## List/Enumerate

## FINAL REPORT

This evaluation study reports the results of research and analysis undertaken by the U.S. Census Bureau. It is part of a broad program, the Census 2000 Testing, Experimentation, and Evaluation (TXE) Program, designed to assess Census 2000 and to inform 2010 Census planning. Findings from the Census 2000 TXE Program reports are integrated into topic reports that provide context and background for broader interpretation of results.

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## EXECUTIVE SUMMARY

List/Enumerate is an all-in-one operation used in sparsely populated areas of the country for Census 2000. During this operation, census enumerators are assigned areas to canvass and are given census maps for these areas. The enumerators are responsible for listing addresses within their area on blank address register pages, locating the addresses on census maps (map spotting), and conducting an interview to collect census information for each address. The operation, which included reinterview and field followup components, was carried out from mid-March 2000 to the beginning of July 2000.

This evaluation examines the characteristics of addresses added to the Master Address File by the List/Enumerate operation for Census 2000. Some of the more notable findings follow.

## How many addresses were provided by the List/Enumerate operation and at what cost?

List/Enumerate was responsible for adding 392,368 addresses nationwide to the Master Address File. Of these 392,368 addresses, 391,276 met the eligibility criteria to be in the census. This is about 99.7 percent of all added List/Enumerate addresses. Of the 391,276 addresses eligible to be in the census, 389,749 addresses were actually included in the final census count. This represents 99.6 percent of the eligible List/Enumerate addresses and 99.3 percent of all added List/Enumerate addresses.

The List/Enumerate operation cost a total of $\$ 19,704,944$. Although the main focus of this report is on the listing part of List/Enumerate, this total cost incorporates enumeration costs along with the listing costs. As well, headquarters and Local Census Office infrastructure costs are not included in the cost. To find the average cost per address (listed and enumerated), we divide the total field cost $(\$ 19,704,944)$ of the List/Enumerate operation by the number of addresses added during List/Enumerate $(392,368)$. This amounts to roughly $\$ 50.22$ per address.

## How many census blocks could we have potentially converted to a different type of enumeration methodology?

A total of 47,927 blocks had at least one List/Enumerate address. Of these 47,927 blocks, only 2,231 blocks ( 4.7 percent) had all of their addresses recognized by the United States Postal Service. This indicates that these 2,231 blocks could have possibly been converted to the Mailout/Mailback enumeration methodology. These blocks contain 5,504 of the 392,368 addresses (1.4 percent) added during List/Enumerate.

## Was the List/Enumerate operation a success?

List/Enumerate appears to be successful for the following reasons:

- Coverage: A total of 392,368 addresses were added from the operation.
- Future Locatability of Addresses: We found that 197,525 of the 392,368 (50.3 percent) were complete city-style type addresses. Of the 160,232 addresses that were not complete city-style or not complete rural route, 85.2 percent had location description information. In addition, 98.7 percent of all added List/Enumerate addresses had a valid map spot.
- Quality of Addresses: About 99.3 percent of the 392,368 addresses made it into the census.
- Targeting of Areas: Only 2,231 of the 214,785 blocks (1.0 percent) in List/Enumerate had all of their addresses recognized by the United States Postal Service. These 2,231 blocks represent just 5,504 of the 392,368 addresses (1.4 percent) added during the operation.


## 1. BACKGROUND

### 1.1 1990 Census

In 1990, about a week before Census Day, the United States Postal Service (USPS) letter carriers delivered Advance Census Reports (ACRs) to all known residential addresses in sparsely populated rural areas. A member of the household was asked to complete the questionnaire and hold it for pick-up by an enumerator. Beginning the day before Census Day, enumerators canvassed their assignment area, listed the address of each housing unit and updated the census map to indicate the physical location of each unit. The enumerator entered a map spot number on the map and on the corresponding line on the address register page. The enumerator picked up the respondent completed questionnaire or completed a questionnaire for every housing unit in the address register area when the respondent did not have a completed form. The lines on the address register pages were preprinted to indicate whether a household was to receive a long form or a short form. For long form households who received a short form, the enumerator collected the respondent completed short form, transferred the information to the long form, and conducted an interview to obtain remaining long form information. The 1990 List/Enumerate (L/E) workload was 5.7 million housing units (U.S. Census Bureau, 1993).

