February 2009, the U.S. Census Bureau produced a Job-Aid for use by 2010 Census Address Canvassing listers to improve their ability to locate "Hard-to-Find Units in Small Multi-Unit Buildings." This Job-Aid was created with input from internal stakeholders such as Field Division, Decennial Statistical Studies Division, and Decennial Management Division, as well as external stakeholders such as the Director of the Population Division at the Department of City Planning in New York City. Special procedures were provided in the Job-Aid, also known as Form D-461.1, to meet the needs of areas recognized to contain a higher than average density of small multi-unit structures. The Job-Aid was available to all Regional Census Centers, and the regional management decided which areas would use the Job-Aid in the 2010 Address Canvassing operation.

Decennial Statistical Studies Division conducted this evaluation as part of the 2010 Census Program for Evaluations and Experiments to judge the effectiveness of the Job-Aid at improving address list updating for small multi-unit structures. This was accomplished through an address listing activity occurring March through May 2010.

The evaluation listing operation consisted of two separate, non-overlapping waves of Demographic Area Address Listing field work in the same areas. Field Representatives for both waves of this operation had no prior experience conducting this listing, and attended separate training sessions in advance. Field Representatives in Wave 1 underwent standard Demographic Area Address Listing training, but no Job-Aid training and did not use the Job-Aid in the field. Field Representatives in Wave 2 underwent the same training, plus Job-Aid training and used the Job-Aid in the field, canvassing the same areas covered in Wave 1.

For the evaluation listing operation, Decennial Statistical Studies Division selected a sample of 10,486 housing units in 194 blocks (Census 2000 tabulation blocks) from four boroughs of New York City, NY and Cook County, IL (Chicago). Three-fourths of these blocks were identified as "High Unrecognized Designation" blocks based on 2008 Statistical Administrative Records System data and were believed to be particularly problematic areas for listing at small multi-unit structures.

To answer the following two research questions, the 2010 Census Program for Evaluations and Experiments Evaluation of Small Multi-Unit Structures report presents: differences between the results of each wave of the evaluation listing, gross and net coverage calculations for each wave to the 2010 Census Unedited File, and Field Representative assessments of the impact of the Job-Aid on their ability to conduct an accurate listing.

1. How effective was the Job-Aid at improving address list updating for small multi-unit structures in address canvassing?

The listing operation indicated that Field Representatives using the Job-Aid more accurately listed small multi-unit structures than those who did not. Field Representatives using the Job-Aid found 18.4 percent more additional units. Presumably this was due to the Job-Aid training and content, such as spotting "clues" leading to hard-to-find units. There were 44.3 percent fewer deleted housing units resulting from the "aided" listing. It is reasonable to conclude that this was also due to Job-Aid training and procedures that required documentation and supervisory approval before deleting units at small multi-unit structures. The net increase in valid housing units – "valid" meaning validated in the operation - was 9.1 percent for the "aided" listing. In addition, the net increase in valid housing units within "High Unrecognized Designation" blocks was 11.1 percent for the "aided" listing. Thus, the Job-Aid had the greatest effect on listing within blocks containing particularly problematic small multi-unit structures. This also showed that Statistical Administrative Records System data offered a good way to identify blocks in which listing at small multi-unit structures is particularly problematic, something that was difficult for previous workgroups.

Based on a subsample of 152 of the 194 selected blocks, and using the 2010 Census Unedited File as a "truth measure," the "non-aided" listing had a net *under*count of 5.1 percent in housing units compared to a net *over*count of 4.4 percent in housing units for the "aided" listing. Thus, use of the Job-Aid resulted in more consistency with the 2010 Census Unedited File.

2. How effective and helpful did Field Representatives perceive the Job-Aid to be?

As part of the evaluation, the Field Representatives in the "aided" listing were given a questionnaire asking about their experiences with this field test. Sixty-three percent of Field Representatives who used the Job-Aid felt "very prepared" to handle listing at small multi-unit buildings and/or hard-to-find units and 68 percent found the content of the Job-Aid "very helpful." In addition, nearly 90 percent of Field Representatives felt that the Job-Aid "greatly" or "somewhat" improved their ability to list at small multi-unit buildings and/or to find hard-to-find units.

Based on these findings, Decennial Statistical Studies Division provides the following recommendations:

(1) To contribute to maintaining the accuracy of the address frame throughout the decade, Headquarters staff should pursue further research and field testing of the use of Statistical Administrative Records System data to identify hard-to-find housing units individually and at a block level. This work should be conducted early in the decade via 2020 Census tests.

(2) To contribute to increasing the accuracy of the address list at the time of listing, Headquarters staff should pursue, with input from the Regional Offices to reflect regional-level situations, national-level implementation of the Job-Aid training in early 2020 Census tests and applicable current demographic surveys.

1. Introduction

The purpose of this study was to determine whether the methods and tools developed for the 2010 Census Address Canvassing (AC) operation were effective at improving address list updating for small multi-unit structures (2-19 units). In particular, the Decennial Statistical Studies Division (DSSD) evaluated the usefulness and effectiveness of Form D-461.1, a special Job-Aid developed by the Field Division (FLD) to assist listers in identifying, listing, and enumerating small multi-unit structures.

2. Background

In certain areas of the country, where housing is in very high demand, single-unit or small multi-unit structures are often divided into more housing units. These newly created units are often not marked well and mail is delivered without apartment numbers or to one mailbox. Multiple doorbells are not always visible and there are often unclear entrances to the various units (basement doors, back doors, etc). These addresses are confusing at the time of address list development and at the time of enumeration. This confusion can lead to undercoverage (Vitrano 2007). After the Census 2000 Block Canvassing and Address Listing operations, it was noted that many small multi-unit structures were incorrectly labeled, duplicated, or deleted. In addition to the known difficulty of recognizing these units, it was thought that normal field procedures may have been difficult to apply to these structures. The U.S. Census Bureau began researching methods to correct this situation in preparation for the 2004 Census Test, which was conducted in Queens, New York.

In May 2003, staff from the Geography Division (GEO), FLD, and the Decennial Management Division (DMD) met with staff from the New York City (NYC) Planning Department to discuss address problems associated with small multi-unit structures[1] and their associated unit designations/descriptions in Queens, New York. The meeting was in response to concerns that the prevalence of small multi-unit structures had the potential to hinder the delivery of questionnaires and enumeration of the housing units in the 2004 Census Test. Census Bureau and NYC Planning Department staff toured a sample of addresses selected by both organizations in the test area in Queens. After the tour, both organizations agreed that delivering questionnaires to these small multi-unit buildings with nonstandard unit designations (e.g., 2FL, R, Upper, Lower) was problematic. The Census Bureau agreed to conduct research regarding this problem and to provide feedback to the NYC Planning Department staff (Housing Unit Coverage Working Group 2005).

In the fall of 2004, once the majority of field activities for the 2004 Census Test were completed, the Housing Unit Coverage Working Group was charged with researching this problem and coming up with ways to identify areas containing small multi-unit structures where delivery of questionnaires might be problematic. GEO and DSSD initially worked independently to develop identification methodologies using the Census Bureau's Master Address File (MAF). Eventually, after both divisions' proposals were presented to the Housing Unit Coverage Working Group for its consideration, the Working Group

[1] "Small multi-unit" structures were defined in this study as those containing 2-19 units on the Master Address File.

determined that a hybrid of the two proposals would also be useful to study (Housing Unit Coverage Working Group 2005).

One of the solutions the Census Bureau considered was removing identified areas from the questionnaire mailout universe and using a specialized enumeration methodology instead. Specifically, Census Bureau staff considered the Update/Enumerate (UE) methodology, in which the housing unit and household members are enumerated at the same time that the enumerator updates the address list. This methodology would avoid the confusion that can occur when questionnaires are delivered by mail and/or when Census Bureau field staff conducts Nonresponse Followup visits. However, UE is among the most costly of the enumeration methods and requires an accurate method for identifying a targeted, but limited, set of housing units. In addition, enumeration methodologies are not assigned to individual housing units; rather, they are applied to groups of census blocks so they can be effectively managed in the field. Accordingly, the identification methodology must designate areas that approximate the groupings of housing units used by field staff for data collection, such as Assignment Areas (AAs) for enumerators, or Crew Leader Districts (CLDs), which are groups of AAs (Vitrano 2007).

Beginning in 2004, a research team at the Census Bureau has worked toward finding an effective methodology to identify specific areas with sufficient concentrations of problematic small multi-unit addresses for conducting UE. In an attempt to identify groups of housing units roughly the size of CLDs, the team examined address data for census block groups within 50 counties nationwide. These block groups had the highest percentage of small multi-unit addresses, as well as the highest number of small multi-unit addresses per block. Within each block group, the team performed a block-by-block examination of address data to see if the address selection algorithm had correctly identified problematic small multi-unit addresses. This was a lengthy process and the end result was that only seven out of the 50 counties contained sufficient clusters of block groups with problematic small multi-units to implement UE. Four of those seven were boroughs of NYC (Queens, Kings/Brooklyn, Bronx, and New York/Manhattan), with a large majority of block groups in each borough identified as containing significant problematic small multi-unit addresses. Another one of these counties was Cook County (Chicago) in Illinois (Small Multi-Unit Research Team 2006). The Census Bureau continues to conduct research on these structures and addresses on a limited basis. However, given the need for a definitive plan for dealing with problematic small multi-units for the 2010 Census and the fact that the research did not yield results that could be applied nationally, the Census Bureau decided to focus on specialized AC procedures as the solution for the 2010 Census (U.S. Census Bureau 2006).

One general difficulty encountered in AC listing for small multi-unit structures is the issue of duplicates. Duplicates may be due to the combination of the listers listing each individual unit at the multi-unit structure, the Delivery Sequence File listing one address as the "drop point" for mail with no unit designation, and subsequently all of the addresses being added to the MAF. This would then generate at least one duplicate because of the extra drop point address with a Blank Unit Designation (BUD). Automating deletion of the "drop point" address with a BUD is also problematic and would result in some false deletes. For

example, a house with an attached apartment or basement apartment could have one address for the basement unit and one address for the main house. Since the address for the main house, say "101 Main Street," has a BUD, and other unit(s) exist with the same address but different unit designation(s), say "101 Main Street BSMT," the main house would then be falsely deleted following the assumption that it is a "drop point" address (Colosi 2005).

Another issue that occurred in some areas of the U.S. was that the units were labeled unclearly, not labeled at all, or labeled inconsistently with the mailboxes, which forced listers to decide how many units existed and how to label them (e.g., A, B, C, or 1, 2, 3). These situations often resulted in erroneous deletes or duplicates. As more visits occur for each unit, the potential for problems and duplicates on the MAF increases (U.S. Census Bureau 2009a).

An evaluation examining address-matching software was completed after the 2004 Census Test by the Planning, Research, and Evaluation Division. This evaluation attempted to match the duplicate addresses and verify them in the field. Their findings showed promise for identifying duplicates in the MAF; however, more research is needed. Automating duplicate detection remains problematic because many valid housing units confirmed by other census operations could be removed from the address list if matching were implemented as tested, which is not consistent with existing Census Bureau policy (Colosi 2005).

In February 2009, the Census Bureau produced a Job-Aid for use by AC listers in specified areas to improve their ability to locate "Hard-to-Find Units in Small Multi-Unit Buildings[2]." This Job-Aid was created with input from internal stakeholders such as FLD, DSSD, and DMD, as well as external stakeholders such as the Director of the Population Division at the Department of City Planning in New York City. Special procedures were provided in the Job-Aid, also known as Form D-461.1, giving the lister authority to speak to non-residents of the structure for information, to conduct interviews even if the house number was visibly posted, and requiring them to submit information for review by a supervisor before making a delete. These special procedures were authorized specifically to meet the needs of areas recognized to contain a higher than average density of small multi-unit structures. The Job-Aid helped listers identify "hard-to-locate" units by:

- Emphasizing "clues" to look for (e.g., multiple house numbers, mailboxes, or buzzers)
- Providing suggestions on talking to people (e.g., building owner or tenant)
- Giving tips on how to "clearly" identify units without posted unit designations (i.e., using abbreviations or indicators such as "front," "rear," or "side")
- Explaining how to resolve other confusing or difficult cases in small multi-unit structures (i.e., filling out a form for review by a supervisor).

These procedures were reinforced through the inclusion of visual aids, a list of standard abbreviations, and practice exercises (U.S. Census Bureau 2009a). The Job-Aid was

[2] The Job-Aid defines a small multi-unit building as a structure containing 2-19 units.

available to all Regional Census Centers, and regional management decided which areas would use the Job-Aid in AC; nine regions used the Job-Aid in all or some of their Early Opening Local Census Offices (ELCOs)[3]. For this 2010 CPEX evaluation, DSSD evaluated the effectiveness of the Job-Aid at improving address list updating for small multi-unit structures.

3. Methodology

3.1 Questions to be Answered

The following questions were selected and presented in the 2010 CPEX Evaluation of Small Multi-Unit Structures Study Plan:

1. How effective was the Job-Aid at improving address list updating for small multi-unit structures in AC?

    1a. How many total units were found in each wave? What was the difference between waves?
    1b. What were the characteristics (i.e., structure size, geographic level) of units between waves?
    1c. What counties had the highest discrepancies between waves? Lowest?

2. How effective and helpful did AC listers perceive the Job-Aid to be?

    2a. How effective and helpful did listers find the "clues" to look for (and pictures) from the Job-Aid in identifying "hard-to-locate" units? Which clues did listers come across during listing? Are there any additional clues that should be added to the Job-Aid?
    2b. How effective and helpful did listers find the Job-Aid's instructions to talk to people for identifying "hard-to-locate" units?
    2c. How effective and helpful did listers find the Job-Aid's tips on how to "clearly" identify units without posted unit designations? Were there any cases that were unclear during listing? Are there any cases that should be addressed more clearly by the Job-Aid?
    2d. How effective and helpful did listers find the Practice Exercises from the Job-Aid? Are there any other cases that should be added as a Practice Exercise?
    2e. Overall, how effective and helpful did listers find the Job-Aid in identifying "hard-to-locate" units?

[3] The regions were Boston, New York, Philadelphia, Chicago, Seattle, Charlotte, Atlanta, Dallas, and Denver.

