

CENSUS 2000 ADDRESS LIST REVIEW

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Key Words: Master Address File, Housing Inventory

I. Introduction

One of the objectives for Census 2000 was to start with a complete and accurate address list. Operations to update the Census 2000 Decennial Master Address File included a Local Update of Census Addresses (LUCA) in areas of the country for which the address list was created before Census 2000. Governmental entities were given the opportunity to review address lists and housing unit counts for Census 2000 and to provide any changes or updates to the Census Bureau. This paper will present preliminary results of the LUCA 1998 and 1999 operations. A more complete analysis will be done as part of the Census 2000 Evaluation Program.

Census 2000 was not the first time the Census Bureau has asked local governments to participate in updating census addresses. A Precensus Local Review was conducted during the 1990 Census for mailout/mailback areas. The objective was to provide local officials of functioning governments the opportunity to check preliminary housing unit and special place counts for their political jurisdiction. Counts of housing units were delivered to local officials to review, identify and document discrepancies. For those discrepancies that could not be resolved in the office, blocks were selected to be recanvassed based on specific criteria. A total of 21,048 governmental entities were eligible to participate and 16.3 percent of those units actually participated. The recanvass operation from the 1990 Precensus Local Review added 367,313 housing units to the national housing inventory.

The LUCA operation was conducted in all three sites for the Census 2000 Dress Rehearsal. Local and tribal governments were given the opportunity to review a list of housing units. The City of Sacramento and the Menominee Tribal government participated, and 51.6 percent of the 60 eligible governments in the South Carolina site participated. Participating governments provided feedback in the form of recommended adds, deletes, or corrections of addresses to the Master Address File.

The LUCA operation for Census 2000 included a LUCA 98 operation for those areas where we planned to use

mailout/mailback enumeration methods. In these areas, mailing addresses were predominantly city-style (house number and street name) type of addresses. Areas where enumerators would update an address list and hand deliver forms (update/leave enumeration) were part of the LUCA 99 operation. Mailing addresses in these areas were predominantly non-city-style (such as P.O. Boxes or rural route mail delivery).

For LUCA 98, local and tribal governmental entities were provided with a Census address list that was created using addresses obtained from the U.S. Postal Service's Delivery Sequence File and the 1990 Address Control File. Entities were instructed to review the list and provide detailed feedback providing any additions, corrections or deletions to the list. Results were applied to the Master Address File (MAF). If the updates were provided before Block Canvassing, then the LUCA 98 units were included in the Block Canvassing operation to be verified. Updates that were provided after Block Canvassing and were discrepant with what was on the post Block Canvassing MAF were sent to LUCA 98 Field Verification. Entities were provided with detailed results from the verification operations and given the option to appeal further discrepancies. The LUCA 99 operation was similar to LUCA 98, however entities were asked to look at addresses within a block and identify those blocks where they believed the count of housing units to be incorrect.

II. LUCA 98 Results

The following sections present results for the LUCA 98 operation. LUCA 99 results will be presented in section III.

Participation

The LUCA operation was available to all local and tribal governmental entities that wished to participate, except those that were in areas that were entirely List/Enumerate. LUCA 98 was available to those entities that had at least some areas for which we planned to use mailout/mailback enumeration methods. A governmental entity is defined as a general purpose government that has elected or appointed officials and can raise revenues, provide services and enter into contracts. Governmental entity types included American Indian reservations, minor civil divisions, consolidated cities, counties, and incorporated places.

Many of these governmental entities overlap in jurisdiction. The area reviewed by minor civil division participants may be within the area reviewed by county participants and may be partially within the area reviewed by incorporated place participants. In these cases, counties, places, and minor civil divisions often have been given many of the same addresses to update. Statistics will not be provided in this paper to clarify these occurrences. The Census 2000 LUCA evaluation report will address this overlap issue.