### 1.2 Census 2000

In 2000, the L/E workload was expected to be approximately 500,000 housing units. The ACRs were eliminated because L/E areas had been delineated at the block level for Census 2000. In addition, carrier routes do not necessarily fall into entire zip codes so it was not possible to tell the USPS where to deliver the ACRs. Therefore, for Census 2000, the USPS was not used. Enumerators were responsible for visiting all housing units in their assignment areas and conducting an interview using enumerator questionnaires.

List/Enumerate areas were in portions of 20 states. These states were Alaska, Arizona, California, Hawaii, Idaho, Maine, Montana, Nebraska, Nevada, New Hampshire, New Mexico, New York, North Dakota, Oregon, South Dakota, Texas, Utah, Vermont, Washington, and Wyoming. These states are mainly in the West and Northeast regions of the country.

## 2. METHODOLOGY

The March 2001 Master Address File (MAF) extracts are used for the analysis done in this evaluation (see Appendix D for a complete list of variables used). These extracts are address files created by the Geography Division. The files contain housing unit and group quarters addresses as well as several characteristics about these addresses. For this evaluation, we focus only on housing units. Therefore, we excluded all group quarters addresses prior to the analysis phase.

We used specific variables from the March 2001 MAF extracts to determine the L/E universe:

- We started by taking only records where the Type of Enumeration Area (TEA) variable was equal to List/Enumerate (TEA=3).
- Next, we restricted the universe to housing units by allowing the Group Quarters/Housing Unit Flag to be only a housing unit or a housing unit embedded in a group quarter (GQHUFLAG=0 or 3).
- Lastly, we eliminated addresses that were equivalent to other addresses on the file by taking records with no Surviving MAF ID (ORIGST $\|$ ORIGCO||MAFID $\|$ COUCHG=blank).

Evaluations of the MAF-building operations required identification of the source of every address on the MAF, which did not exist on the MAF. An original source variable was defined and created by Planning, Research and Evaluation Division (PRED) and Decennial Statistical Studies Division (DSSD). This variable identifies the first operation or file to add the address to the MAF, with the following three qualifications:

- If one operation added an address, but it was found by a later operation to exist in a different TEA, the first operation does not receive credit for adding this address.
- Not every address in the MAF has sufficient operation information to indicate how the address was added to the MAF.
- In cases where one MAF-building operation overlapped with one or more other MAF-building operations, if the address was added independently in each operation, we give credit to each operation. An example of this is LUCA 1998 and Block Canvassing.

Therefore, the original source variable identifies the first operation or operations to add the address to the TEA in which it exists for the Census, provided there is sufficient information to identify a TEA and an operation. For additional information on how the original source variable was defined, see U.S. Census Bureau, 2001a.

A portion of this evaluation looks at addresses by type of address information. We classify addresses into five categories based on the highest criteria met. The categories are: complete city-style, complete rural route, complete post office box, incomplete address and no address information.

- The complete city-style category includes all units that had complete city-style addresses, which consists of a house number and street name.
- The complete rural route category includes units that did not have a complete city-style address but did have a complete rural route address, such as Rural Route 2, Box 3.
- The complete post office box category includes units that did not have a complete city-style or complete rural route address but did have a complete post office box address, such as P.O. Box 5.
- The incomplete category includes units that had some address information but did not have a complete address of any type.
- The no address information category includes units that are missing house number, street name, Rural Route, and Post Office box information.

Addresses are further delineated by whether or not the address had a physical/location description provided during a census field operation. For additional information on how this variable was defined, see U.S. Census Bureau, 2001d.

Cost data appearing in this evaluation is taken from the Financial Management Report for L/E. The report breaks down the total money expended on each "object class". Each object class can be thought of as an expenditure category. Examples of these object classes include salaries, civilian personnel benefits, mileage allowance, per diem allowance, telecommunications services, and other travel. The Financial Management Report data used for the cost analysis is supplied by the Decennial Management Division.

Quality assurance procedures were applied to the design, implementation, analysis, and preparation of this evaluation report. A description of the procedures used is provided in the "Census 2000 Evaluation Program Quality Assurance Process".