3.2 Methods

Questions 1 and 2 were answered by organizing a field listing operation to evaluate the impact of the Job-Aid. The listing operation consisted of two separate, non-overlapping waves of Demographic Area Address Listing (DAAL) field work in the same areas. DAAL listers, or Field Representatives (FRs), for either wave of this operation had no prior experience conducting DAAL listing and attended separate training sessions in advance. FRs in Wave 1 underwent standard DAAL training which did not include the Job-Aid or any training for it. FRs in Wave 2 underwent the same training but also received the Job-Aid during training and had it available to assist them during their canvass of the same areas covered in the first wave. FRs in either wave had no knowledge that another wave had occurred (or would occur) in the same blocks. FRs used the Address Listing and Mapping Instrument (ALMI) to conduct their work as usual for a DAAL operation, rather than Hand-Held Computers (HHCs) which were used in AC; cost constraints prevented access to HHCs.

Question 1 was answered by analyzing the resulting MAF Update Files (MAFUFs) from each wave of the operation. MAFUFs contain a record for each Housing Unit (HU) to which an action code (i.e., "Add," "Delete," "Verify," etc.) was assigned. The total number of valid[4] HUs for each wave was the number of HUs that fell within the assigned area and not marked as deletes, duplicates, or merges. Question 1a was answered by computing the total number of valid HUs for each wave and the difference between them. Question 1b was answered by classifying structures in each wave by the number of valid HUs (i.e., single-unit structures, 2-4 units, 5-9 units, etc.) and computing the number of HUs by structure type. Question 1c was answered by repeating the analysis for Question 1a at the county level.

Also, DSSD compared both MAFUFs to address listings from the 2010 Census Unedited File (CUF) to evaluate the undercoverage and overcoverage of each wave. The 2010 CUF was treated as the "truth measure" for address listings. For HUs on the dependent listing, coverage was evaluated by linking addresses across both MAFUFs and the CUF by Master Address File Identifier to determine which HUs were valid. For HUs not on the dependent listing (i.e., added units), DSSD evaluated coverage by conducting Housing Unit Computer Matching (HUCM) for added units in each wave to valid CUF addresses. Using the BigMatch software, the HUCM operation created output files of linked address pairs, coding each pair as a match ("M") or possible match ("P"). These analyses were conducted on a subsample of 152 of the randomly selected 194 tabulation blocks; some blocks were excluded from the coverage analyses due to overlap with one or more 2010 Census collection blocks which contained some HUs outside of the selected blocks.

Question 2 was answered by organizing a debriefing session for FRs who had used the Job-Aid in Wave 2 of the evaluation DAAL listing. DSSD prepared questionnaires for FRs to complete once their assignments were finished but before the live debriefing session took place. FRs were asked to evaluate the clarity and helpfulness of the different sections of the

[4] The term "valid" in reference to Wave 1 or Wave 2 describes HUs validated in the operation, not in an independent measure of whether these were actually valid units.

Job-Aid, to describe some of the cases they encountered during listing, and to evaluate their preparedness to list at small multi-unit structures after the Job-Aid training. Questionnaires were collected at the live debriefing session and the questions were then asked again by a facilitator, allowing the FRs to explain their answers in greater detail. DSSD analyzed the data from the questionnaires and from notes taken at the debriefing to evaluate the FRs' perception of the effectiveness of the Job-Aid.

Additional data sources were also used to answer Question 2, such as observation reports from staff in DSSD. Several staff volunteered to observe training and/or production in either wave of the evaluation listing and prepared observation reports assessing the operation, any problems discovered, and recommendations offered. DSSD also collected Information Communication forms (INFO-COMMs) filled out by FRs in the second wave. The Job-Aid instructed FRs to fill out an INFO-COMM to document any cases for small multi-unit structures in which they felt that one or more units should be deleted from the address list. No other action was taken on such units until a Senior Field Representative (SFR) or supervisor informed the FR on how to proceed. Finally, separate questionnaires were sent to SFRs and supervisors who handled INFO-COMMs asking them questions about how they handled these forms. These were collected by DSSD after the debriefing as well.

3.3 Sample Selection

DSSD selected a random sample of 194 blocks (Census 2000 tabulation blocks[5]) for the evaluation field listing from five different counties. These counties were the four boroughs of NYC (Queens, Kings/Brooklyn, Bronx, and New York/Manhattan), as well as Cook County (Chicago), Illinois. Using pre-2010 Census Address Canvassing MAF extracts (MAFX) at the ELCO level, blocks from these counties that met the following criteria were eligible for sample selection:

- No Group Quarters
- No more than one blank Basic Street Address (BSA)
- At least one single-unit structure
- At least two small multi-unit structures
- 70 or fewer total structures
- 200 or fewer total HUs
- At least one-third of all HUs within small multi-unit structures
- No more than 10:1 ratio of HUs to structures

These thresholds ensured a workload with a high density of small multi-unit structures. In addition, any blocks eligible for the Census Coverage Measurement operation were excluded. Next, using a 2008 Statistical Administrative Records System (StARS) output produced by the Data Integration Division[6], DSSD computed the median percentage of HUs

[5] Blocks of this type were selected since the ALMI could not recognize other block types.
[6] This division no longer exists, and has been replaced by the Center for Administrative Records Research and Applications.

with unrecognized unit designations by the United States Postal Service (USPS) at the block level for each of the five counties. The StARS database is built from national administrative records sources, including files from the Internal Revenue Service, selected to maximize coverage of the population. Once address data are collected in StARS, records are passed through the USPS Coding Accuracy and Support System and valid address records with unrecognized unit designations are flagged. Blocks with a percentage above the median value for the county were flagged as "High Unrecognized Designation" (HUD) blocks, while blocks with a percentage below the median value for the county were flagged as "Low Unrecognized Designation" (LUD) blocks. HUD blocks were believed to have many "hard-to-locate" units and thus would be ideal for the operation. Finally, DSSD randomly selected a sample of eligible blocks so that approximately three-fourths of HUs were in HUD blocks and one-fourth of HUs were in LUD blocks.

Table 1. 2010 CPEX ESMUS: Dependent Listing Workload[1]

County	# Blocks*		# HUs*	
	HUD	LUD	HUD	LUD
Total	141	53	7,928	2,558
Cook	22	8	1,532	294
Bronx	21	9	1,788	541
Kings (Brooklyn)	21	9	1,643	624
New York (Manhattan)	51	17	1,565	774
Queens	26	10	1,400	325

*Counts and percentages are unweighted.
[1]This excludes 338 records that were either moved out-of-scope or for which no action code was recorded in either wave of listing.
Source: Input files for the ALMI for Evaluation of Small Multi-Unit Structures tabulation blocks only.

Table 1 lists the workload for each wave (both waves used the same workload) of listing in the Evaluation of Small Multi-Unit Structures (ESMUS). A total of 10,486 records were on the input files for the ALMI (IFALMI) used by FRs as the dependent listing. The IFALMI included only those records from the pre-2010 Census AC MAFXs in the selected blocks and for which a Delivery Specific Address Flag indicated eligibility for production delivery. DSSD selected this data source for the IFALMI since it was dated prior to 2010 Census AC, making it preferable to post-2010 Census AC extracts in which the Job-Aid may have had an influence. There were an additional 338 records on the IFALMI for which either (1) an FR moved the address to a block outside of the selected blocks during either wave of listing, or (2) no action code was recorded during one wave of listing or the other. These records are excluded from the analysis in this report since FRs disagreed on whether or not these records were part of the ESMUS blocks.

Of the 10,486 records, 7,928 records (75.6%) were in HUD blocks while the remaining 2,558 records (24.4%) were in LUD blocks. This yields a nearly 3:1 ratio as intended. The split for HUD blocks to LUD blocks is 141 (72.6%) to 53 (27.4%), also yielding a nearly 3:1 ratio. New York County had more blocks (68) than the other counties (30-36) since blocks in this area generally had fewer structures than blocks in other areas. New York County had the most HUs (2,339) while Queens County had the least HUs (1,725).

3.4 Staffing and Timing

Training and production for each wave of field work was implemented at two Census Bureau Regional Offices (ROs) – Chicago and New York. Supervisors at the Chicago RO trained four FRs for each wave of field work, and two SFRs provided additional management. Supervisors at the New York RO planned to train 18 FRs for each wave of field work - but trained one fewer for Wave 2 since an FR fell ill just before training - and four SFRs provided additional management in each wave.

Table 2. 2010 CPEX ESMUS: Fieldwork Schedule

Site	Task	Start and End Dates
Chicago (Cook County)	Wave 1 – Training	03/10/10 – 03/12/10
	Wave 1 – Production	03/15/10 – 04/12/10
	Wave 2 – Training	04/14/10 – 04/16/10
	Wave 2 – Production	04/19/10 – 05/19/10
	Wave 2 – Debriefing	05/27/10
New York City (Bronx, Kings, New York, and Queens Counties)	Wave 1 – Training	(1st group) 03/09/10 – 03/11/10
		(2nd group) 03/16/10 – 03/18/10
	Wave 1 – Production	03/12/10 – 04/14/10
	Wave 2 – Training	(1st group) 04/06/10 – 04/08/10
		(2nd group) 04/13/10 – 04/15/10
	Wave 2 – Production	04/13/10 – 05/26/10
	Wave 2 – Debriefing	05/27/10

Source: ESMUS Schedule and Weekly Progress Reports.

Table 2 lists the timing for each task at each site. Training for Wave 1 was held at both sites in mid-March 2010, followed by production until mid-April 2010. The New York RO divided their training sessions into two groups – half of the FRs attended one week, the other half attended the other week. Training for Wave 2 was held at both sites in early or mid-April, followed by production until late May 2010. Again, the New York RO divided their training sessions into two groups. More production time was allowed for Wave 2 than Wave 1 due to Job-Aid procedures that took additional time filling out and resolving INFO-COMMs. In both waves, the Chicago RO finished production slightly ahead of the New York RO, presumably due to the smaller workload. Both sites held the onsite debriefing for Wave 2 FRs on May 27, 2010.

3.5 Job-Aid and Accompanying Materials

In addition to the standard DAAL training materials, Wave 2 of the ESMUS field work included an edited version of the Job-Aid marked "Form D-461.1(E)." DSSD edited the Job-Aid used in AC in order to make the content and instructions applicable to FRs conducting work in a DAAL operation. This included changing "AC" references to "DAAL," changing "HHC" references to "ALMI laptop," changing "AA" to "Update Block Assignment," etc. Other edits included the removal of a list of "Standard Abbreviations" to

be used for unit designations, as this was derived from the AC Lister Manual and the abbreviations sometimes differed from those used in the ALMI. These edits applied to the revised Job-Aid Training Guide to the ("Form D-461(E)") used by the supervisors as well.

One procedural difference incorporated into the edited Job-Aid (and its Training Guide) was when to fill out INFO-COMMs. The original Job-Aid instructed AC listers to fill out an INFO-COMM to document any cases for small multi-unit structures in which (1) they felt that one or more units should be deleted from the address list, or (2) other cases that they were unsure how to handle. Because INFO-COMMs are a decennial form and do not normally pertain to DAAL, and because the forms were used in AC to resolve many possible issues (irrelevant to the operation), DSSD restricted the Job-Aid instructions so that INFO-COMMs would only be filled out in the case of (1) above. This preserves the intent of the Job-Aid and minimizes the time used by filling out the forms for other purposes.

DSSD created an edited version of the INFO-COMM marked "Form D-225(E)." In the new template, FRs used the form to "request" the deletion of a housing unit or units at small multi-unit structures and had to justify why the unit(s) should be deleted. FRs were explicitly given the option of contacting their SFR by phone, meeting them in person, or sending the form to them via Federal Express (FedEx). The SFR could then "approve" or "deny" the request(s) and either the FR or SFR was instructed to record the action taken, how contact was made, and what actions the SFR may have taken to determine the unit(s) status. DSSD also decided to have the new INFO-COMMs printed on carbon paper to cut down on time spent circulating multiple copies of forms and to better protect Title 13 information.

Finally, DSSD created an original Self-Study for the edited Job-Aid for FRs to complete individually. Refer to Appendices F-H for the original Job-Aid and accompanying materials used in 2010 AC, and refer to Appendices to I-L for the revised materials used in ESMUS listing.

3.6 OMB Clearance

The field work for this evaluation was approved by the Office of Management and Budget (OMB) in late 2009 under the Generic Clearance for MAF and Topologically Integrated Geographic Encoding and Referencing System Update Activities (OMB Control Number 0607-0809, ICR Reference Number 200902-0607-006).

3.7 Cost

Table 3. 2010 CPEX ESMUS: Estimated and Actual Costs

Cost Description	Estimated	Actual
Headquarters (HQ)		
Staffing	$543,018	$598,522
Regional Office (RO)		
Training, Listing, etc.	$80,000	$112,434
Miscellaneous		
Observations of training, production, or debriefing	$0	$12,144
Shipping Training Materials to ROs from HQ	$0	$1,257
Total	$623,018	$724,357

Source: Field Division (estimated cost) and CBS Data Warehouse (actual cost).

Table 3 indicates the estimated cost of the ESMUS evaluation as $623,018 as compared to the actual $724,357. The initial cost estimate was prepared in August 2009 assuming an estimated 20 listers. The additional $101,339 in actual costs for the ESMUS operation was from both Headquarters (HQ) and the ROs; an additional $55,504 was spent on HQ staffing, and an additional $32,434 was spent on training, listing, observations by senior staff, interviewing, and RO Supervisor expenses. At HQ, an additional $12,144 was spent on travel by DSSD staff to observe training, production, or the debriefing session. Additionally, $1,257 was spent on shipping materials to and from the ROs.

4. Limitations

- Because the field activities were restricted to NYC and Chicago and because the Job-Aid was formed with input from a NYC representative, the Job-Aid guidelines and field activities may not reflect issues with listing small multi-unit structures in other urban areas.
- The differences between AC and DAAL listing procedures may hide many of the issues encountered by the 2010 Census AC listers. This evaluation only examined the effect of the Job-Aid during a field test, not during the actual 2010 Census AC operation. However, the evaluation field activities should provide good insight into the problems faced with small multi-unit structures in the 2010 Census AC.
- Defining a structure as a small multi-unit was not possible on any incoming files. Our determination of which structures were small multi-units was based on which housing units shared the same BSA (using definitions and variables generated by DSSD).
- The evaluation of coverage for each wave was limited to a subsample of 152 of the selected 194 tabulation blocks; this was done due to the difference in types of block code designations between the MAFUFs (Census 2000 tabulation blocks) and the CUF (2010 Census collection blocks) and that these block code types do not always

have a one-to-one correspondence. We have no way to determine whether the 152 blocks were representative of the 194 blocks meeting the criteria in Section 3.3.

