IMPROVEMENT OF ADDRESS LISTS THROUGH LOCAL GOVERNMENT INVOLVEMENT - QUALITY OF ADDED ADDRESSES *

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I.   Introduction

The first and a critical step in undertaking a decennial census is the creation of an accurate and complete listing of all addresses. In preparation for the 2000 Decennial Census, the Census Bureau is developing a Master Address File (MAF), a permanent and continually maintained national address list linked to the Bureau's Topologically Integrated Encoding and Referencing (TIGER) system.

The 1995 Census Test is being conducted in Paterson, NJ; Oakland, CA; and six parishes in northwest Louisiana to determine which and how fundamental design changes will be incorporated in the 2000 Decennial Census. One change being planned is the use of the MAF as the initial address list in urban areas (see [2]) and the use of the Local Update of Census Addresses (LUCA) program as a means of improving census address lists.

The primary purpose of this evaluation is to measure the improvement to the initial MAF-based address list gained from the LUCA program. Since the MAF was the source of the initial address list only in the urban areas, the remainder of this paper will only discuss the urban test sites.

The following sections provide background on the address list development and the LUCA program, results of the evaluation, and conclusions which may be drawn from this evaluation.

II.   Background

A.   Address List Development

The first step in the address list development process for the urban sites was to update the 1990 Census address file with current address information from the United States Postal Service. In a census operation referred to as Precanvass, Census Bureau field staff systematically canvassed each census block in October/November 1994, verified that each address was present on the census address lists, added any missing addresses, deleted any addresses that were non-existent, and updated the census maps. Concurrently with Precanvass, for the LUCA program, local officials were provided a listing of the address list in August 1994. The local officials reviewed and updated the address lists and maps and returned them to the Census Bureau. Census staff updated the census address lists and geographic files with the new addresses and other local official corrections and updates as appropriate. LUCA adds were checked against precanvass results to determine if they were added in precanvass, if not, they were field verified.

B.   LUCA

In the 1980 and 1990 censuses, the Census Bureau gave state and local governments the opportunity to review preliminary housing unit counts through the Local Review Program. This program provided block-level housing unit counts. Blocks with significant discrepancies identified by the local officials were recanvassed by census enumerators. Under this procedure, local officials could identify only those situations where they differed on the total number of units for a block. The Local Review Program was inefficient, and at times resulted in unneeded challenges and recanvassing.

The LUCA is a program where local officials, or their designees, review a census address list for their area to identify addresses by census block that should be added, corrected, deleted, or transferred from one geographic location to another. The overall objective of the LUCA program was to use the expertise of the local officials to improve the accuracy and completeness of the address list used to conduct the 1995 Census Test. The LUCA program was voluntary and participation was strongly encouraged by the Bureau of the Census. (See [1].)

Local officials participating in the LUCA program had to take an oath to protect the confidentiality of the census addresses and to limit their use of census address information to the LUCA program. Instructions for implementing the LUCA program were provided in the form of a technical guide ([3] and [4]) and two workshops for hands-on experience. The local governments were asked to review the address listings and maps to identify any detected differences from their records and/or field investigations and report these annotated discrepancies to the Census Bureau.

III. Results

A. Summary of Accepted LUCA Actions

Tables 1 and 2 summarize the total number and type of LUCA actions accepted and applied to the address lists for Paterson and Oakland, respectively. LUCA actions were checked against the precanvass results to determine if the action was made during precanvass. These tables provide the proportion of LUCA actions that matched a precanvass action or to a housing unit on the MAF, and the proportion of the actions that were identified by LUCA only.

The LUCA program added 1,307 housing units for Paterson and 951 for Oakland. However, for both sites, over 25 percent of the adds matched to precanvass or the MAF.

For both test sites, the LUCA program identified more housing units to be deleted than added. Although, there were more deletes that matched a precanvass action than were LUCA actions only, 43 and 44 percent of the total delete actions were identified solely by the LUCA program for Paterson and Oakland, respectively.

For both sites, the LUCA program corrected or moved addresses at a low rate.

B. Characteristics of Added Housing Units

Tables 3 and 4 provide information on the disposition of housing units initially identified as adds by the LUCA program by type of structure for Paterson and Oakland, respectively. The Census Bureau accepted most of these adds received from the Paterson and Oakland local governments. The majority (56.8 and 93.1 percent for Paterson and Oakland, respectively) of the adds received were either accepted or did not require verification. The majority of the adds sent for field verification for each test site were housing units at multiunit structures.