## 3. LIMITATIONS

The following limitations to the evaluation should be noted:

- The 'Number of Units at this Basic Street Address' variable is overstated. It is based on addresses that are eligible to be in the census instead of on addresses included in the census. This variable is used to determine whether an address belonged to a single or multi-unit structure. Also, only city style addresses were matched to created multi-unit addresses. All non-city style addresses are treated as single unit addresses.
- The type of enumeration areas, enumeration methodologies, and analysis variables for Census 2000 may differ from previous censuses. Caution should be taken when comparing results across censuses. An example of an analysis variable that has changed from 1990 is size of structure--the closest approximation being size of basic street address in Census 2000. In the 1990 census, we had a census question asking the respondent the size of structure. In Census 2000, we defined the size of basic street address based on an address-level algorithm.
- In this evaluation, we look at address information in the following categories: complete citystyle, complete rural route, complete post office box, incomplete, or no address information. Because of the way the address information is stored on the MAF, we are unable to distinguish between addresses that are used for mailing and those that are used for locating addresses in field operations.
- While the main focus of this report is on the listing part of $\mathrm{L} / \mathrm{E}$, the cost data from the Financial Management Report for L/E incorporates enumeration costs along with the listing costs. Additionally, headquarters and Local Census Office infrastructure costs are not included in the cost data.


## 4. RESULTS

### 4.1 How many addresses were provided by the List/Enumerate operation?

Table 1 shows the number of $L / E$ addresses by action code. An action code is used to show the transaction that took place on an address by an enumerator in the field. Since L/E is an operation that has no address list in place prior to the operation, all L/E addresses should have an 'Add' action code. However, some L/E addresses on the file have no action code (blank). These addresses with no action code were found to have been provided by a source other than L/E, then later moved into an L/E area for tabulation purposes. (See Table 2)

There were a total of 431,076 addresses nationwide in L/E areas on the MAF. The L/E operation added 392,368 of these addresses during Census 2000. Of these added addresses, 391,276 were eligible to be in the census. This is about 99.7 percent of all added L/E addresses with an 'Add' action code. Of the 391,276 addresses eligible to be in the census, 389,749 addresses were actually included in the final census count. This represents 99.6 percent of the eligible L/E addresses and 99.3 percent of all added L/E addresses.

Table 1. List/Enumerate Addresses by Action Code

| Action Code | All L/E Addresses | L/E Addresses Eligible to <br> be in the Census | L/E Addresses Included in <br> the Census |
| :---: | :---: | :---: | :---: |
| TOTAL | 431,076 | 395,264 | 392,235 |
| Add | 392,368 | 391,276 | 389,749 |
| Blank | 38,708 | 3,988 | 2,486 |

Source: March 2001 MAF extracts

Table 2 shows L/E addresses with no action code by original source. These addresses with no action code were initially identified on a file or in a non-L/E operation, then later moved into an L/E area. Since these addresses came from a source other than L/E - the majority of addresses
are from the 1990 Address Control File and the USPS' Delivery Sequence Files (DSF) - there could be potential duplication with addresses added by L/E. For this reason, these addresses with no action code are excluded in any remaining analysis.

Table 2. List/Enumerate Addresses with No Action Code by Original Source

| Original Source | \# of Addresses | \% of Addresses |
| :--- | :---: | :---: |
| TOTAL | 38,708 | 100.0 |
| 1990 ACF | 13,641 | 35.2 |
| LUCA 1998 | 78 | 0.2 |
| Block Canvassing | 311 | 0.8 |
| Delivery Sequence File 1 | 11,874 | 30.7 |
| Delivery Sequence File 2 | 2,979 | 7.7 |
| Delivery Sequence File 3 | 4,189 | 10.8 |
| Delivery Sequence File 4 | 982 | 2.5 |
| Delivery Sequence File 5 | 620 | 1.6 |
| LUCA 98 and DSF 2 | 1 | $<0.1$ |
| Block Canvassing and LUCA | 1 | $<0.1$ |
| Address Listing | 178 | 0.5 |
| Special Place/Group Quarters | 209 | 0.5 |
| Coverage Improvement Follow-up | 1 | $<0.1$ |
| Be Counted | 763 | 2,427 |
| Telephone Questionnaire Assistance (TQA) | 453 | 1.2 |
| Be Counted and TQA | 1 | $<0.1$ |
| Unknown - TEA 3 | 7.3 |  |

Source: March 2001 MAF extracts

In the remaining discussion in the results section, we will use the number of added $\mathrm{L} / \mathrm{E}$ addresses $(392,368)$ appearing in Table 1 as our base. The totals for the addresses eligible to be in the census and the addresses included in the census were also analyzed. The analysis for these universes appear in Appendix B and Appendix C, respectively, with no discussion.