- The MAFUFs were not passed through processing by GEO. Therefore there may be technical errors in these files which were not corrected.

5. Results

The following questions include all subquestions as presented in the study plan, and in Section 3.1 above, followed by data that answer each question.

5.1 How effective was the Job-Aid at improving address list updating for small multi-unit structures in AC?

How many total units were found in each wave?
What was the difference between waves?

Table 4. 2010 CPEX ESMUS: Difference Between Wave 1 and Wave 2 Action Code Outcomes

Action Code	Wave 1*	Wave 2*	% Difference*
A (Add)	982	1,163	+18.4
C (Change)	2,091	1,238	-40.8
D (Delete)	1,565	895	-42.8
M (Move)	6,620	8,100	+22.4
N (Nonresidential)	97	162	+67.0
V (Verify)	113	91	-19.5
Total	11,468	11,649	+1.6
Total w/o Deletes	9,903	10,754	+8.6

*Counts and percentages are unweighted.
Source: Wave 1 and Wave 2 MAFUFs.

FRs using the Job-Aid added 18.4 percent more HUs (181) to the dependent list than did the FRs without the Job-Aid. The new procedures resulted in a 42.8 percent reduction in deletions (670 fewer). The breakdown of the differences by HUD/LUD block designations in Table 5 indicates that the Job-Aid made the greatest difference for the HUD designated dependent address listings. The percentage increase in "adds" for HUD blocks was more than twice that of LUD addresses (20 percent compared with 9 percent).

Table 5. 2010 CPEX ESMUS: HUD and LUD Listings by Wave and Action Code

Action Code	Wave 1*		Wave 2*		% Difference*	
	HUD	LUD	HUD	LUD	HUD	LUD
A (Add)	853	129	1,023	140	+19.9	+8.5
C (Change)	1,644	447	1,003	235	-39.0	-47.4
D (Delete)	1,305	260	686	209	-47.4	-19.6
M (Move)	4,784	1,836	5,998	2,102	+25.4	+14.5
N (Nonresidential)	82	15	150	12	+82.9	-20.0
V (Verify)	113	0	91	0	-19.5	0.0
Total	8,781	2,687	8,951	2,698	+1.9	+0.4
Total w/o Deletes	7,476	2,427	8,265	2,489	+10.6	+2.6

*Counts and percentages are unweighted.
Source: Wave 1 and Wave 2 MAFUFs.

The difference in percentage reduction in deletes was even greater, 47.4 percent compared with 19.6 percent. These results strongly suggest that the Job-Aid had a much greater impact on listing in HUD blocks. These also show that StARS data offered a good way to identify blocks in which listing at small multi-unit structures is particularly problematic, something that was difficult for previous workgroups. If we interpret the total valid number of HUs to be those not coded as deletes then Wave 1 FRs found 9,903 valid HUs while Wave 2 FRs found 10,754 HUs. Thus, Wave 2 found 851 more valid HUs than Wave 1, or 8.6 percent more. Again, the increase in valid HUs for Wave 2 was greater for HUD blocks (10.6 percent) than LUD blocks (2.6 percent).

However, there are two problems with this initial interpretation of these action code outcomes. First, the vast majority of HUs were coded as moves and very few were coded as verified in either wave. This was because few units on the IFALMI had map spots (latitude and longitude coordinates) since the IFALMI was taken from pre-AC datasets. FRs in the ESMUS listing had to update this information, which caused the action code "M" to be assigned to addresses missing these data (even if all other address information was correct). Second, some HUs with a unit status of "duplicate" or "merged" were coded as a change rather than a delete. Hence, the number of valid units identified by each wave cannot be found solely by discounting deleted units.

To correct both of these problems, DSSD created "new" action codes. First, HUs from a MAFUF with an action code of "M" and no change in block code from the IFALMI were assigned a new action code of "V". Second, HUs from a MAFUF with an action code of "C" were split among four new action codes:

1. CC (Change, Critical) – HUs with a change in address (house number, street name, or unit designation).
2. CN (Change, Noncritical) – HUs with no change in address but a change in some other variable(s).
3. DD (Delete, Duplicate) – HUs with a unit status of duplicate.
4. DM (Delete, Merged) – HUs with a unit status of merged.

In all other instances, the new action code was identical to the original action code. This did not change the findings for added units but does slightly change the outcome for invalid units (i.e., deleted, duplicated, and merged HUs) and overall valid units.

Table 6. 2010 CPEX ESMUS: Difference Between Wave 1 and Wave 2 "New" Action Code Outcomes

"New" Action Code	Wave 1*	Wave 2*	% Difference*
A (Add)	982	1,163	+18.4
CC (Change – Critical)	1,286	819	-36.3
CN (Change – Noncritical)	755	414	-45.2
M (Move)	51	61	+19.6
N (Nonresidential)	97	162	+67.0
V (Verify)	6,682	8,130	+21.7
DD (Delete – Duplicate)	25	5	-80.0
DM (Delete – Merge)	25	0	-100.0
D (Delete)	1,565	895	-42.8
Total	11,468	11,649	+1.6
Total Invalid HUs (DD+DM+D)	1,615	900	-44.3
Total Valid HUs	9,853	10,749	+9.1

*Counts and percentages are unweighted.
Source: Wave 1 and Wave 2 MAFUFs.

Analyzing the "new" action codes in Table 6, there were 715 fewer invalid HUs in Wave 2 than Wave 1, or 44.3 percent fewer. The bottom row in the table provides our answer to Question 1a – Wave 1 FRs found a total of 9,853 valid HUs while Wave 2 FRs found a total of 10,749 valid HUs. The difference between waves was an increase of 896 HUs for Wave 2, or 9.1 percent more.

Table 7. 2010 CPEX ESMUS: HUD and LUD Listings by Wave and "New" Action Code

Action Code	Wave 1*		Wave 2*		% Difference*	
	HUD	LUD	HUD	LUD	HUD	LUD
A (Add)	853	129	1,023	140	+19.9	+8.5
CC (Change – Critical)	1,042	244	695	124	-33.3	-49.2
CN (Change – Noncritical)	559	196	304	110	-45.6	-43.9
M (Move)	51	0	61	0	+19.6	0.0
N (Nonresidential)	82	15	150	12	+82.9	-20.0
V (Verify)	4,846	1,836	6,028	2,102	+24.4	+14.5
DD (Delete – Duplicate)	20	5	4	1	-80.0	-80.0
DM (Delete – Merge)	23	2	0	0	-100.0	-100.0
D (Delete)	1,305	260	686	209	-47.4	-19.6
Total	8,781	2,687	8,951	2,698	+1.9	+0.4
Total Invalid HUs (DD+DM+D)	1,348	267	690	210	-48.8	-21.3
Total Valid HUs	7,433	2,420	8,261	2,488	+11.1	+2.8

*Counts and percentages are unweighted.
Source: Wave 1 and Wave 2 MAFUFs.

Again, the increase in valid HUs for Wave 2 was higher for HUD blocks (11.1 percent) than for LUD blocks (2.8 percent).

What were the characteristics (i.e., structure size, geographic level) of units between waves?

Table 8. 2010 CPEX ESMUS: Valid HUs by Structure Size

Structure Size	IFALMI*		Wave 1*		Wave 2*	
	No.	%+	No.	%+	No.	%+
Single Unit	1,158	11.0	1,181	12.0	1,120	10.4
2-4 Units	5,812	55.4	5,473	55.6	5,887	54.8
5-9 Units	1,549	14.8	1,241	12.6	1,306	12.2
10-19 Units	861	8.2	728	7.4	826	7.7
>19 Units	1,106	10.6	1,230	12.5	1,610	15.0
Total Valid HUs	10,486	100.0	9,853	100.0	10,749	100.0

*Counts and percentages are unweighted.
+ Percentages may not sum to 100 due to rounding.
Source: IFALMI files and Wave 1 and Wave 2 MAFUFs.

Table 8 lists the distribution of HUs on the IFALMI and the distribution of valid HUs (i.e., no deletes, duplicates, or merges) in each wave by structure size. The majority of HUs on the dependent listing were in 2-4 unit structures, as was the case for both waves of listing. The proportion of HUs in larger structures (more than 19 units) increased in both waves, due in part to most deleted HUs being in smaller structures. Also, since the IFALMI was substantially out of date there may have been construction of larger structures in the areas between the time the pre-AC data were produced and the time the listing(s) took place. One important difference in distribution between waves is that the number and proportion of single unit structures decreased in Wave 2 relative to Wave 1. This implies that the Job-Aid may have been successful in locating hard-to-find units, since structures initially thought to have been single unit structures were found to have additional units after using the Job-Aid. See Appendix A for county-level tables by structure size and block type.

What counties had the highest discrepancies between waves? Lowest?

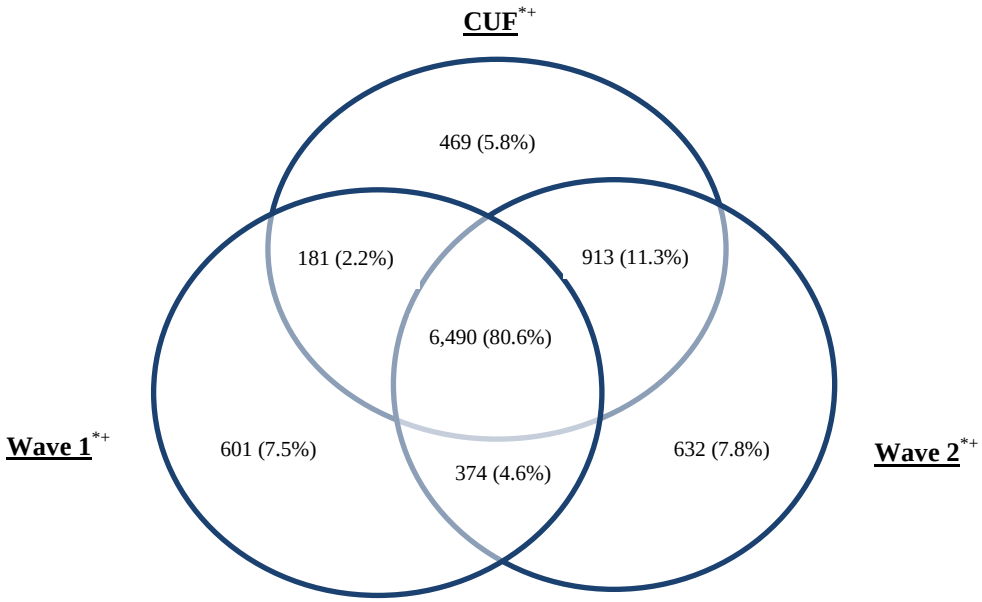
Table 9. 2010 CPEX ESMUS: Net Differences between Wave 1 and Wave 2 Add and Delete Action Codes by County

County	Adds*		Deletes*		Difference in Valid HUs*	
	Net Diff.	%	Net Diff.	%	Net Diff.	%
Cook	+19	+11.2	-43	-17.9	+62	+3.5
Bronx	-48	-60.8	-159	-61.2	+111	+5.2
Kings	+23	+22.5	-103	-29.9	+126	+6.2
New York	+145	+33.3	-305	-57.7	+450	+20.0
Queens	+42	+21.4	-105	-43.6	+147	+8.8
Total	+181	+18.4	-715	-44.3	+896	+9.1

*Counts and percentages are unweighted.
Source: Wave 1 and Wave 2 MAFUFs.

Table 9 provides the net gain or loss of HUs by action code and county in Wave 2, relative to Wave 1. New York County had the highest increase in added HUs with 145, and also the highest percentage of increase in added HUs with 33.3 percent. Bronx County had 48 fewer units added in Wave 2, a decrease of 60.8 percent, while the other counties all had more added HUs in Wave 2. New York County also had the greatest decrease in deleted HUs with 305, but Bronx County had the highest percentage decrease in deleted HUs with 61.2 percent. Cook County had the smallest decrease in deleted HUs with 43, and the smallest percentage decrease with 17.9 percent. The rightmost column in the table provides our answer to Question 1c – New York County had the highest discrepancy between waves with an increase of 450 valid HUs, and the highest percentage of increase in total valid HUs with 20.0 percent in Wave 2. Cook County had the lowest discrepancy between waves with an increase of 62 valid HUs, and the smallest percentage of increase in total valid HUs with 3.5 percent in Wave 2. This suggests – as do other results to be discussed in this report – that the Job-Aid had greater impact on address listing in New York City than in Chicago. See Appendix B for more detailed tables by county and Appendix C for a table by county and block type.

Figure 1. 2010 CPEX ESMUS: Venn Diagram of HUs in ESMUS Subsample Listed as Valid in Wave 1, Wave 2, or 2010 CUF[1] (n=8,053)



*Counts and percentages are unweighted.
+ Percentages may not sum to 100 due to rounding.
[1] Diagram is not shown to scale.
Source: IFALMI files, Wave 1 and Wave 2 MAFUFs, and 2010 CUF files.

The Venn diagram in Figure 1 illustrates the number of HUs coded as valid in either ESMUS Wave 1, ESMUS Wave 2, or in the CUF. Although the previous analysis included data from 194 tabulation blocks, 42 of these (22 percent) overlapped with one or more 2010 Census collection blocks which contained some HUs outside of the selected blocks. Thus, coverage was evaluated for a subsample of 152 tabulation blocks (78 percent) which

corresponded to 151 collection blocks. For the 8,053 HUs coded as valid in the 2010 Census CUF,

- 6,490 HUs (80.6 percent) were coded as valid in both waves
- 913 HUs (11.3 percent) were coded as valid in Wave 2 but not in Wave 1
- 181 HUs (2.2 percent) were coded as valid in Wave 1 but not in Wave 2
- 469 HUs (5.8 percent) were not coded as valid in either wave.

For the 1,607 HUs not coded as valid in the 2010 Census CUF,

- 601 HUs (7.5 percent) were coded as valid in Wave 1 only
- 632 HUs (7.8 percent) were coded as valid in Wave 2 only
- 374 HUs (4.6 percent) were coded as valid in both waves.

Based on these figures the over-, under-, and net coverage for each wave relative to the 2010 CUF is documented in Table 10:

Table 10. 2010 CPEX ESMUS: Estimates of Overcoverage, Undercoverage, and Net Coverage by Wave

Listing	Total Valid HUs	Gross Overcoverage (%)	Gross Undercoverage (%)	Net Coverage (%)
CUF*	8,053	n/a	n/a	n/a
Wave 1*	7,646	975 (12.1)	1,382 (17.2)	-407 (-5.1)
Wave 2*	8,409	1,006 (12.5)	650 (8.1)	+356 (+4.4)

*Counts and percentages are unweighted.
Source: IFALMI files, Wave 1 and Wave 2 MAFUFs, and 2010 CUF files.