Active participating entities are those entities that said “yes” to participating in the program, returned a signed confidentiality agreement, and are not disincorporated or inactive governments. Another measure of participation was whether or not entities actually provided updates to the address list. Table 1 presents the total number and types of entities and the percentage of those that actively participated.

Table 1 : Participation in LUCA 98 by Type of Entity¹

Entity Type	Total Eligible Entities	% Active Participants ²	% Provided Updates ²
American Indian	123	28.5	18.7
Consolidated City	8	87.5	62.5
County	2,063	44.4	21.0
Minor Civil Division	6,637	35.3	23.9
Incorporated Place	7,947	63.8	47.3
Total	16,778	49.9	34.6

1. Counts are preliminary, 2. Percentage base is total eligible entities

A total of 16,778 entities were eligible to participate in LUCA 98, and about half of them agreed to participate and signed a confidentiality agreement. However, a lower percentage (34.6) provided any updates to the address list. There are two possible ways to categorize those entities that participated but did not provide any updates. The address list may have been completely accurate for that entity so no updates were required, or for some reason the entity chose not to participate after receiving address list materials.

The majority of entities were classified as minor civil divisions and incorporated places. The most active entities (percentage-wise) in LUCA 98 were incorporated places and consolidated cities. However, one must note that there were only a total of 8 consolidated cities eligible to participate.

Now we focus on entity participation in the different regions of the country. There are four predefined Census regions. They include the West, Midwest, Northeast and the South. Table 2 presents the entities and participation percentages by the region of the country.

Table 2 : Participation in LUCA 98 by Region of the Country¹

Region	Total Eligible Entities	% Active Participants ²	% Provided Updates ²
West	1,396	70.1	61.2
Midwest	8,920	39.4	29.0
Northeast	3,257	64.6	38.9
South	3,205	55.4	34.0
Total	16,778	49.9	34.6

1. Counts are preliminary, 2. Percentage base is total eligible entities

The areas with the highest participation rates were the West (70.1) and the Northeast (64.6). The Midwest had the lowest, however they also had the largest number of eligible governmental entities. The majority (75.2 percent) of those entities in the Midwest were minor civil divisions. It is possible that these smaller entities felt that they did not have the resources to review address materials or that other levels of government review (such as county) would be sufficient. Thus, this could account for the low participation rate in the Midwest.

LUCA 98 entities vary greatly in size of housing units. To estimate the level of participation based on how many housing units a government had to cover, entities were broken into size ranges based on their 1990 census housing unit count. Table 3 presents the results of participation by the number of housing units in the entity jurisdiction in 1990.

Table 3: Participation in LUCA 98 by 1990 Census Housing Unit Count¹

Housing Unit Count	Total Eligible Entities	% Active Participants ²	% Provided Updates ²
0 - 999	6,385	34.4	24.8
0- 99	709	27.6	19.9
100- 249	1,234	26.8	18.7
250- 499	1,838	31.9	23.7
500- 999	2,604	41.5	29.9
1,000 - 9,999	7,633	57.2	39.0
10,000 - 90,999	2,513	64.4	43.5
100,000 +	246	77.6	58.5
100,000- 249,999	162	76.5	53.1
250,000- 499,999	60	78.3	65.0
500,00- 999,999	19	84.2	78.9
1,000,000 +	5	80.0	80.0
Total	16,778	49.9	34.6

1. Counts are preliminary, 2. Percentage base is total eligible entities

The majority of LUCA 98 entities had a housing unit count that was less than 10,000 units. The distribution of entities by ranges of housing unit counts is presented in table 3. It is apparent the larger entities were more likely to participate and to provide updates to the address list. The increased participation trend even continues in the breakdown of the entities with 100,000 plus housing units in 1990. Twenty-four eligible entities had more than 500,000 housing units in 1990. Of the 24 entities, 20 participated and 19 actually provided any updates to the address list.