Tables 5 and 6 provide the number of housing units on the MAF and the number of LUCA adds by type and size of structure for Paterson and Oakland, respectively. (Throughout the remainder of this paper, the number of units at the basic street address is used as the basis for size of structure.) The majority (86.2 percent) of the units added by LUCA in Paterson were small multiunit structures containing two to nine housing units. The majority (98.7 percent) of the adds for Oakland were at large multiunit structures containing ten or more housing units.

Table 7 provides the number of adds not accepted during field verification by reason for Paterson. Over 94 percent of the adds not accepted were at multiunits and of these, 88.2 percent were deleted as nonexistent during field verification. This was also the most common reason single unit adds were deleted, at about 68 percent. For Oakland, only eleven adds were not accepted during the field verification. One single unit and ten multiunits were determined to be nonexistent.

C. Characteristics of Deleted Housing Units

Tables 8 and 9 provide the number and percent of housing units initially on the MAF and identified as deletes through the LUCA program by type and size of structure. About 64 percent of the 1,373 deletes in Paterson were at small multiunit structures containing two to nine housing units. This category also had the largest percent of adds for Paterson (see Table 5). For Oakland, most (95.7 percent) of the 1,275 deletes were at large multiunit structures containing ten or more housing units. Note that most of the adds provided by Oakland's local officials were also at large multiunit structures containing 10 or more housing units (see Table 6). For Paterson, the delete rates by type and size of structure are similar to the rates at which they appear on the MAF. However, for Oakland, multiunits were a much higher proportion of the delete population than they were of the total housing unit stock on the MAF.

IV. Conclusions/Recommendations

The LUCA operation resulted in an improvement in housing unit coverage. The manner that the local governmental units conducted LUCA may have had an affect on the results of the operation. In Paterson, the local government conducted their own field verification to identify addresses that they felt should be added. In Oakland, the local government compared, on a block basis, their housing unit counts to the Census Bureau's housing unit count. Then they used reference materials to reconcile differences between the two numbers, starting with those blocks that had the largest differences.

Overall, the LUCA program was viewed as a success by the Census Bureau. Many addresses were added to the MAF that were not included initially or were not added by other address list operations. Also, the LUCA program deleted addresses from the initial MAF. An area that is still a concern is what to do when a dispute occurs over whether or not to add an address. Part of any differences may be the result of the Bureau and the governmental unit using different definitions of a housing unit. This must be clarified. Also, the reconciliation methodology must be clearly defined.

REFERENCES

[1] Miskura, Susan M. (1994), "1995 Census Test - Local Update of Census Addresses Program Requirements Overview", internal memorandum.

[2] Miskura, Susan M. (1994), "Evaluation Requirements Document for the 1995 Census Test Research Objective: Master Address File", internal memorandum.

[3] Moohn, Bettye J. (1994), "1995 Census Test - Local Update of Census Addresses Program Technical Guide Urban Sites".

[4] Moohn, Bettye J. (1994), "1995 Census Test - Local Update of Census Addresses Program Technical Guide Rural Sites".

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NOTE: Percentages in the tables may not add to 100 due to rounding.

Table 1. Relation of Accepted LUCA Actions to Precanvass Actions - Paterson

LUCA Action	Total		Matched Precanvass Action		LUCA Action Only	
	Number	Percent	Number	Percent	Number	Percent
Total	3,516*	100.0	1,231	35.0	2,210	62.9
Add	1,307*	100.0	333	25.5	899	68.8
Delete	1,373	100.0	782	57.0	591	43.0
Correction	32	100.0	15	46.9	17	53.1
Move	804	100.0	101	12.6	703	87.4

* Includes 75 LUCA adds that matched to housing units already listed on the MAF.

Note: There were 49,371 housing units on the MAF in Paterson.

Table 2. Relation of Accepted LUCA Actions to Precanvass Actions - Oakland

LUCA Action	Total		Matched Precanvass Action		LUCA Action Only	
	Number	Percent	Number	Percent	Number	Percent
Total	2,611*	100.0	998	38.2	1,556	59.6
Add	951*	100.0	282	29.7	612	64.4
Delete	1,275	100.0	713	55.9	562	44.0
Correction	337	100.0	3	0.9	334	99.1
Move	48	100.0	0	0.0	48	100.0

* Includes 57 LUCA adds that matched to housing units already listed on the MAF.