The gross overcoverage for Wave 1 was 975 HUs (12.1 percent), while the gross overcoverage for Wave 2 was slightly higher with 1,006 HUs (12.5 percent). The gross undercoverage for Wave 1 was 1,382 HUs (17.2 percent), while the gross undercoverage for Wave 2 was less than half this value with 650 HUs (8.1 percent). Overall, Wave 1 had a net *under*count of 407 HUs (5.1 percent) and Wave 2 had a net *over*count of 356 HUs (4.4 percent). Holding the CUF as ground truth, the Wave 2 listing provided for a more accurate address frame for the sampled blocks. Further, holding the generally accepted belief that address frame overcoverage has a greater potential for correction than undercoverage in post-listing census operations, this net coverage discrepancy would only stand to further favor Wave 2. See Appendix D for a table of coverage by wave and block type.

5.2 How effective and helpful did FRs perceive the Job-Aid to be?

How effective and helpful did FRs find the "clues" to look for from the Job-Aid in identifying "hard-to-locate" units? Which clues did FRs come across during listing? Are there any additional clues that should be added to the Job-Aid?

Table 11. 2010 CPEX ESMUS: FR Evaluations for Job-Aid "Topic 2: Clues for Finding Housing Units"

Criterion (Question Number)	Rating* (%)			
	1 - Best	2	3	4 - Worst
Clarity during training (Q1)	16 (80)	4 (20)	0	0
Preparedness to spot clues in listing (Q2)	13 (65)	7 (35)	0	0
Helpfulness of list of clues and illustrations (Q3)	12 (60)	7 (35)	1 (5)	0

*Counts and percentages are unweighted.
Source: ESMUS Debriefing Questionnaires for Wave 2 FRs, Questions 1-3.

Table 11 lists the ratings given to "Topic 2: Clues for Finding Housing Units" by Wave 2 FRs. FRs were asked to evaluate this part of the Job-Aid in terms of clarity during training, their preparedness to spot clues in listing, and the helpfulness of the list of clues and illustrations. Each of these topics was rated on a four-point scale ranging from "1" (for "very clear/prepared/helpful") to "4" (for "very unclear/unprepared/unhelpful"). Ratings of "2" or "3" indicated an evaluation of "somewhat clear/…" or "somewhat unclear/…" respectively. Of the 21 FRs in Wave 2, 20 completed and submitted questionnaires. Of the 20 FRs who submitted questionnaires, 16 (80 percent) found this topic to be "very clear," while the remaining four (20 percent) found it "somewhat clear." For the second question, 13 FRs (65 percent) felt "very prepared" to spot clues that could indicate hard-to-find units in a building, while the remaining seven (35 percent) felt "somewhat prepared." In response to the third question, 12 FRs (60 percent) found the list of clues and illustrations in Topic 2 "very helpful," 7 FRs (35 percent) found these "somewhat helpful," and just one FR found these "somewhat unhelpful."

Table 12. 2010 CPEX ESMUS: Clues from the Job-Aid Topic 2 Noticed by FRs

Clue	No. FRs* (%)	Clue	No. FRs* (%)
Multiple mailboxes, buzzers or doorbells	19 (95)	Several TV satellite dishes on roof	5 (25)
Several gas or electric meters	13 (65)	Fire escapes to additional units	5 (25)
Two or more house numbers	11 (55)	Many vehicles parked around house	4 (20)
Side or rear walkways	11 (55)	Many garbage cans or newspapers	3 (15)
Curtains or bars on a basement window	11 (55)	Large sheds behind/beside building	3 (15)
Outside or basement doors leading to units	10 (50)	Signs of habitation in storage areas	3 (15)
"For Rent" signs	6 (30)	A house number on a garage	2 (10)
Outside stairs	6 (30)	Outside stairs leading to the attic	2 (10)

*Counts and percentages are unweighted.
Source: ESMUS Debriefing Questionnaires for Wave 2 FRs, Question 4.

Table 12 lists the number of FRs who reported spotting each of the clues listed in Topic 2. These are listed in descending order from the most commonly found to the least commonly found. The most commonly found clues were multiple mailboxes, buzzers, or doorbells (95 percent), several gas or electric meters (65 percent), two or more house numbers, side or rear walkways, and curtains or bars on a basement window (55 percent each). The least commonly found clues were many garbage cans or newspapers, large sheds behind or beside a building, signs of habitation in storage areas (15 percent each), a house number on a garage, and outside stairs leading to an attic (10 percent each). The table includes all clues that were explicitly listed in Topic 2; hence all of these were noticed at some point during listing. Additional clues suggested by the FRs that could be added to the Job-Aid included air conditioners and renovations such as a newly built door to a garage or basement.

How effective and helpful did FRs find the Job-Aid's instructions to talk to people for identifying "hard-to-locate" units?

Table 13. 2010 CPEX ESMUS: Frequency of Inquiry with Respondents by FRs

Case (Question Number)	Reported Frequency* (%)				
	Very often	Some of the time	Rarely	Never	n/a
Checked no. units at small multi (Q14a)	5 (25)	14 (70)	1 (5)	0	0
Checked unit designations at small multi (Q15a)	4 (21)	11 (58)	3 (16)	1 (5)	1
Respondents knowledgeable & helpful (Q16)	14 (74)	5 (26)	0	0	1

*Counts and percentages are unweighted.
Source: ESMUS Debriefing Questionnaires for Wave 2 FRs, Questions 14a, 15a, 16.

Table 13 lists the reported frequency of inquiry with respondents for different cases by Wave 2 FRs. FRs were asked to evaluate how often they inquired with a respondent over a certain case – "very often," "some of the time," "rarely," or "never." The "n/a" column indicates how many FRs did not provide an answer for a given question. Five FRs (25 percent) needed to inquire with a respondent about the correct number of units at a small multi-unit building "very often," 14 FRs (70 percent) needed to inquire about this "some of the time," and 1 FR (5 percent) needed to inquire "rarely." Four FRs (21 percent) needed to inquire with a respondent about the correct unit designations at a small multi-unit building "very often," 11 FRs (58 percent) needed to inquire about this "some of the time," 3 FRs (16 percent) needed to inquire "rarely," 1 FR "never" needed to do this, and 1 remaining FR did not answer. Regarding the respondents, 14 FRs (74 percent) reported that respondents were knowledgeable and helpful "very often" when inquiring about either of the previous two cases, 5 FRs (26 percent) reported that respondents were knowledgeable and helpful "some of the time," and 1 FR did not answer. Thus, the emphasis by the Job-Aid on talking to people in the area for clarification during listing turned out to be very helpful for FRs.

Table 14. 2010 CPEX ESMUS: Types of Knowledgeable Respondents Found by FRs

Case (Question Number)	Respondent Type* (%)			
	Tenant	Owner	Other	n/a
Checked no. units at small multi (Q14b)	20 (100)	17 (85)	12 (60)	0
Checked unit designations at small multi (Q15b)	16 (84)	14 (74)	8 (42)	1

*Counts and percentages are unweighted.
Source: ESMUS Debriefing Questionnaires for Wave 2 FRs, Questions 14b, 15b.

Table 14 lists the number of FRs who reported speaking with each type of knowledgeable respondent for each case. All 20 FRs (100 percent) spoke with a tenant at some point to verify the correct number of units at a small multi-unit building, 17 FRs (85 percent) spoke with a building owner, and 12 FRs (60 percent) spoke with some other knowledgeable respondent. In addition, 16 FRs (84 percent) spoke with a tenant at some point to verify the correct unit designations at a small multi-unit building, 14 FRs (74 percent) spoke with a building owner, and 8 FRs (42 percent) spoke with some other knowledgeable respondent; 1 FR did not answer. The Job-Aid repeatedly prompts FRs to inquire with the "owner, tenant, or other knowledgeable respondent" about these cases (U.S. Census Bureau 2009a). Thus, the Job-Aid was effective at prompting FRs to speak to a variety of knowledgeable respondents, particularly tenants and owners. Other knowledgeable respondents mentioned by FRs that could be added to the Job-Aid included mail carriers, neighbors, doormen, and nearby workers or shop owners.

How effective and helpful did FRs find the Job-Aid's tips on how to "clearly" identify units without posted unit designations? Were there any cases that were unclear during listing? Are there any cases that should be addressed more clearly by the Job-Aid?

Table 15. 2010 CPEX ESMUS: FR Evaluations for Job-Aid "Topic 3: Situations Involving Small Multi-Unit Buildings" and "Topic 4: Assigning Unit Designations to Adds"

Topic	Criterion (Question Number)	Rating* (%)				
		1- Best	2	3	4 - Worst	n/a
3	Clarity during training (Q9)	14 (74)	5 (26)	0	0	1
	Preparedness to handle cases (Q10)	13 (65)	7 (35)	0	0	0
	Helpfulness of instructions (Q11)	16 (80)	3 (15)	1 (5)	0	0
4	Clarity during training (Q18)	16 (84)	3 (16)	0	0	1
	Preparedness to assign designations (Q19) ...	15 (79)	4 (21)	0	0	1
	Helpfulness of guidelines (Q20)	15 (75)	5 (25)	0	0	0

*Counts and percentages are unweighted.
Source: ESMUS Debriefing Questionnaires for Wave 2 FRs, Questions 9-11, 18-20.

Table 15 lists the ratings given to both "Topic 3: Situations Involving Small Multi-Unit Buildings" and "Topic 4: Assigning Unit Designations to Adds" by Wave 2 FRs. Both of these sections covered cases for clearly identifying units without posted unit designations. Topic 3 was found to be "very clear" during training by 14 FRs (74 percent), 13 FRs (65

percent) felt "very prepared" to handle cases described in this section, and 16 FRs (80 percent) found the instructions for handling cases in this section "very helpful." All other FRs rated this section "somewhat clear/prepared/helpful," with the exception of one FR who found the instructions "somewhat unhelpful." Additional cases mentioned by FRs that were unclear during listing and could be added to the Job-Aid included finding multiple BSAs at a single structure and finding numbers on buzzers that did not correspond to internal addresses.

Overall ratings were slightly higher for Topic 4. Topic 4 was found to be "very clear" during training by 16 FRs (84 percent), 15 FRs (79 percent) felt "very prepared" to assign unit designations to adds, and 15 FRs (75 percent) found the guidelines for assigning unit designations to adds "very helpful." All other FRs rated this section "somewhat clear/prepared/helpful." The only additional guideline for assigning unit designations to adds suggested by FRs was to emphasize consistency in listing – for example, keeping the abbreviation "Apt." before each unit at a structure.

How effective and helpful did FRs find the Practice Exercises from the Job-Aid? Are there any other cases that should be added as a Practice Exercise?

Table 16. 2010 CPEX ESMUS: FR Evaluations for Job-Aid "Appendix 2: Illustrations of Small Multi-Units" and "Appendix 4: Practice Exercises"

Criterion (Question Number)	Rating* (%)			
	1 – Best	2	3	4 – Worst
Helpfulness of pictures during training (Q24)	14 (70)	5 (25)	1 (5)	0
Usefulness of pictures during listing (Q25)	13 (65)	6 (30)	0	1 (5)

*Counts and percentages are unweighted.
Source: ESMUS Debriefing Questionnaires for Wave 2 FRs, Questions 24-25.

Table 16 lists the ratings given to both "Appendix 2: Illustrations of Small Multi-Units" and "Appendix 4: Practice Exercises" by Wave 2 FRs. Both of these sections consisted of pictures of structures with an ambiguous number of housing units – the Job-Aid Instructor went over each picture with FRs during classroom training to emphasize the importance of looking for clues, talking to knowledgeable respondents, and following other Job-Aid instructions and suggestions during listing. The pictures were "very helpful" during training for 14 FRs (70 percent), while 5 FRs (25 percent) found these "somewhat helpful" and 1 FR (5 percent) found these "somewhat unhelpful." During listing, 13 FRs (65 percent) found the pictures "very useful," while 6 FRs (30 percent) found these "somewhat useful" and 1 FR gave the lowest possible rating of "not at all useful."

The lowest rating to both of the questions came from an FR in Chicago who felt that "none of the pictures represented any HUs" he/she actually visited during listing, and also disputed one of the pictures saying that "in older buildings, older/multiple doorbells do not mean multiple units." FRs in New York City agreed at the debriefing that the pictures were very useful during listing, while FRs in Chicago did not find these as useful. This suggests that the illustrations may have been more reflective of cases in New York City than in Chicago. Some FRs in New York City thought that more practice illustrations should be presented in

the Job-Aid including more unusual cases, as the illustrations pertained to more common cases of listing at small multi-unit structures.

Overall, how effective and helpful did FRs find the Job-Aid in identifying "hard-to-locate" units?

Table 17. 2010 CPEX ESMUS: FR Evaluations for Job-Aid Overall

Criterion (Question Number)	Rating* (%)					
	1 - Best	2	3	4	5 - Worst	n/a
Overall preparedness for listing (Q38)	12 (63)	7 (37)	-	0	0	1
Overall helpfulness of content (Q39a)	13 (68)	6 (32)	-	0	0	1
Overall improvement in listing due to Job-Aid (Q39b)	11 (58)	6 (32)	2 (11)	0	0	1

*Counts and percentages are unweighted.
Source: ESMUS Debriefing Questionnaires for Wave 2 FRs, Questions 38-39.

Table 17 lists the ratings given to the overall impact of the Job-Aid by Wave 2 FRs. Of the 19 FRs who answered this set of questions, 12 FRs (63 percent) felt "very prepared" to handle listing at small multi-unit buildings and/or hard-to-find units and 13 FRs (68 percent) found the content of the Job-Aid "very helpful." The remaining FRs felt "somewhat prepared" and found the content "somewhat helpful." In addition, 11 FRs (58 percent) felt that the Job-Aid "greatly improved" their ability to list at small multi-unit buildings and/or to find hard-to-find units; 6 FRs (32 percent) felt that the Job-Aid "somewhat improved" their ability, while the remaining 2 FRs (11 percent) felt that the Job-Aid "neither improved nor hindered" their ability. Thus the majority of FRs found the Job-Aid to be very effective and helpful in identifying "hard-to-locate" units.

FRs elaborated on their overall impression of the Job-Aid at the live debriefing session. The feedback was mostly positive, particularly from the NYC FRs; FRs in New York widely agreed on several points about the Job-Aid:

- "Explanations were clear."
- "Graphics were easy to understand."
- "Covered all the key topics."
- "Simple, but to the point."
- "It seems to be a well-developed introduction and preparation for listing."