### 4.2 From what states did List/Enumerate collect addresses?

Table 3 shows L/E addresses by state. The addresses added during L/E came from portions of 20 states. Maine and New York added the most addresses during L/E. These two states accounted for 19.2 percent and 14.3 percent, respectively, of the 392,368 addresses. New Hampshire and Vermont each added about 11 percent of all L/E addresses, Wyoming added about 9.7 percent, and California had around 9.0 percent of the addresses.

Table 3. List/Enumerate Addresses by State

| State | \# of Addresses | \% of Addresses |
| :--- | :---: | :---: |
| TOTAL | 392,368 | 100.0 |
| Alaska | 3,568 | 0.9 |
| Arizona | 25,196 | 6.4 |
| California | 35,127 | 9.0 |
| Hawaii | 208 | 0.1 |
| Idaho | 3,423 | 0.9 |
| Maine | 75,319 | 19.2 |
| Montana | 8,761 | 2.2 |
| Nebraska | 4,027 | 1.0 |
| Nevada | 17,857 | 4.6 |
| New Hampshire | 44,458 | 11.3 |
| New Mexico | 6,403 | 1.6 |
| New York | 55,969 | 14.3 |
| North Dakota | 3,910 | 1.0 |
| Oregon | 1,776 | 0.5 |
| South Dakota | 4,059 | 10.6 |
| Texas | 15,110 | 1.9 |
| Utah | 38,018 | 9.9 |
| Wermont |  | 1.9 |
| Washington | 10.1 |  |

Source: March 2001 MAF extracts

### 4.3 What is the profile of the addresses added during List/Enumerate?

Table 4 shows L/E addresses by address type. For a discussion on how address type is defined, see the Methodology section. About 50.3 percent of the addresses added during L/E were complete city-style type addresses. The complete rural route address category and complete post office box address category each represented around 9 percent of all L/E addresses. In both of these categories, the majority of addresses had an associated location description. There were 28.2 percent of L/E addresses with no address information. Of these addresses, a large majority had a location description.

Of the addresses that did not have a complete city-style or complete rural route address (complete post office box, incomplete, and no address information), about 85.2 percent had a location description.

Table 4. List/Enumerate Addresses by Address Type

| Address Type | \# of Addresses | \% of Total |
| :---: | :---: | :---: |
| TOTAL | 392,368 | 100.0 |
| with location description | 202,180 | 51.5 |
| without location description | 190,188 | 48.5 |
| Complete City-Style Address | 197,525 | 50.3 |
| with location description | 32,827 | 8.4 |
| without location description | 164,698 | 42.0 |
| Complete Rural Route Address | 34,611 | 8.8 |
| with location description | 32,787 | 8.4 |
| without location description | 1,824 | 0.5 |
| Complete Post Office Box Address | 37,227 | 9.5 |
| with location description | 33,602 | 8.6 |
| without location description | 3,625 | 0.9 |
| Incomplete Address (any of the 3) | 12,433 | 3.2 |
| with location description | 6,026 | 1.5 |
| without location description | 6,407 | 1.6 |
| No Address Information | 110,572 | 28.2 |
| with location description | 96,938 | 24.7 |
| without location description | 13,634 | 3.5 |

Source: March 2001 MAF extracts

Table 5 breaks down L/E addresses by whether the address contains a map spot. For map spotting, an enumerator marks the location of a residential structure on a census map corresponding to the physical location of the unit on the ground. The purpose of a map spot is to help locate the address in the future. If a map spot is present on the map and corresponds to a line in the address register, it is considered to be valid.

Of the 392,368 addresses added during L/E, 387,424 addresses had a valid map spot. This represents 98.7 percent of all L/E addresses. Appendix A, Table A-1 contains a breakdown of the L/E addresses by whether the address contains a map spot at the state level.

Table 5. List/Enumerate Addresses by Map Spot Status

| Map Spot Status | \# of Addresses | \% of Addresses |
| :--- | :---: | :---: |
| TOTAL | 392,368 | 100.0 |
| Valid Map Spot Exists | 387,424 | 98.7 |
| No V alid Map Spot Exists | 4,944 | 1.3 |

Source: March 2001 MAF extracts

Table 6 shows L/E addresses by type of structure (single versus multi-unit). An address can either be classified as a single unit structure or it can be part of a multi-unit structure, such as an apartment. About 91.8 percent of the $392,368 \mathrm{~L} / \mathrm{E}$ addresses are single unit structures. This represents 360,381 of all added $\mathrm{L} / \mathrm{E}$ addresses. The remaining 31,987 addresses ( 8.2 percent) are part of a multi-unit structure. Of these 31,987 addresses, almost 58 percent were included in structures that with two to four units. Appendix A, Table A-2 contains a breakdown of the L/E addresses by whether the address is contained in a single or multi-unit structure at the state level.