LUCA 98 Participant Updates to the Master Address File

LUCA 98 participants were provided with a list of addresses that were in their jurisdiction. Entities were asked to review address materials and provide any updates to the address list. They were given approximately 3 months to make updates. The following types of updates were provided by participants:

- **Adds:** The entity added a housing unit that they did not observe to be on the census address list
- **Corrections:** The entity corrected an address or it's geography (in what block it was located) on the census address list
- **Deletes:** The entity deleted an address that they did not believe existed in their jurisdiction

- **Non Residential:** The entity determined that the unit was not residential

There were 80,573,336 addresses sent to LUCA 98 participants on address lists. Table 4 presents the updates made to the lists by participants.

Table 4 : LUCA98 Actions to the Master Address File¹

Entity Action	Total	DMAF Deliverable ²
Adds	6,386,923	6,132,885
Corrections	2,783,935	2,724,277
Deletes	460,461	187,238
Non Residential	29,428	11,734

1. Counts are preliminary, 2. As of April 2000

As expected, the majority of the actions provided were adds to the address list. According to participants, approximately 6.4 million addresses were not on the list that should have been. About 6.1 million of those addresses are currently Decennial Master Address File (DMAF) deliverable. That is, they are on the Census 2000 address list. The total number of corrections and deletions to the address list was significantly less than adds to the list.

Field Verification of LUCA 98 Addresses

Once entities provided updates, depending on the timing, one of two things could have occurred. Updates that were received before the Block Canvassing operation had commenced in the field were added to the MAF so that they could be verified in the Block Canvassing operation. Otherwise, if updates were returned after Block Canvassing, the Census Bureau checked updates against the MAF existing after the updates from Block Canvassing. The existing MAF (updated with Block Canvassing) may have reflected some of the same changes entities provided. Units with discrepant address actions between LUCA and Block Canvassing were sent to be verified in the field.

Due to the timing of the mailout of Census 2000 questionnaires and LUCA 98 field verification in some areas, added housing units provided by entities were immediately added to the DMAF as provisional adds (and, therefore, mailed questionnaires) before field verification results became available. Field verification results were used to determine whether an address was eligible to enter the Census 2000 Nonresponse Followup operation if no questionnaire was returned. Also, updates provided from Supplemental LUCA entities were also added directly to the DMAF and would not be included

in the field verification operation.

Approximately 5,324,125 addresses went to field verification. However some of those addresses went to field verification solely due to the fact that they were deleted in the Block Canvassing operation. In order to confirm addresses deleted in Block Canvassing, they were included in the LUCA 98 field verification operation. These addresses may or may not have had LUCA 98 participant actions. Table 5 presents those addresses with a LUCA 98 participant action that went to LUCA 98 field verification by the type of action the entity provided.

Table 5: Distribution of Addresses Sent to Field Verification by Type of Entity Update¹

Entity Action	Addresses Sent to Field Verification	
	Total	DMAF Deliverable ²
Adds	3,067,903	3,067,794
Corrections	326,098	282,231
Deletes	3,694	3,689
Non Residential	284	246
Total (sent to FV)	3,397,979	3,353,960

1. Counts are preliminary, 2. As of April 2000

A total of 3,397,979 addresses with LUCA participant actions were sent to the LUCA 98 Field Verification operation. The majority of those were participant adds. Field representatives were required to verify all addresses provided to them and make any corrections to the list. Field verification updates included:

- Verification of an existing address
- Deletion of an address
- Address correction or a status of nonresidential

Table 6 presents the results of field verification for entity provided addresses.

Table 6: LUCA98 Field Verification Actions to the Master Address File¹

Field Verification Action	Total	DMAF Deliverable ²
Verifications	1,050,832	1,050,730
Corrections	519,279	518,955
Deletions	1,616,182	1,574,609
Non Residential	211,686	209,666
Total Actions	3,397,979	3,353,960

1. Counts are preliminary, 2. As of April 2000

There were a total of 1,050,832 addresses (which had a LUCA action) that were verified residences in the field operation. Of those, approximately 896,547 were participant adds, 570 were participant deletes and the remaining were participant corrections. There were a total of 1,574,609 address deletions in the field. Of those, 1,509,542 were participant adds, 2,309 were participant deletes, and the remaining were participant corrections.