Note: There were 161,675 housing units on the MAF in Oakland.

Table 3. Disposition of Initial LUCA Adds by Type of Structure - Paterson

Type of Structure	Initial LUCA Adds		Verification Not Required		Field Verification Results			
					Not Accepted		Accepted	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	2,300	100.0	408*	17.7	993	43.2	899	39.1
Single Unit	112	100.0	15	13.4	50	44.6	47	42.0
Multiunit	2,188	100.0	393	18.0	943	43.1	852	38.9

*   Includes housing units which were sent for field verification and were verified as existing, but after the regeocoding of all LUCA adds these housing units matched to housing units originally on the MAF.

Table 4. Disposition of Initial LUCA Adds by Type of Structure - Oakland

Type of Structure	Initial LUCA Adds		Verification Not Required		Field Verification Results			
					Not Accepted		Accepted	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	1,022	100.0	339*	33.2	11	1.1	612	59.9
Single Unit	2	100.0	1	50.0	1	50.0	0	0.0
Multiunit	1,020	100.0	338	33.1	10	1.0	612	60.0

*   Includes housing units which were sent for field verification and were verified as existing, but after the regeocoding of all LUCA adds these housing units matched to housing units originally on the MAF.

Table 5. LUCA Adds by Type of Structure - Paterson

Type of Structure	MAF		Total LUCA Adds		Matched Precanvass Action		LUCA Action Only	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	49,371	100.0	1,307*	100.0	408*	100.0	899	100.0
Single Unit	7,687	15.6	62	4.7	15	3.7	47	5.2
Small Multiunit (2 - 9 Housing Units)	32,106	65.0	1,236	86.2	385	94.4	790	94.7
Large Multiunit (10 + Housing Units)	9,578	19.4	9	0.7	8	2.0	1	0.1

*   Includes housing units which were sent for field verification and were verified as existing, but after the regeocoding of all LUCA adds these housing units matched to housing units originally on the MAF.

Table 6. LUCA Adds by Type of Structure - Oakland

Type of Structure	MAF		Total LUCA Adds		Matched Precanvass Action		LUCA Action Only	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	161,675	100.0	951*	100.0	339*	100.0	612	100.0
Single Units	92,559	57.3	1	0.1	1	0.3	0	0.0
Small Multiunit (2 - 9 Housing Units)	30,460	18.8	11	1.2	1	0.3	10	1.6
Large Multiunit (10+ Housing Units)	38,656	23.9	939	98.7	337	99.4	602	98.4

*   Includes housing units which were sent for field verification and were verified as existing, but after the regeocoding of all LUCA adds these housing units matched to housing units originally on the MAF.

Table 7. Adds Not Accepted by Reason by Type of Structure - Paterson

Type of Structure	Total		Demolished		Nonexistent		Duplicate		Nonresidential		Other	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	993	100.0	2	0.2	865	87.1	95	9.6	30	3.0	1	0.1
Single Units	57	100.0	1	1.8	39	68.4	11	19.3	5	8.8	1	1.8
Multiunits	936	100.0	1	0.1	826	88.2	84	9.0	25	2.7	0	0.0

Table 8. Deletes by Type of Structure - Paterson

Type of Structure	MAF		Total LUCA Deletes		Matched Precanvass Action		LUCA Action Only	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	49,371	100.0	1,373	100.0	782	100.0	591	100.0
Single Units	7,687	15.6	266	19.4	158	20.2	108	18.3
Small Multiunit (2 - 9 Housing Units)	32,106	65.0	879	64.0	469	60.0	410	69.4
Large Multiunit (10 + Housing Units)	9,578	19.4	228	16.6	155	19.8	73	12.4

Table 9. Deletes by Type of Structure - Oakland

Type of Structure	MAF		Total LUCA Deletes		Matched Precanvass Action		LUCA Action Only	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	161,675	100.0	1,275	100.0	713	100.0	562	100.0
Single Units	92,559	57.3	33	2.6	22	3.1	11	2.0
Small Multiunit (2 - 9 Housing Units)	30,460	18.8	22	1.7	21	2.9	1	0.1
Large Multiunit (10 + Housing Units)	38,656	23.9	1,220	95.7	670	94.0	550	97.9