Table 6. List/Enumerate Addresses by Type of Structure

| Type of Structure | \# of Addresses | \% of Addresses |
| :---: | :---: | :---: |
| TOTAL | 392,368 | 100.0 |
| Single | 360,381 | 91.8 |
| Multi-Unit | 31,987 | 8.2 |
| 2 to 4 units | 18,434 | 4.7 |
| 5 to 9 units | 3,976 | 1.0 |
| 10 to 19 units | 2,204 | 0.6 |
| 20 to 49 units | 3,148 | 0.8 |
| $50+$ units | 4,225 | 1.1 |

Source: March 2001 MAF extracts

### 4.4 Did the List/Enumerate operation target the correct areas?

Table 7 displays addresses added during L/E by DSF status. The DSF is a list of addresses maintained by the USPS. It contains both residential and commercial addresses that receive mail delivery.

We find that 70,751 addresses added during L/E matched to an address on the DSF. These are addresses that could have potentially been delivered a census questionnaire by the USPS. These DSF matched addresses represent about 18.0 percent of the 392,368 total L/E addresses. All 70,751 addresses were complete city-style type addresses. Appendix A, Table A-3 contains a breakdown of the L/E addresses by whether or not the address matches to the DSF at the state level.

Table 7. List/Enumerate Addresses Matching to the Delivery Sequence File

| DSF Status | \# of Addresses | \% of Addresses |
| :--- | :---: | :---: |
| TOTAL | 392,368 | 100.0 |
| Matches | 70,751 | 18.0 |
| Does Not Match | 321,617 | 82.0 |

Source: March 2001 MAF extracts

Table 8 shows L/E block and address counts by percent of DSF matched addresses per block. In this table, the first column represents the percent of addresses in a block that are on the DSF. The second column shows the number of blocks that fall into each of these percentage groupings. The third and fourth columns show the number and percent of DSF matched addresses for each percentage grouping.

Out of $214,785 \mathrm{~L} / \mathrm{E}$ blocks, there are 47,927 blocks that had at least one $\mathrm{L} / \mathrm{E}$ address. Of these 47,927 blocks with addresses, only 2,231 L/E blocks (4.7 percent) had all of their addresses recognized by the USPS. These blocks account for 5,504 addresses, which is 7.8 percent of all DSF matched addresses and only about 1.4 percent of the 392,368 added L/E addresses. This means that we could have potentially enumerated these 5,504 addresses with another enumeration method, specifically Mailout/Mailback.

Appendix A, Table A-5 contains a breakdown of L/E block and address counts by percent of DSF matched addresses per block at the state level. For a breakdown of DSF matched addresses by type of structure (single versus multi-unit) at the state level, see Table A-4 in Appendix A.

Table 8. List/Enumerate Block and Address Counts by Percent of Delivery Sequence File Matched Addresses per Block

| \% of DSF Matched <br> Addresses Per Block | \# of Blocks | \# of DSF Matched <br> Addresses | \% of Addresses |
| :--- | :---: | :---: | :---: |
| TOTAL | 47,927 | 70,751 | 100.0 |
| $0-29 \%$ | 40,298 | 6,585 | 9.3 |
| $30-59 \%$ | 2,926 | 18,147 | 25.7 |
| $60-89 \%$ | 2,242 | 30,679 | 43.4 |
| $90-94 \%$ | 178 | 6,973 | 9.9 |
| $95-99 \%$ | 52 | 2,863 | 4.1 |
| $100 \%$ | 2,231 | 5,504 | 7.8 |

Source: March 2001 MAF extracts

Table 9 displays L/E addresses per block by block size. The block size, which is the number of $\mathrm{L} / \mathrm{E}$ addresses per block, ranges from a low of zero to a high of 1,167 . Of the 214,785 blocks in $\mathrm{L} / \mathrm{E}$, a huge majority have very few $\mathrm{L} / \mathrm{E}$ addresses. Blocks with no $\mathrm{L} / \mathrm{E}$ addresses accounted for 166,858 of the 214,785 blocks ( 77.7 percent). About 90 percent of all blocks in L/E had no more than three addresses. For these $214,785 \mathrm{~L} / \mathrm{E}$ blocks, the mean block size is about 1.8 and the median is zero.