HQ staff observing training and/or production in NYC confirmed that FRs closely followed the guidelines from the Job-Aid and that the guidelines were effective. However, there was some confusion over the proper use of INFO-COMMs:

- "The group that I observed did a great job. They counted doorbells and mailboxes, asked managers and the local mailman for information, and asked the tenant when necessary. They were very professional and thorough."
- "The information seemed to resonate with the FRs during their field exercises."

- "When the training was completed, many of the FRs seemed to still have slight confusion on the use of INFO-COMM forms. I think it would be helpful if the FRs used these forms during the field exercises to gain experience on how and when to fill one out."

At the debriefing, the feedback from the Chicago FRs was mixed, more so than New York. Some agreed on the points made by the FRs in New York but others felt that the Job-Aid did not reflect the cases they worked on:

- "Everything was very understandable."
- "Okay 'intro' to multi-unit buildings, very basic."
- "It was very helpful."
- "Very clear in content."
- "Much of the info provided was not relevant to a FR working in Chicago … counting satellite dishes, doorbells, and meters doesn't result in accurate counts of HUs, talking to knowledgeable people does."

HQ staff observing training and/or production in Chicago confirmed that FRs followed the guidelines from the Job-Aid during listing, but that these were not always effective or applicable to the actual cases they dealt with:

- "Topics 2 and 3 proved to be very useful in determining the number of HUs in small multi-unit buildings … If the resident of a building or a neighbor was not available to help with the listing, the FR counted the number of doorbells, mailboxes, and power meters to assess how many HUs were in the building."
- "The FR demonstrated a thorough knowledge of the Job-Aid by discussing clues that we should look for … However she did not need to often utilize these clues in the current block because [it] was predominantly new construction … Include procedures for dealing with garage units."
- "The FR expressed concern that there isn't necessarily enough time for the INFO-COMM to be shipped and approved by the deadline."

Two points of confusion about INFO-COMMs from FRs in NYC included (1) whether a separate form had to be filled out for every "requested" delete or if a single form could be filled out for multiple delete requests; and (2) whether the FR needed to fill out the Resolution section if they resolved the case with an SFR or supervisor by phone. Of the 187 INFO-COMMs submitted by FRs in NYC, nearly all were resolved by phone with a supervisor and the Resolution section was usually left blank or just partially completed. FRs at the debriefing also commented on these forms being "time consuming" and that they would "prefer software" rather than a paper-based method of handling deletes at small multi-unit structures.

While nearly all 68 INFO-COMMs submitted by FRs in Chicago were filled out thoroughly, FRs there agreed that the procedure "should be on the laptop [rather] than having to use paper." SFRs resolving the forms in Chicago agreed as well that the mode was "inconvenient" but saw value in the Job-Aid's instructions not to delete units from small

multi-unit structures without supervisory approval. One SFR commented that this process "made the FRs accountable for changes, thereby resulting in a more accurate listing."

Indeed, this process may have been part of the reason that far fewer units were deleted in Wave 2 when the Job-Aid was incorporated than in Wave 1 when the Job-Aid was absent. An observer from HQ who followed an FR in New York County during Wave 1 production questioned the FRs "readiness to remove addresses from address listings … I felt that they are taught to classify a delete too quickly." FRs listing in Wave 2 made 44.3 percent fewer deletes than FRs listing in Wave 1. This suggests that the Job-Aid's instructions for deleting units had a substantial impact on address listing.

6. Related Evaluations, Experiments, and/or Assessments

- Evaluation of Address List Maintenance Using Supplemental Data Sources
- Evaluation of Address Frame Accuracy and Quality
- 2010 Census Address Canvassing Operational Assessment

7. Conclusions and Recommendations

With the added training on small multi-unit structures via the Job-Aid, the FRs in Wave 2 (the "aided" listing) consistently added more HUs and deleted fewer HUs. There were 181 more HUs added in Wave 2 than Wave 1 (the "non-aided" listing), or 18.4 percent more. Presumably this was due to the Job-Aid training and content, such as spotting "clues" leading to hard-to-find units. There were 715 fewer deleted HUs in Wave 2 than Wave 1, or 44.3 percent fewer. It is reasonable to conclude that this was also due to Job-Aid training and procedures that required documentation and supervisory approval before deleting units at small multi-unit structures.

The use of StARS data was very effective for identifying HUD blocks, which are particularly problematic areas for listing of small multi-unit structures. For both "adds" and "deletes" the difference between waves was greater in HUD blocks (19.9 percent more "adds," 48.8 percent fewer "deletes") than in LUD blocks (8.5 percent more "adds," 21.3 percent fewer "deletes"). This suggests that the Job-Aid had a greater impact on listing in HUD blocks. The difference between waves was an increase of 896 HUs for Wave 2, or 9.1 percent more. Again, the increase in valid HUs for Wave 2 was higher for HUD blocks (11.1 percent) than for LUD blocks (2.8 percent).

At the county level, the results for New York County and Cook County were noteworthy. New York County had the highest discrepancy between waves with a net increase of 450 valid HUs, and the highest percentage of net increase in total valid HUs with 20.0 percent in Wave 2. Cook County had the lowest discrepancy between waves with a net increase of 62

valid HUs, and the smallest percentage of net increase in total valid HUs with 3.5 percent in Wave 2. Thus, the Job-Aid had greater impact on address listing in NYC than in Chicago.

Holding the 2010 Census CUF as truth, the net coverage results from Wave 2 were more favorable, benefiting from the added training on small multi-unit structures, than those from Wave 1. The gross overcoverage for Wave 1 was 975 HUs (12.1 percent), while the gross overcoverage for Wave 2 was slightly higher with 1,006 HUs (12.5 percent). However, the gross undercoverage for Wave 1 was 1,382 HUs (17.2 percent), while the gross undercoverage for Wave 2 was less than half this value with 650 HUs (8.1 percent). Overall Wave 1 had a net *under*count of 407 HUs (5.1 percent) and Wave 2 had a net *over*count of 356 HUs (4.4 percent). Thus, Wave 2 was more consistent with the 2010 Census CUF. In addition, the observed Wave 2 overcoverage may be preferable to the Wave 1 undercoverage in a census environment; since the Census Bureau has operations and processes in place to identify duplication and erroneous inclusions associated with overcoverage, and also since undercoverage in the address listing activity could directly lead to omissions (missed HUs and missed enumerations in the census).

From the debriefing, the FRs in both sites had very positive feedback on the training and the Job-Aid. Sixty-three percent of FRs felt "very prepared" to handle listing at small multi-unit buildings and/or for hard-to-find units, and 68 percent found the content of the Job-Aid "very helpful." The remaining FRs felt "somewhat prepared" and found the content "somewhat helpful." In addition, 58 percent of FRs felt that the Job-Aid "greatly improved" their ability to list at small multi-unit buildings and/or to find hard-to-find units; 32 percent felt that the Job-Aid "somewhat improved" their ability, while the remaining 11 percent felt that the Job-Aid "neither improved nor hindered" their ability. Thus the majority of FRs found the Job-Aid to be very effective and helpful in identifying "hard-to-locate" units.

However, some FRs in Chicago felt that the Job-Aid did not reflect the cases they worked on. If the Job-Aid or a similar tool were to be used in future operations it would be valuable to have input from staff and stakeholders across more diverse areas to reflect unique situations across the nation.

Lastly, there was some confusion over the proper use of INFO-COMMs. While the Job-Aid's instructions to gain supervisory approval before deleting units led to substantially fewer deletes and it is believed that this resulted in a more accurate listing, the mode for documenting these cases and communicating with supervisors should be convenient for listers and well-integrated into the particular operation using the Job-Aid.

At the conclusion of this evaluation, DSSD provides the following recommendations:

(1) To contribute to maintaining the accuracy of the address frame throughout the decade, HQ staff should pursue further research and field testing of the use of StARS data to identify hard-to-find HUs individually, and at a block level. This work should be conducted early in the decade via 2020 Census tests.

(2) To contribute to increasing the accuracy of the address list at the time of listing: HQ staff should pursue, with input from the ROs to reflect regional-level situations, national-level implementation of the Job-Aid training in early 2020 Census tests and applicable current surveys. Additionally, HQ staff should pursue national-level implementation and automation of the INFO-COMMs for FRs to obtain supervisory approval for HU deletion during listing activities.

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Appendix A. 2010 CPEX ESMUS: County-Level Tables by Structure Size and Block Type

Table A1. 2010 CPEX ESMUS: Cook County Valid HUs by Structure Size and Block Type

Structure Size	IFALMI* (HUD/LUD)		Wave 1* (HUD/LUD)		Wave 2* (HUD/LUD)	
	No.	%+	No.	%+	No.	%+
Single Unit	459 (320/139)	25.1	359 (228/131)	20.4	375 (238/137)	20.6
2-4 Units	1,059 (976/83)	58.0	1,099 (1,006/93)	62.6	1,097 (1,009/88)	60.3
5-9 Units	244 (184/60)	13.4	176 (108/68)	10.0	178 (121/57)	9.8
10-19 Units	38 (26/12)	2.1	36 (24/12)	2.1	81 (35/46)	4.5
>19 Units	26 (26/0)	1.4	86 (86/0)	4.9	87 (87/0)	4.8
Total Valid HUs	1,826 (1,532/294)	100	1,756 (1,452/304)	100	1,818 (1,490/328)	100

*Counts and percentages are unweighted.
+ Percentages may not sum to 100 due to rounding.
Source: IFALMI files and Wave 1 and Wave 2 MAFUFs.

Table A2. 2010 CPEX ESMUS: Bronx County Valid HUs by Structure Size and Block Type

Structure Size	IFALMI* (HUD/LUD)		Wave 1* (HUD/LUD)		Wave 2* (HUD/LUD)	
	No.	%+	No.	%+	No.	%+
Single Unit	123 (78/45)	5.3	199 (145/54)	9.3	157 (96/61)	7.0
2-4 Units	1,605 (1,325/280)	68.9	1,430 (1,176/254)	66.6	1,546 (1,311/235)	68.4
5-9 Units	207 (158/49)	8.9	149 (107/42)	6.9	171 (128/43)	7.6
10-19 Units	155 (125/30)	6.7	132 (102/30)	6.2	146 (116/30)	6.5
>19 Units	239 (102/137)	10.3	238 (103/135)	11.1	239 (102/137)	10.6
Total Valid HUs	2,329 (1,788/541)	100	2,148 (1,633/515)	100	2,259 (1,753/506)	100

*Counts and percentages are unweighted.
+ Percentages may not sum to 100 due to rounding.
Source: IFALMI files and Wave 1 and Wave 2 MAFUFs.

Table A3. 2010 CPEX ESMUS: Kings County Valid HUs by Structure Size and Block Type

Structure Size	IFALMI* (HUD/LUD)		Wave 1* (HUD/LUD)		Wave 2* (HUD/LUD)	
	No.	%+	No.	%+	No.	%+
Single Unit	120 (62/58)	5.3	181 (106/75)	8.9	153 (84/69)	7.1
2-4 Units	1,586 (1,286/300)	70.0	1,395 (1,140/255)	68.9	1,491 (1,217/274)	69.4
5-9 Units	387 (207/180)	17.1	266 (135/131)	13.1	324 (173/151)	15.1
10-19 Units	38 (28/10)	1.7	10 (0/10)	0.5	10 (0/10)	0.5
>19 Units	136 (60/76)	6.0	172 (96/76)	8.5	172 (96/76)	8.0
Total Valid HUs	2,267 (1,643/624)	100	2,024 (1,477/547)	100	2,150 (1,570/580)	100

*Counts and percentages are unweighted.
+ Percentages may not sum to 100 due to rounding.
Source: IFALMI files and Wave 1 and Wave 2 MAFUFs.

Table A4. 2010 CPEX ESMUS: New York County Valid HUs by Structure Size and Block Type

Structure Size	IFALMI* (HUD/LUD)		Wave 1* (HUD/LUD)		Wave 2* (HUD/LUD)	
	No.	%+	No.	%+	No.	%+
Single Unit	91 (64/27)	3.9	80 (47/33)	3.6	98 (68/30)	3.6
2-4 Units	460 (340/120)	19.7	392 (285/107)	17.5	446 (309/137)	16.6
5-9 Units	527 (340/187)	22.5	560 (414/146)	24.9	514 (368/146)	19.1
10-19 Units	576 (312/264)	24.6	506 (244/262)	22.5	525 (258/267)	19.5
>19 Units	685 (509/176)	29.3	707 (532/175)	31.5	1,112 (937/175)	41.3
Total Valid HUs	2,339 (1,565/774)	100	2,245 (1,522/723)	100	2,695 (1,940/755)	100

*Counts and percentages are unweighted.
+ Percentages may not sum to 100 due to rounding.
Source: IFALMI files and Wave 1 and Wave 2 MAFUFs.

Table A5. 2010 CPEX ESMUS: Queens County Valid HUs by Structure Size and Block Type

Structure Size	IFALMI* (HUD/LUD)		Wave 1* (HUD/LUD)		Wave 2* (HUD/LUD)	
	No.	%+	No.	%+	No.	%+
Single Unit	365 (202/163)	21.2	362 (184/178)	21.6	337 (168/169)	18.5
2-4 Units	1,102 (950/152)	63.9	1,157 (1,004/153)	68.9	1,307 (1,167/140)	71.5
5-9 Units	184 (174/10)	10.7	90 (90/0)	5.4	119 (109/10)	6.5
10-19 Units	54 (54/0)	3.1	44 (44/0)	2.6	64 (64/0)	3.5
>19 Units	20 (20/0)	1.2	27 (27/0)	1.6	0 (0/0)	0
Total Valid HUs	1,725 (1,400/325)	100	1,680 (1,349/331)	100	1,827 (1,508/319)	100

*Counts and percentages are unweighted.
+ Percentages may not sum to 100 due to rounding.
Source: IFALMI files and Wave 1 and Wave 2 MAFUFs.