LUCA 98 Appeals

Once addresses were verified against the current MAF and/or in the field, results of whether an address would be included in subsequent census operations beyond the mailout were provided to each participating entity. Entities were then given the opportunity to appeal a decision. The Census Address List Appeals Office was established as a temporary office, in the Office of Management and Budget, outside the Department of Commerce to resolve appeals cases. Full results of the appeal process are not available. Currently, 285,643 addresses were included in the LUCA 98 appeals process. Of those, 275,214 were adds and 10,429 were deletes to the MAF.

III. LUCA 99 Results

The LUCA 99 program was for all governmental entities in the country including Puerto Rico that had at least some areas for which we planned to use Update/Leave enumeration. Entities were provided with addresses that came primarily from the Census 2000 Address Listing operation. The following sections present the results of the LUCA 99 governmental entity participation and operations.

Participation

Entities that had at least some area in which the Census Bureau planned to use update/leave enumeration methods were asked to participate in LUCA 99. Entities were asked to confirm or challenge counts of housing units in blocks rather than update specific addresses. LUCA 99 participants were asked to review counts instead of specific addresses due to the difficulties experienced by the participants and the Census Bureau with matching non-city-style addresses, as was discovered in the Census 2000 Dress Rehearsal. Table 7 presents entities in LUCA 99 by type and percentage of participants in the program.

Table 7 : Participation in LUCA 99 by Type of Entity¹

Entity Type	Total Eligible Entities	% Active Participants ²	% Challenged Blocks ²
American Indian	282	50.4	25.2
Consolidated City	4	75.0	25.0
County	3,010	46.6	20.1
Minor Civil Division	12,930	21.7	9.2
Incorporated Place	14,030	46.0	25.0
Total	30,256	35.7	17.8

1. Counts are preliminary, 2. Percentage base is total eligible entities

Approximately 36 percent of 30,256 governmental entities participated in LUCA 99. A much lower percentage (17.8) challenged block counts. The overall LUCA 99 participation rate was also lower than the 49.9 percent LUCA 98 participation rate. Minor Civil Divisions had the lowest participation rate in LUCA 99. Consolidated cities had the highest (with 3 of the 4 entities participating). The other entity types had comparable rates at around 50 percent.

Table 8 presents entity participation in LUCA 99 by region of the country.

Table 8: Participation in LUCA 99 by Region of the Country¹

Region	Total Eligible Entities	% Active Participants ²	% Challenged Blocks ²
West	2,231	52.1	28.9
Midwest	17,509	28.4	15.8
Northeast	3,990	41.3	15.4
South	6,526	46.4	20.6
Total	30,256	35.7	17.8

1. Counts are preliminary, 2. Percentage base is total eligible entities

The participation by region is much different for LUCA 99 than it was for LUCA 98. The West and the South regions of the country had the highest participation in LUCA 99. Again, the Midwest had the largest number of entities and the lowest participation rate.

LUCA 99 entities were also examined by 1990 housing unit size ranges. There are more entities in LUCA 99 (30,256) than in LUCA 98 (16,778). The LUCA 99 entities in general had fewer housing units in 1990. A good majority of the entities had less than 1,000 housing units in 1990. Table 9 presents the entity participation rates by the 1990 housing unit counts.