If we only consider blocks with at least one L/E address per block, the total number of blocks is 47,927 . The mean block size changes to 8.2 and the median is three. For these 47,927 blocks, the block size mode is one. Blocks with only one L/E address account for about 30.9 percent of these blocks.

Table 9. List/Enumerate Addresses per Block by Block Size

| Block Size <br> (\# of L/E Addresses <br> Per block) | Addresses |  | Blocks |  | Blocks with L/E <br> Addresses |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | \# | \% | \# | \% | \# | \% |
| TOTAL | 392,368 | 100.0 | 214,785 | 100.0 | 47,927 | 100.0 |
| 0 | 0 | 0.0 | 166,858 | 77.7 | n/a | n/a |
| 1 | 14,813 | 3.8 | 14,813 | 6.9 | 14,813 | 30.9 |
| 2 | 14,420 | 3.7 | 7,210 | 3.4 | 7,210 | 15.0 |
| 3 | 13,440 | 3.4 | 4,480 | 2.1 | 4,480 | 9.3 |
| 4 to 9 | 67,339 | 17.2 | 11,471 | 5.3 | 11,471 | 23.9 |
| 10 to 24 | 99,933 | 25.5 | 6,660 | 3.1 | 6,660 | 13.9 |
| 25 to 49 | 75,195 | 19.2 | 2,225 | 1.0 | 2,225 | 4.6 |
| 50 to 99 | 52,100 | 13.3 | 778 | 0.4 | 778 | 1.6 |
| 100+ | 55,128 | 14.1 | 290 | 0.1 | 290 | 0.6 |

Source: March 2001 MAF extracts

### 4.5 What was the cost of the List/Enumerate operation?

Table 10 shows field cost and percentage of field cost by expenditure category. Although the main focus of this report is on the listing part of L/E, the cost data incorporates enumeration costs along with the listing costs. As well, headquarters and Local Census Office infrastructure costs are not included in these costs.

The L/E operation cost a total of $\$ 19,704,944$. This amount includes field employee salaries as well as civilian personnel benefits, mileage allowance, per diem allowance, other travel, and telecommunications services. Salaries accounted for $\$ 14,348,126$ ( 72.8 percent) of the total field cost. Mileage accounted for the second largest piece of the total field cost at 19.1 percent. Civilian personnel benefits, which includes such things as health insurance, represented about 5.9 percent of the $\$ 19.7$ million total cost. To find the average cost per address (listed and enumerated), we divide the total field cost $(\$ 19,704,944)$ of the L/E operation by the number of addresses added during $L / E(392,368)$. This amounts to roughly $\$ 50.22$ per address.
*Note: There were several sources that could have provided cost data for the L/E operation. Pre-Appointment Management Systems/Automated Decennial Administrative Management System (PAMS/ADAMS) showed a total field cost of about $\$ 18.1$ million for L/E. This total included a salaries category, which included regular, training, overtime, and night differential,
and a reimbursable category, which consisted of mileage, telephone, and other costs. The main difference between the two sources appears to be the cost of civilian personnel benefits which show up on the Financial Management Report for L/E. However, the cost of benefits does not make up the entire difference in total costs between PAMS/ADAMS and the Financial Management Report.

Table 10. Field Cost and Percentage of Field Cost by Expenditure Category

| Expenditure Category | Field Cost | \% of Field Cost |
| :--- | :---: | :---: |
| TOTAL | $\$ 19,704,944$ | 108.6 |
| Salaries | $\$ 14,348,126$ | 72.8 |
| Civilian Personnel Benefits | $\$ 1,153,044$ | 5.9 |
| Mileage Allowance | $\$ 3,770,476$ | 19.1 |
| Per Diem Allowance | $\$ 337,545$ | 1.7 |
| Other Travel | $\$ 36,565$ | 0.2 |
| Telecommunications Services | $\$ 59,187$ | 0.3 |