Appendix B: 2010 CPEX ESMUS: County-Level Tables by Wave and "New" Action Code

Table B1. 2010 CPEX ESMUS: Cook County Listings by Wave and "New" Action Code

Action Code	Wave 1* (HUD/LUD)	Wave 2* (HUD/LUD)	% Difference* (HUD/LUD)
A (Add)	170 (145/25)	189 (141/48)	+11.2 (-2.8/+92.0)
CC (Change – Critical)	92 (83/9)	87 (72/15)	-5.4 (-13.3/+66.7)
CN (Change – Noncritical)	125 (105/20)	149 (102/47)	+19.2 (-2.9/+135.0)
M (Move)	41 (41/0)	59 (59/0)	+43.9 (+43.9/0.0)
N (Nonresidential)	17 (14/3)	23 (18/5)	+35.3 (+28.6/+66.7)
V (Verify)	1,311 (1,064/247)	1,311 (1,098/213)	0.0 (+3.2/-13.8)
DD (Delete – Duplicate)	2 (2/0)	0 (0/0)	-100.0 (-100.0/0.0)
DM (Delete – Merge)	0 (0/0)	0 (0/0)	0.0 (0.0/0.0)
D (Delete)	238 (223/15)	197 (183/14)	-17.2 (-17.9/-6.7)
Total	1,996 (1,677/319)	2,015 (1,673/342)	+1.0 (-0.2/+7.2)
Total Invalid HUs (DD + DM + D)	240 (225/15)	197 (183/14)	-17.9 (-19.7/-6.7)
Total Valid HUs	1,756 (1,452/304)	1,818 (1,490/328)	+3.5 (+2.6/+7.9)

*Counts and percentages are unweighted.
Source: Wave 1 and Wave 2 MAFUFs.

Table B2. 2010 CPEX ESMUS: Bronx County Listings by Wave and "New" Action Code

Action Code	Wave 1* (HUD/LUD)	Wave 2* (HUD/LUD)	% Difference* (HUD/LUD)
A (Add)	79 (70/9)	31 (25/6)	-60.8 (-64.3/-33.3)
CC (Change – Critical)	242 (223/19)	189 (141/48)	-21.9 (-36.8/+152.6)
CN (Change – Noncritical)	157 (149/8)	39 (30/9)	-75.2 (-79.9/+12.5)
M (Move)	0 (0/0)	0 (0/0)	0.0 (0.0/0.0)
N (Nonresidential)	9 (7/2)	2 (0/2)	-77.8 (-100.0/0.0)
V (Verify)	1,661 (1,184/477)	1,998 (1,557/441)	+20.3 (+31.5/-7.5)
DD (Delete – Duplicate)	1 (1/0)	2 (2/0)	+100.0 (+100.0/0.0)
DM (Delete – Merge)	24 (22/2)	0 (0/0)	-100.0 (-100.0/-100.0)
D (Delete)	235 (202/33)	99 (58/41)	-57.9 (-71.3/+24.2)
Total	2,408 (1,858/550)	2,360 (1,813/547)	-2.0 (-2.4/-0.5)
Total Invalid HUs (DD + DM + D)	260 (225/35)	101 (60/41)	-61.2 (-73.3/+17.1)
Total Valid HUs	2,148 (1,633/515)	2,259 (1,753/506)	+5.2 (+7.3/-1.7)

*Counts and percentages are unweighted.
Source: Wave 1 and Wave 2 MAFUFs.

Table B3. 2010 CPEX ESMUS: Kings County Listings by Wave and "New" Action Code

Action Code	Wave 1* (HUD/LUD)	Wave 2* (HUD/LUD)	% Difference* (HUD/LUD)
A (Add)	102 (77/25)	125 (99/26)	+22.5 (+28.6/+4.0)
CC (Change – Critical)	140 (64/76)	32 (10/22)	-77.1 (-84.4/-71.1)
CN (Change – Noncritical)	96 (42/54)	41 (29/12)	-57.3 (-31.0/-77.8)
M (Move)	2 (2/0)	2 (2/0)	0.0 (0.0/0.0)
N (Nonresidential)	9 (7/2)	9 (8/1)	0.0 (+14.3/-50.0)
V (Verify)	1,675 (1,285/390)	1,941 (1,422/519)	+15.9 (+10.7/+33.1)
DD (Delete – Duplicate)	3 (2/1)	0 (0/0)	-100.0 (-100.0/-100.0)
DM (Delete – Merge)	0 (0/0)	0 (0/0)	0.0 (0.0/0.0)
D (Delete)	342 (241/101)	242 (172/70)	-29.2 (-28.6/-30.7)
Total	2,369 (1,720/649)	2,392 (1,742/650)	+1.0 (+1.3/+0.2)
Total Invalid HUs (DD + DM + D)	345 (243/102)	242 (172/70)	-29.9 (-29.2/-31.4)
Total Valid HUs	2,024 (1,477/547)	2,150 (1,570/580)	+6.2 (+6.3/+6.0)

*Counts and percentages are unweighted.
Source: Wave 1 and Wave 2 MAFUFs.

Table B4. 2010 CPEX ESMUS: New York County Listings by Wave and "New" Action Code

Action Code	Wave 1* (HUD/LUD)	Wave 2* (HUD/LUD)	% Difference* (HUD/LUD)
A (Add)	435 (409/26)	580 (541/39)	+33.3 (+32.3/+50.0)
CC (Change – Critical)	262 (201/61)	167 (154/13)	-36.3 (-23.4/-78.7)
CN (Change – Noncritical)	68 (39/29)	124 (95/29)	+82.4 (+143.6/0.0)
M (Move)	8 (8/0)	0 (0/0)	-100.0 (-100.0/0.0)
N (Nonresidential)	23 (15/8)	90 (86/4)	+291.3 (+473.3/-50.0)
V (Verify)	1,449 (850/599)	1,734 (1,064/670)	+19.7 (+25.2/+11.9)
DD (Delete – Duplicate)	19 (15/4)	1 (1/0)	-94.7 (-93.3/-100.0)
DM (Delete – Merge)	0 (0/0)	0 (0/0)	0.0 (0.0/0.0)
D (Delete)	510 (437/73)	223 (165/58)	-56.3 (-62.2/-20.5)
Total	2,774 (1,974/800)	2,919 (2,106/813)	+5.2 (+6.7/+1.6)
Total Invalid HUs (DD + DM + D)	529 (452/77)	224 (166/58)	-57.7 (-63.3/-24.7)
Total Valid HUs	2,245 (1,522/723)	2,695 (1,940/755)	+20.0 (+27.5/+4.4)

*Counts and percentages are unweighted.
Source: Wave 1 and Wave 2 MAFUFs.

Table B5. 2010 CPEX ESMUS: Queens County Listings by Wave and "New" Action Code

Action Code	Wave 1* (HUD/LUD)	Wave 2* (HUD/LUD)	% Difference* (HUD/LUD)
A (Add)	196 (152/44)	238 (217/21)	+21.4 (+42.8/-52.3)
CC (Change – Critical)	550 (471/79)	344 (318/26)	-37.5 (-32.5/-67.1)
CN (Change – Noncritical)	309 (224/85)	61 (48/13)	-80.3 (-78.6/-84.7)
M (Move)	0 (0/0)	0 (0/0)	0.0 (0.0/0.0)
N (Nonresidential)	39 (39/0)	38 (38/0)	-2.6 (-2.6/0.0)
V (Verify)	586 (463/123)	1,146 (887/259)	+95.6 (+91.6/+110.6)
DD (Delete – Duplicate)	0 (0/0)	2 (1/1)	undefined
DM (Delete – Merge)	1 (1/0)	0 (0/0)	-100.0 (-100.0/0.0)
D (Delete)	240 (202/38)	134 (108/26)	-44.2 (-46.5/-31.6)
Total	1,921 (1,552/369)	1,963 (1,617/346)	+2.2 (+4.2/-6.2)
Total Invalid HUs (DD + DM + D)	241 (203/38)	136 (109/27)	-43.6 (-46.3/-28.9)
Total Valid HUs	1,680 (1,349/331)	1,827 (1,508/319)	+8.8 (+11.8/-3.6)

*Counts and percentages are unweighted.
Source: Wave 1 and Wave 2 MAFUFs.

Appendix C: 2010 CPEX ESMUS: "New" Action Code Discrepancy Table by County and Block Type

Table C1. 2010 CPEX ESMUS: Net Differences between Wave 1 and Wave 2 Add and Delete Action Codes by County

Block Type	County	Adds*		Deletes, Duplicates, and Merges*		Difference in Valid HUs*	
		Net Diff.	%	Net Diff.	%	Net Diff.	%
HUD	Cook	-4	-2.8	-42	-18.7	+38	+2.6
	Bronx	-45	-64.3	-165	-73.3	+120	+7.3
	Kings	+22	+28.6	-71	-29.2	+93	+6.3
	New York	+132	+32.3	-286	-63.3	+418	+27.5
	Queens	+65	+42.8	-94	-46.3	+159	+11.8
	Total	+170	+19.9	-658	-48.8	+828	+11.1
LUD	Cook	+23	+92.0	-1	-6.7	+24	+7.9
	Bronx	-3	-33.3	+6	+17.1	-9	-1.7
	Kings	+1	+4.0	-32	-31.4	+33	+6.0
	New York	+13	+50.0	-19	-24.7	+32	+4.4
	Queens	-23	-52.3	-11	-28.9	-12	-3.6
	Total	+11	+8.5	-57	-21.3	+68	+2.8

*Counts and percentages are unweighted.
Source: Wave 1 and Wave 2 MAFUFs.

Appendix D: 2010 CPEX ESMUS: Coverage Table by Wave and Block Type

Table D1. 2010 CPEX ESMUS: Coverage by Wave and Block Type

Block Type	Listing	Total Valid HUs	Gross Overcoverage (%)	Gross Undercoverage (%)	Total Error (%)	Net Coverage (%)
HUD	CUF*	6,266	n/a	n/a	n/a	n/a
	Wave 1*	5,817	795 (12.7)	1,244 (19.9)	2,039 (32.5)	-449 (-7.2)
	Wave 2*	6,534	796 (12.7)	528 (8.4)	1,324 (21.1)	+268 (+4.3)
LUD	CUF*	1,787	n/a	n/a	n/a	n/a
	Wave 1*	1,829	180 (10.1)	138 (7.7)	318 (17.8)	+42 (+2.4)
	Wave 2*	1,875	210 (11.8)	122 (6.8)	332 (18.6)	+88 (+4.9)

*Counts and percentages are unweighted.
Source: ESMUS Report Figure 10.

Appendix E: ESMUS Debriefing Questionnaire for Wave 2 FRs with Responses

DEBRIEFING QUESTIONNAIRE - RESULTS – Demographic Area Address Listing (DAAL) for Field Representatives

Instructions: Please answer the following questions regarding Form D-461.1(E), the Job-Aid for Hard-to-Find Units in Small Multi-Unit Buildings. Be sure to bring your completed questionnaire and your Job-Aid booklet to the debriefing session on May 27, 2010. Your questionnaire will be collected by a group facilitator.

A. Topic 2: Clues for Finding Housing Units

1) During training, how clear or unclear did you find Topic 2: Clues for Finding Housing Units? *(Check one):*
   - ___ Very clear (16 Total) **(80%)**
   - ___ Somewhat clear (4 Total) **(20%)**
   - ___ Somewhat unclear (0)
   - ___ Very unclear (0)

2) How prepared or unprepared were you to spot "clues" that could indicate hard-to-find units in a building? (*Check one):*
   - ___ Very prepared (13 Total) **(65%)**
   - ___ Somewhat prepared (7 Total) **(35%)**
   - ___ Somewhat unprepared (0)
   - ___ Very unprepared (0)

3) How helpful or unhelpful did you find the list of clues and illustrations in this section? *(Check one):*
   - ___ Very helpful (12 Total) **(60%)**
   - ___ Somewhat helpful (7 Total) **(35%)**
   - ___Somewhat unhelpful (1 Total) **(5%)**
   - ___ Very unhelpful (0)

4) Which clue(s) from the Job-Aid did you notice during listing? *(Check all that apply):*
   - ___ Two or more house numbers (11 Total) **(55%)**
   - ___ Multiple mailboxes, buzzers, or doorbells (19 Total) **(95%)**
   - ___ Several gas or electric meters (13 Total) **(65%)**
   - ___ Many garbage cans or several newspapers (3 Total) **(15%)**
   - ___ "For Rent" signs (6 Total) **(30%)**
   - ___ Curtains or bars on a basement window (11 Total) **(55%)**
   - ___ A house number on a garage (2 Total) **(10%)**

___ Many vehicles parked around the house (4 Total) **(20%)**
___ Side or rear walkways (11 Total) **(55%)**
___ Outside or basement doors leading to units (10 Total) **(50%)**
___ Outside stairs (6 Total) **(30%)**
___ Large sheds behind or beside the building (3 Total) **(15%)**
___ Several TV satellite dishes on the roof (5 Total) **(25%)**
___ Signs of habitation in storage areas (3 Total) **(15%)**
___ Outside stairs leading to the attic (2 Total) **(10%)**
___ Fire escapes to additional units (5 Total) **(25%)**

5) What additional clues, if any, should be added to this section that could indicate hard-to-find units in a small multi-unit building? *(List below):*

- speak with neighbors, USPS
- Renovations – for instance, new door for a garage or basement indicates is being prepared for newcomers
- Air-conditioners
- Refer to past listings to compare against current listings

6) (a) How often did you need to inquire with a respondent about signs of additional units at a small multi-unit building? *(Check one):*

___ Very often (7 Total) **(37%)**
___ Some of the time (8 Total) **(42%)**
___ Rarely (3 Total) **(16%)**
___ Never (1 Total) **(5%)**
(Missing – 1 Total)

(b) With whom, if anyone, did you inquire? *(Check all that apply):*

___ Tenant (17 Total) **(89%)**
___ Owner (13 Total) **(68%)**
___ Other *(List):* (11 Total) **(58%)**

- Neighbor
- USPS/mailmen
- Superintendent
- Doormen
- Business/realtor
- Visitors/workers

(Missing – 1 Total)

7) How often were respondents knowledgeable and helpful when you inquired about additional units? *(Check one):*

___ Very often (16 Total) **(84%)**
___ Some of the time (1 Total) **(5%)**
___ Rarely (2 Total) **(11%)**
___ Never (0)
(Missing – 1 Total)

8) Do you have any other feedback on this section? *(List below):*

- # of doorbells, electric/gas meters do not reflect actual situations – asking tenants and neighbors is most effective
- Remind respondents of Title 13 Sec 9 – they are scared to admit there is someone living in the attic/basement
- I found instances of single dwelling units with 2 addresses – one main entrance, 2nd private but same unit (new bldg!)
- Ask around most of the time – someone on the block knows everyone's bizz
- None – usually the tenants and owners of households are very cooperative
- Very good basic introduction and preparation for going to the field