Table 9: Participation in LUCA 99 by 1990 Census Housing Unit Count¹

Housing Unit Count	Total Eligible Entities	% Active Participants ²	% Challenged Blocks ²
0 - 999	22,397	30.9	16.2
0- 99	6,818	20.0	9.9
100- 249	5,935	30.5	16.7
250- 499	5,143	37.6	20.8
500- 999	4,501	40.5	19.9
1,000 - 9,999	6,076	47.6	21.4
10,000 - 99,999	1,612	54.7	23.9
100,000 +	171	60.8	36.3
100,000- 249,999	119	55.5	30.3
250,000- 499,999	38	71.1	50.0
500,00- 999,999	11	72.7	45.5
1,000,000 +	53	100.0	66.7
Total	30,256	35.7	17.8

1. Counts are preliminary, 2. Percentage base is total eligible entities

The LUCA 98 increasing participation trend as entity size is increased is also apparent in LUCA 99. There are fewer entities in LUCA 99 than in LUCA 98 with more than 100,000 housing units in 1990. However, the participation rates and percentage that challenged blocks do increase for the breakdown for larger housing unit size group as well as the breakdown for those entities with 500 or fewer housing units in 1990.

LUCA 99 Participant Updates to the Master Address File

Approximately 114,020 blocks were challenged by LUCA 99 participants. Challenged blocks were relisted by the Census Bureau field representatives. There were a total of 2,222,980 addresses in challenged blocks. 2,080,799 of those are currently flagged as being on the Census 2000 address list (DMAF).

Census field representatives conducted a dependent relist of blocks. They determined whether an address needed to be corrected, deleted or made nonresidential for each address on their list. They verified all correct addresses that were on their list and added any address that was not on their list. Table 10 presents the distribution of actions for addresses in challenged blocks.

Table 10 : LUCA 99 Relist Actions¹

Action	Total	DMAF Deliverable ²
Adds	338,756	336,314
Corrections	389,313	388,908
Deletes	144,392	4,100
Nonresidential	3,557	3,556
Verifications	1,685,099	1,684,215
Total Actions	2,561,117	2,417,093

1. Counts are preliminary, 2. As of April 2000

Of the 2,222,980 addresses that went to the LUCA 99 Relist operation, 1,685,099 were verified, and 537,262 were either corrected, deleted or declared nonresidential. There were a total of 338,756 adds from the relisting operation, 619 of those adds were housing units that were already on the MAF in a relisting block.

LUCA 99 Appeals

Once the relist was completed, revised counts of housing units and a list of addresses were provided to LUCA 99 participating entities. They then had the opportunity to appeal an address. At this time they could attempt to add an address that was still not on their list. To date, a total of 18,133 addresses were appealed in LUCA 99 and all of them were added to the MAF.

IV. Conclusion

The LUCA operation was just one of the processes used to update the MAF (and hence the DMAF) in Census 2000. Local and tribal governments were given the opportunity to investigate and correct the Census Bureau's most current address lists. Approximately 49.9 percent of the 16,778 eligible entities in LUCA 98 and 35.7 percent of the 30,256 eligible entities in LUCA 99 participated in the operation for Census 2000.

The majority of updates provided by LUCA 98 participants were adds to the MAF. A total of 6,132,885 adds were provided, of those 3,067,903 were sent to field verification and 1,509,542 participant adds were deleted through that operation. The remaining participant adds were verified or deleted through comparisons with the MAF updated with results from the Block Canvassing operation.

LUCA 99 participants challenged 114,020 blocks that were then sent for a relisting by Census Bureau field representatives. A total of 338,756 addresses were added to the MAF as a result of the relisting operation. An additional 18,133 addresses were added to the MAF through the LUCA 99 appeals process.

The LUCA 98 and LUCA 99 operations are not yet complete for Census 2000. Local governments' appeals to specific addresses are still in determination stages. All numbers presented in this paper are preliminary. The final evaluation of the Census 2000 LUCA operation will depend on the final status of units in the census.

V. References

U.S. Department of Commerce, *1990 Census of Population and Housing Evaluation and Research Reports: Programs to Improve Coverage in the 1990 Census*, U.S. Government Printing Office, Washington, D.C., 1993

This paper reports the results of research and analysis undertaken by Census Bureau staff. It has undergone a more limited review by the Census Bureau than its official publications. This report is released to inform interested parties of research and to encourage discussion.