B. **Topic 3: Situations Involving Small Multi-Unit Buildings**

9) During training, how clear or unclear did you find Topic 3: Situations Involving Small Multi-Unit Buildings? *(Check one):*

___ Very clear (14 Total) **(74%)**
___ Somewhat clear (5 Total) **(26%)**
___ Somewhat unclear
___ Very unclear
(Missing – 1 Total)

10) How well prepared or unprepared were you to handle the cases described? *(Check one):*

___ Very prepared (13 Total) **(65%)**
___ Somewhat prepared (7 Total) **(35%)**
___ Somewhat unprepared
___ Very unprepared

11) How helpful or unhelpful did you find the instructions for handling cases in this section? *(Check one):*

___ Very helpful (16 Total) **(80%)**
___ Somewhat helpful (3 Total) **(15%)**
___ Somewhat unhelpful (1 Total) **(5%)**
___ Very unhelpful

12) Which case(s) occurred during listing? *(Check all that apply):*

___ Case 1: The Address List showed only one unit for an address but you found evidence that more units existed at the address. (15 Total) **(75%)**
___ Case 2: There were multiple units on the Address List for the building, and you found multiple units there, but they did not have unit designations posted. (14 Total) **(70%)**
___ Case 3: There were multiple units on the Address List for the building, and you found multiple units there, but the unit designations posted on the building did not match the unit designations on the Address List. (16 Total) **(80%)**
___ Case 4: There were multiple units on the Address List for the building, but you found only one housing unit. (12 Total) **(60%)**

13) What additional cases, if any, should be added to this section that were not addressed in the Job-Aid? *(List below):*

- Realtors are not good sources of info if home is for sale – they must say how many "legal" units in BLDG – can't say real # of units
- Two entrances at some residences but two addresses b/c entrances on different streets
- Buzzer #'s did not correspond to internal addresses
- Address lists a unit but no unit at address

14) (a) How often did you need to inquire with a respondent about the correct <u>number of units</u> at a small multi-unit building? *(Check one):*

___ Very often (5 Total) **(25%)**
___ Some of the time (14 Total) **(70%)**
___ Rarely (1 Total) **(5%)**
___ Never

(b) With whom, if anyone, did you inquire? *(Check all that apply):*

___ Tenant (20 Total) **(100%)**
___ Owner (17 Total) **(85%)**
___ Other *(List):* (12 Total) **(60%)**

- Neighbor
- USPS/mail carrier/postman
- Owner/Manager of nearby business or shop
- Superintendent
- Doorman
- Worker/visitor
- Real Estate/mgmt agent
- Builder

15) (a) How often did you need to inquire with a respondent about the correct unit designations at a small multi-unit building? *(Check one):*

___ Very often (4 Total) **(21%)**
___ Some of the time (11 Total) **(58%)**
___ Rarely (3 Total) **(16%)**
___ Never (1 Total) **(5%)**
(Missing – 1 Total)

(b) With whom, if anyone, did you inquire? *(Check all that apply):*

___ Tenant (16 Total) **(84%)**
___ Owner (14 Total) **(74%)**
___ Other *(List):* (8 Total) **(42%)**

- Neighbor
- Doorman
- Superintendent
- Mailman/postman
- Worker/visitor

(Missing – 1 Total)

16) How often were respondents knowledgable and helpful when you inquired about the correct number of units or the correct unit designations?

___ Very often (14 Total) **(74%)**
___ Some of the time (5 Total) **(26%)**
___ Rarely
___ Never
(Missing – 1 Total)

17) Do you have any other feedback on this section? *(List below):*

_____
_____

_____
_____

C. Topic 4: Assigning Unit Designations to Adds

18) During training, how clear or unclear did you find Topic 4: Assigning Unit Designations to Adds? *(Check one):*

___ Very clear (16 Total) **(84%)**
___ Somewhat clear (3 Total) **(16%)**
___ Somewhat unclear
___ Very unclear
(Missing – 1 Total)

19) How prepared or unprepared were you to assign unit designations to adds? *(Check one):*

___ Very prepared (15 Total) **(79%)**
___ Somewhat prepared (4 Total) **(21%)**
___ Somewhat unprepared
___ Very unprepared
(Missing – 1 Total)

20) How helpful or unhelpful did you find the guidelines for assigning and/or correcting unit designations in the Address List? *(Check one):*

___ Very helpful (15 Total) **(75%)**
___ Somewhat helpful (5 Total) **(25%)**
___ Somewhat unhelpful
___ Very unhelpful

21) What kinds of designations did you assign during listing? *(List below):*

- A new 2-flat building
- Garden or BSMT instead of '1' if lower level
- Actual apt #'s
- Apt. 1, Apt. 2, Apt. 1A, Apt. 2A, Apt. 2B, Apt. 3B …
- Front, Rear, Attic, Side, Bsmt
- 1FE, 1FW, 1RE, 1RW
- Penthouse designations
- Room numbers for long-term residential units in a hotel

22) What additional guidelines, if any, should be added to this section that were not addressed in the Job-Aid? *(List below):*

_____
_____
_____
_____

23) Do you have any other feedback on this section? *(List below):*

- "Again, a good introduction and preparation for actual listing."

D. <u>Appendix 2: Illustrations of Small Multi-Units; and Appendix 4: Practice Exercises</u>

24) During training, how helpful or unhelpful did you find the pictures in Appendix 2: Illustrations of Small Multi-Units, and in Appendix 4: Practice Exercises? *(Check one):*

___ Very helpful (14 Total) **(70%)**
___ Somewhat helpful (5 Total) **(25%)**
___ Somewhat unhelpful (1 Total) **(5%)**
___ Very unhelpful

25) How useful were these pictures during listing? *(Check one):*

___ Very useful (13 Total) **(65%)**
___ Somewhat useful (6 Total) **(30%)**
___ A little useful
___ Not at all useful (1 Total) **(5%)**

26) Do you have any other feedback on this section? *(List below):*

- Chicago –
  - "None of the pics represented any HU's I visited – only multiple doorbells pic was relevant – in older BLDG's older/multiple doorbells don't mean multiple units"
- NYC –
  - "It will be helpful if some of the pics can be more clear"
  - "one needs to look at finish differences in adjacent buildings – different brick colors, window finishes, building materials. Also nonmatching window dressings (discordant blinds, curtains, etc.)"
  - "need more examples of small multi-units practice,"
  - "some pictures not applicable to New York City."

E. Appendix 3: Diagram of Various Situations

27) During training, how helpful or unhelpful did you find the Diagram of Various Situations in Appendix 3? *(Check one):*

___ Very helpful (9 Total) **(47%)**
___ Somewhat helpful (10 Total) **(53%)**
___ Somewhat unhelpful
___ Very unhelpful
(Missing – 1 Total)

28) How useful was this during listing? *(Check one):*

___ Very useful (7 Total) **(39%)**
___ Somewhat useful (6 Total) **(33%)**
___ A little useful (4 Total) **(22%)**
___ Not at all useful (1 Total) **(6%)**
(Missing – 2 Total)

29) Did you work from "ground to list" as the diagram and the Job-Aid indicate? Meaning did you confirm what was on the ground and then see if that existed on the Address List, and not the other way around? *(Check one):*

___ Yes (18 Total) **(95%)**
___ No (1 Total) **(5%)**
(Missing – 1 Total)

30) Do you have any other feedback on this section? *(List below):*

_____
_____
_____
_____

F. Appendix 5: D-225(E), INFO-COMM

31) How clear or unclear did you find the instructions on <u>when</u> to fill out an INFO-COMM form? *(Check one):*

___ Very clear (12 Total) **(63%)**
___ Somewhat clear (6 Total) **(32%)**
___ Somewhat unclear (1 Total) **(5%)**
___ Very unclear
(Missing – 1 Total)

32) How clear or unclear did you find the instructions on how to fill out an INFO-COMM form? *(Check one):*

___ Very clear (13 Total) **(65%)**
___ Somewhat clear (6 Total) **(30%)**
___ Somewhat unclear (1 Total) **(5%)**
___ Very unclear

33) After training, how prepared or unprepared were you to follow INFO-COMM procedures? *(Check one):*

___ Very prepared (12 Total) **(60%)**
___ Somewhat prepared (6 Total) **(30%)**
___ Somewhat unprepared (2 Total) **(10%)**
___ Very unprepared

34) (a) How often did you use INFO-COMM forms during listing? *(Check one):*

___ Very often (8 Total) **(40%)**
___ Some of the time (5 Total) **(25%)**
___ Rarely (3 Total) **(15%)**
___ Never *(Skip to Question 37)* (4 Total) **(20%)**

(b) Were there any situations in which you used INFO-COMM forms besides requesting to delete units? *(Check one):*

___ No(14 Total) **(88%)**
___ Yes (*List):* (2 Total) **(12%)**

- NYC –
    - "Unable to verify units, unit designation unclear, unable to get info from owner w/o written request."

(Missing – 4 Total)

(c) Were there instances when you deleted units at a small multi-unit building from the Address List without first filling out an INFO-COMM form and having it resolved by an SFR or other supervisor? *(Check one):*

___ No (15 Total) **(83%)**
___ Yes *(List):* (3 Total) **(17%)**

- NYC –
    - "Replacing unit designations that changed (e.g. address list A-Q but addresses 1A, 1B, 1C, …)"
    - "1st day doing listings"

(Missing – 2 Total)

35) (a) How often did you have difficulty getting INFO-COMM forms resolved by an SFR or other supervisor? *(Check one):*

___ Very often
___ Some of the time
___ Rarely (2 Total) **(11%)**
___ Never (16 Total) **(89%)**
(Missing – 2 Total)

(b) How were these resolved? Did you make contact by phone, personal meeting, or sending forms via FedEx? *(Check all that apply):*

___ Phone (13 Total) **(81%)**
___ Personal meeting (4 Total) (**25%)**
___ Sent form via FedEx (6 Total) **(38%)**
___ Other
*(List):*_____
__
(Missing – 4 Total)

(c) If forms were resolved by phone and your SFR or supervisor was not physically present, did you fill out Section II, the Resolution section of the INFO-COMM form, in their place? *(Check one):*

___ Yes (6 Total) **(38%)**
___ No(7 Total) **(44%)**
___ Never resolved by phone (3 Total) **(19%)**
(Missing – 4 Total)

36) (a) How often did your SFR or other supervisor approve or deny deleting units from the Address List? *(Check one):*

___ Always approved deletes (8 Total) **(50%)**
___ Usually approved deletes (4 Total) **(25%)**
___ Varied (3 Total) **(19%)**
___ Usually denied deletes (1 Total) **(6%)**
___ Always denied deletes
(Missing – 4 Total)

(b) How often did he/she offer explanations for either case, or did he/she just check the box (or have you check the box) to approve or deny the delete? *(Check one):*

___ Always offered explanations (5 Total) **(38%)**
___Usually offered explanations (1 Total) **(8%)**
___ Varied (6 Total) (**46%)**
___ Usually just checked box

___ Always just checked box (1 Total) **(8%)**
(Missing – 7 Total)

(d) If you sent an INFO-COMM form via FedEx for an SFR or other supervisor to resolve did you have any issues getting it back? *(Check one):*

___ No (10 Total) **(71%)**
___ Yes *(List):*
_____
___ Never sent forms via FedEx (4 Total) **(29%)**
(Missing – 6 Total)

37) Do you have any other feedback on this section or on INFO-COMM forms? *(List below):*

- Chicago -
  - "Should be on the laptop than having to use paper"
  - "Why can't this be done electronically – incredible waste of $ to FedEx to SFR"
- NYC –
  - "Helpful documentation, hard to fill out in field. Prefer software notepad while in field"
  - "Time consuming"

G. Overall Assessment of the Job-Aid

38) Overall, how prepared or unprepared were you after reviewing the Job-Aid for handling listing at small multi-unit buildings and/or hard-to-find units? *(Check one):*

___ Very prepared (12 Total) **(63%)**
___ Somewhat prepared (7 Total) **(37%)**
___ Somewhat unprepared
___ Very unprepared
(Missing – 1 Total)

39) (a) How helpful or unhelpful did you find the content of the Job-Aid? *(Check one):*

___ Very helpful (13 Total) **(68%)**
___ Somewhat helpful (6 Total) **(32%)**
___ Somewhat unhelpful
___ Very unhelpful
(Missing – 1 Total)

(b) How much do you feel that the Job-Aid improved or hindered your ability to find hard-to-find units and/or to list at small multi-unit buildings? *(Check one):*

___ Greatly improved (11 Total) **(58%)**
___ Somewhat improved (6 Total) **(32%)**
___ Neither improved nor hindered (2 Total) **(11%)**
___Somewhat hindered
___ Greatly hindered
(Missing – 1 Total)

40) (a) What did you like about the training for the Job-Aid? What would you keep the same? *(List below):*

- Chicago –
  - "It shows what we would see out in the field"
  - "Offered 'overview' of multi-unit BLDGs"
  - "Keep all the same"
- NYC –
  - "Pictures"
  - "Examples were very visual and clearly worded"
  - "Very thorough on each step of how to complete and verify units"
  - "Very useful as a whole"
  - "Not too long and easy to understand"
  - "Covered all the key topics"
  - "Very helpful"
  - "Extensive"
  - "Bullets of information, bold-faced margin topics, photographs"
  - "The hints were helpful"
  - "I would keep the same"
  - "Not make any changes"

(b) What did you dislike about the training for the Job-Aid? How would you change or improve it? *(List below):*

- Chicago –
  - "Didn't dislike anything"
  - "No info on attaching units, how to identify units that should be attached, or on determining what constitutes a single structure"
  - "Just that we had to rush through the INFO-COMM training – more examples of when to use them would have been nice"

- "Nothing"

- NYC –
  - "More time and information on certain topics" [Generic training issues for DAAL]

41) (a) What did you like about the content of the Job-Aid? What would you keep the same? *(List below):*

- Chicago –
  - "Everything was very understandable"
  - "Job-Aid is okay 'intro' to multi-unit BLDGs – very basic"
  - "It was very helpful along with diagram that was laminated, very clear in content"
  - "Keep all the same"
- NYC –
  - "Photos"
  - "Well-designed"
  - "Picture diagram to show examples"
  - "The practice cases"
  - "Explanations were clear and the graphics very easy to understand"
  - "Covered all the key topics"
  - "Sample was what was utilized in the field"
  - "Concise"
  - "Vivid pictures – examples were both verbal and clear"
  - "It seems to be a well-developed introduction and preparation for listing. Ultimately experience in the field will prove to be the real builder of experience and knowledge of these situations and tricks of the trade"
  - "I would keep the same"
  - "Simple but to the point"

(b) What did you dislike about the content of the Job-Aid? How would you change or improve it? *(List below):*

- Chicago –

- "Much of the info provided was not relevant to a FR working in Chicago – pics and examples may be appropriate in small towns/cities but do not reflect reality of large urban areas – counting sat. dishes, doorbells, and meters don't result in accurate count of HUs, talking to knowledgeable people does"
- "Nothing"

- NYC –
  - "Needed more examples and practice exercises"
  - "Better quality of picture, more clear?"
  - "Some of the content didn't apply to NYC, incorporate New York City examples"
  - "Nothing"
  - "Keep it the same"

42) (a) Did you complete the Job-Aid Self-Study Knowledge Check? *(Check one):*

___ Yes (12 Total) **(67%)**
___ No *(skip to Question 43)* (6 Total) **(33%)**
(Missing – 2 Total)

(b) How helpful or unhelpful did you find the Job-Aid Self-Study Knowledge Check?

___ Very helpful (7 Total) **(58%)**
___ Somewhat helpful (5 Total) **(42%)**
___ Somewhat unhelpful
___ Very unhelpful
(Missing – 2 Total)

43) Do you have any other feedback about the Job-Aid or about listing at small multi-unit buildings? *(List below):*

- Chicago –
  - "No"
- NYC –
  - "I think that the best things are the practice ones. Also going out with the SFR helped a lot"
  - "Most buildings were similar"
  - "No"

Appendix F: Form D-461.1 (Original Job-Aid used in 2010 AC)[7]

Form D-461.1
February 2009

Address Canvassing

Listers

Job-Aid
Hard-to-Find Units in Small Multi-Unit Buildings

United States Census 2010

U.S. Department of Commerce
Economics and Statistics Administration
U.S. Census Bureau

[7] Full document available upon request.

Appendix G: Form D-461 (Original Job-Aid Instructor Guide used in 2010 AC)[8]

Training For Hard-to-Find Units in Small Multi-Unit Buildings (Small Multis)

Lesson Plan Overview

Estimated Time:	1/2 hour
Lesson Objectives:	By the end of this lesson, trainees will: • know the clues that identify Hard-to-Find units in small multi-unit buildings • know how to handle various situations
Materials Needed:	Give each trainee the Form D-461.1, Job Aid For Hard-to-Find Units in Small Multi-Unit Buildings
Special Instructions:	This lesson is only for Address Canvass Listers working in urban areas with small multi-unit buildings. However, use your discretion as to which Listers need to know this material.

[8] Full document available upon request.

Appendix H: Form D-225 (Original INFO-COMM form used in 2010 AC)

FORM **D-225**
(6-16-2008)

U.S. DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. CENSUS BUREAU

INFO – COMM
Information Communication
2010 Census

See back of copy 3 for instructions.

a. TO *(Receiver)*:		**b. FROM** *(Sender)*:
c. LCO code	**d.** RCC	**e.** Operation
f. Position title	**g.** CLD No./Other	**h.** Date

IF REFERENCE TO SPECIFIC UNIT, SHOW WHERE APPLICABLE

i. AA	**j.** Block	**k.** Map spot	**l.** Case ID number/Line number

m. Address or description *(include city name and ZIP Code)*

Section I **STATEMENT** (Answer required): ☐ Yes ☐ No

Mark (X) appropriate box(es) and provide explanation.

☐ Unable to contact ☐ Refusal ☐ Unsafe to enumerate ☐ Other – *Explain below*
☐ Inaccessible ☐ Other Living Quarters ☐ Procedural question
☐ Picked up paper questionnaire ☐ Geography/Map problem ☐ Payroll question

Explanation: _____

Section II **ANSWER AND DISTRIBUTION**

Answered or acknowledged by	Date

Copy distribution: **Copies 1 and 2** – Receiver **Copy 3** – Sender

USCENSUSBUREAU

1

Base prints solid black ink Overlay to print red ink, PMS 199, 100%

FORM **D-225**
(6-16-2008)

U.S. DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. CENSUS BUREAU

INFO - COMM
Information Communication
2010 Census

a. TO *(Receiver)*:		**b. FROM** *(Sender)*:	
c. LCO code	**d.** RCC		**e.** Operation
f. Position title	**g.** CLD No./Other		**h.** Date
IF REFERENCE TO SPECIFIC UNIT, SHOW WHERE APPLICABLE			
i. AA	**j.** Block	**k.** Map spot	**l.** Case ID number/Line number
See back of copy 3 for instructions.	**m.** Address or description *(include city name and ZIP Code)*		

Section I **STATEMENT** (Answer required): ☐ Yes ☐ No

Mark (X) appropriate box(es) and provide explanation.

☐ Unable to contact ☐ Refusal ☐ Unsafe to enumerate ☐ Other – *Explain below*
☐ Inaccessible ☐ Other Living Quarters ☐ Procedural question
☐ Picked up paper questionnaire ☐ Geography/Map problem ☐ Payroll question

Explanation: _____

Section II **ANSWER AND DISTRIBUTION**

Answered or acknowledged by	Date

Copy distribution: **Copies 1 and 2** – Receiver **Copy 3** – Sender

U S C E N S U S B U R E A U

2

Base prints solid black ink Overlay to print red ink, PMS 199, 100%

FORM **D-225**
(6-16-2008)

U.S. DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. CENSUS BUREAU

INFO - COMM
Information Communication
2010 Census

a. TO *(Receiver)*:		**b. FROM** *(Sender)*:
c. LCO code	**d.** RCC	**e.** Operation
f. Position title	**g.** CLD No./Other	**h.** Date

IF REFERENCE TO SPECIFIC UNIT, SHOW WHERE APPLICABLE

i. AA	**j.** Block	**k.** Map spot	**l.** Case ID number/Line number

See back of copy 3 for instructions.

m. Address or description *(include city name and ZIP Code)*

Section I **STATEMENT** (Answer required): ☐ Yes ☐ No

Mark (X) appropriate box(es) and provide explanation.

☐ Unable to contact ☐ Refusal ☐ Unsafe to enumerate ☐ Other – *Explain below*
☐ Inaccessible ☐ Other Living Quarters ☐ Procedural question
☐ Picked up paper questionnaire ☐ Geography/Map problem ☐ Payroll question

Explanation: _____

Section II **ANSWER AND DISTRIBUTION**

Answered or acknowledged by	Date

Copy distribution: **Copies 1 and 2** – Receiver **Copy 3** – Sender

U S C E N S U S B U R E A U

3

Base prints solid black ink Overlay to print red ink, PMS 199, 100%

INSTRUCTIONS

The INFO-COMM is a tool for communication between Census field and office staff. It can be originated by either field or office staff to report problems, or request information that affects work. Examples of situations where an INFO-COMM can be used include:

- Closed or impassable roads
- Locked buildings or gated communities for which access cannot be gained
- Procedural or payroll issues

Be brief and clear when writing the message. Route the message through the appropriate supervisor(s).

Heading

Complete each box from a–h.

Complete as much information as it applies to the situation for boxes i–m.

Section I – STATEMENT (Answer required): ☐ Yes ☐ No

If the INFO-COMM does not require a reply or action, mark (X) "No" in the Section I title. For inquiries needing a reply or action, mark (X) "Yes."

Mark (X) in the appropriate box if the situation being reported corresponds to one of the listed boxes. If more than one box applies, mark (X) in all boxes that apply. If the situation does not correspond to one of those listed, mark (X) in the box for "Other" and explain the problem in the space provided. Send/Give copies 1 and 2 to your supervisor/office for delivery to the receiver and keep the third copy as directed by your supervisor.

In the explanation section describe the problem briefly. Include recommendations, if any, on how you believe the problem should be handled and attach forms, maps, notes, etc., pertinent to the message or inquiry.

Section II – ANSWER AND DISTRIBUTION

If you receive the INFO-COMM and you're a staff member of a LCO, Processing Office, or Headquarters, take the following actions:

1. Enter reply, if required, in Section II, and return the answer to the sender.
2. File a copy for office records.

Note: If an INFO-COMM must be forwarded for an answer, note on the INFO-COMM to whom sent and the date. Make a copy for your files.

If you receive the INFO-COMM and you're a member of the field staff (Enumerator, Lister, Crew Leader, Crew Leader Assistant, or Field Operations Supervisor), take the following actions:

1. Enter reply, if required, in Section II.
2. Retain a copy.
3. Send/Give the answer to the person who originated the INFO-COMM, through your supervisor.

FORM D-225 (6-16-2008)

D-225 (Back) – To print 40% black ink on back of copy 3 ONLY.

Appendix I: Form D-461.1(E) (Revised Job-Aid used in ESMUS listing)[9]

Form D-461.1(E)
March 2010

Demographic Area Address Listing (DAAL)

Field Representatives

Job-Aid
Hard-to-Find Units in Small Multi-Unit Buildings

United States Census 2010

U.S. Department of Commerce
Economics and Statistics Administration
U.S. Census Bureau

[9] Full document available upon request.

Appendix J: Form D-461(E) (Revised Job-Aid Instructor Guide used in ESMUS listing)[10]

Training For Hard-to-Find Units in Small Multi-Unit Buildings (Small Multis)

Lesson Plan Overview

Estimated Time: 1/2 hour

Lesson Objectives: By the end of this lesson, trainees will:

- know the clues that identify Hard-to-Find units in small multi-unit buildings
- know how to handle various situations

Materials Needed: Give each trainee the Form D-461.1(E), Job Aid For Hard-to-Find Units in Small Multi-Unit Buildings, and the Job Aid Self Study Knowledge Check

Special Instructions: It is recommended that Senior Field Representatives attend this lesson with Field Representatives. If any SFRs cannot attend, however, they must be made aware of their duties regarding INFO-COMMs as written in this lesson.

[10] Full document available upon request.

Appendix K: Form D-225(E) (Revised INFO-COMM form used in ESMUS listing)

FORM **D-225(E)**
(3-4-2010)

U.S. DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. CENSUS BUREAU

INFO – COMM
Information Communication
2010 Census

a. TO *(Receiver)*:	**b. FROM** *(Sender)*:
c. FR code	**d.** RO
e. Position title	**f.** Date

IF REFERENCE TO SPECIFIC UNIT, SHOW WHERE APPLICABLE

g. PSU	**h.** Tract	**i.** Block	**j.** Map spot	**k.** Control number

See back of form for instructions.

l. Address or description *(include city name and ZIP Code)*

Section I **STATEMENT** (Request to delete unit(s))

Explanation: _____

Section II **RESOLUTION**

Mark (X) appropriate boxes, if applicable.

- ☐ SFR spoke with FR by phone about delete request
- ☐ SFR met FR in person about delete request
- ☐ SFR received INFO-COMM from FR via FedEx about delete request
- ☐ SFR went out to field to determine unit status
- ☐ SFR contacted tenant, owner, or other knowledgeable respondent about unit status

Mark (X) at least one box

- ☐ Delete approved
- ☐ Delete denied

} *Explain below*

SFR signature (*Not applicable if SFR is not physically present*)	Date

U S C E N S U S B U R E A U

INSTRUCTIONS

The INFO-COMM is a tool for communication between Census staff.

This form should only be used to request the deletion of a housing unit or units at small multi-unit buildings.

Be brief and clear when writing the message. Route the message through the appropriate supervisor(s).

Heading

Complete each box from a–f.

Complete as much information as it applies to the situation for boxes g–l.

Section I – STATEMENT (Request to delete unit(s))

Contact your Senior Field Representative for a response to the situation. Attempt to reach your SFR by phone, or arrange a meeting in person with your SFR to review the INFO-COMM. If neither of these is possible, send the INFO-COMM to your SFR via FedEx for review.

In the explanation section describe why you believe the unit(s) should be deleted. Include recommendations, if any, on how you believe the problem should be handled and attach forms, maps, notes, etc., pertinent to the message or inquiry. Always fill out this section before contacting your SFR for a response.

Section II – RESOLUTION

If your SFR is contacted by phone to respond and is not physically present, then you will fill out this section. If your SFR is physically present to respond, he or she will fill out this section. If your SFR receives the form via FedEx, he or she will fill out this section and send it back to you via FedEx. You will retain all resolved forms until the end of production, upon which you will return them to your Regional Office.

In the first part of Section II, mark (X) in the appropriate boxes if the response to the situation corresponds to any of the listed boxes.

In the second part of Section II, mark (X) in the appropriate box indicating whether the request to delete a housing unit or units was approved or denied. If the INFO-COMM concerns several units and some deletes were approved but others were denied, mark (X) both boxes. Provide an explanation in the space provided.

Appendix L: Job-Aid Self Study for ESMUS FRs

Form D-461.1(E) Self Study – Knowledge Check

Respond to the questions below. When you are finished, compare your responses using the answer key on the next page. Review the Job-Aid, Form D-461.1(E), as needed to correct your responses. Complete this Self Study before you start work.

1. Two families share the same housing unit. You need to assign multi-unit status to the housing unit, add the second family to the Address List, and assign a unit designation (such as Apt B).
   a. True
   b. False

2. List at least five clues that may indicate the presence of additional units in a building.

   _____

   _____

   _____

   _____

   _____

3. The Address List has multiple units for the building but you find *fewer* units. You need to (*circle all that apply)*:
   a. Try to confirm with a knowledgeable respondent the exact number of units in the building and their exact unit designations.
   b. Delete the units that do not exist from the Address List.
   c. Explain the situation on an INFO-COMM and wait for a response from a supervisor before marking the Update Block assignment as complete.

4. Some units in the building do not have posted unit designations. You need to *(circle all that apply)*:
   a. Make up your own apartment letters and numbers (such as Apt 1, Apt B, 3C).
   b. List from the lowest floor to the highest floor.
   c. Show the position of the housing unit in relation to other in the building (such as 1st Fl Front, 1st Fl Middle, 1st Fl Rear).

Answer Key

		Page Reference
1.	b	2-3
2.	two or more house numbers or a range of house numbers, multiple mailboxes or doorbells are present, many garbage cans or several newspapers, "For Rent" signs, curtains or bars on a basement window, a house number on a garage, many vehicles parked around the house, side or rear walkways, outside or basement doors leading to housing units, outside stairs, large sheds behind or beside the building, unmarked doors possible leading to housing units, several television satellite dishes on the roof, signs of habitation in storage areas, outside stairs leading to the attic, fire escapes to additional units, several utility meters.	5-7
3.	a, c	10-11
4.	b, c	12-13