Source: Financial Management Report for L/E

## 5. CONCLUSIONS

The L/E operation added 392,368 addresses to the Master Address File. Of these, 391,276 addresses ( 99.7 percent) were eligible to be in the census, and 389,749 addresses ( 99.3 percent) were included in the census. The L/E operation was able to collect information that suggests we will be able to locate a majority of these addresses in the future. Looking at the address type breakdown, the complete city-style address category accounted for 197,525 of the 392,368 addresses added during L/E. This represents 50.3 percent of all added addresses. Additionally, the complete rural route address category accounted for 34,611 of all L/E addresses ( 8.8 percent). Of the remaining 160,232 addresses that were not complete city-style addresses or complete rural route addresses, 136,566 of these ( 85.2 percent) had some type of location description. Map spots will also help us with future locatability and we found that 98.7 percent of all added L/E addresses had a valid map spot. The L/E operation also appeared to be well-targeted. Of the 214,785 total L/E blocks, only 2,231 (1.0 percent) had all addresses within those blocks recognized by the USPS. These 2,231 blocks contained a total of 5,504 of the 392,368 addresses (1.4 percent) added during L/E.

The L/E operation was done at a cost of $\$ 19,704,944$. When the cost $(\$ 19,704,944)$ is divided by the number of addresses added during $L / E(392,368)$, the average cost per address amounts to about $\$ 50.22$.

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U.S. Census Bureau, 2001e, Program Master Plan: Census 2000 List/Enumerate and Program Master Plan, Census 2000 Informational Memorandum No. 46, March 2, 2000.

## Appendix A: Addresses Added During List/Enumerate

Table A-1. Addresses Added During List/Enumerate by Map Spot Status, by State

| State | Total | Valid Map Spot Exists |  | No Valid Map Spot Exists |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | \# of <br> Addresses | \% of Addresses | \# of <br> Addresses | \% of Addresses |
| TOTAL | 392,368 | 387,424 | 98.7 | 4,944 | 1.3 |
| Alaska | 3,568 | 3,564 | 99.9 | 4 | 0.1 |
| Arizona | 25,196 | 24,249 | 96.2 | 947 | 3.8 |
| California | 35,127 | 34,531 | 98.3 | 596 | 1.7 |
| Hawaii | 208 | 144 | 69.2 | 64 | 30.8 |
| Idaho | 3,423 | 3,319 | 97.0 | 104 | 3.0 |
| Maine | 75,319 | 75,022 | 99.6 | 297 | 0.4 |
| Montana | 8,761 | 8,672 | 99.0 | 89 | 1.0 |
| Nebraska | 4,027 | 4,007 | 99.5 | 20 | 0.5 |
| Nevada | 17,857 | 17,394 | 97.4 | 463 | 2.6 |
| New Hampshire | 44,458 | 44,182 | 99.4 | 276 | 0.6 |
| New Mexico | 6,403 | 6,193 | 96.7 | 210 | 3.3 |
| New York | 55,969 | 55,632 | 99.4 | 337 | 0.6 |
| North Dakota | 3,910 | 3,878 | 99.2 | 32 | 0.8 |
| Oregon | 1,776 | 1,740 | 98.0 | 36 | 2.0 |
| South Dakota | 4,059 | 4,011 | 98.8 | 48 | 1.2 |
| Texas | 15,110 | 14,721 | 97.4 | 389 | 2.6 |
| Utah | 7,494 | 7,377 | 98.4 | 117 | 1.6 |
| Vermont | 41,599 | 41,265 | 99.2 | 334 | 0.8 |
| Washington | 86 | 86 | 100.0 | 0 | 0.0 |
| Wyoming | 38,018 | 37,437 | 98.5 | 581 | 1.5 |

[^0]Table A-2. Addresses Added During List/Enumerate by Type of Structure, by State

| State | Total | Single Unit Structure |  | Multi-Unit Structure |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | \# of <br> Addresses | \% of Addresses | $\begin{gathered} \text { \# of } \\ \text { Addresses } \end{gathered}$ | \% of Addresses |
| TOTAL | 392,368 | 360,381 | 91.8 | 31,987 | 8.2 |
| Alaska | 3,568 | 3,456 | 96.9 | 112 | 3.1 |
| Arizona | 25,196 | 23,355 | 92.7 | 1,841 | 7.3 |
| California | 35,127 | 29,429 | 83.8 | 5,698 | 16.2 |
| Hawaii | 208 | 206 | 99.0 | 2 | 1.0 |
| Idaho | 3,423 | 3,315 | 96.8 | 108 | 3.2 |
| Maine | 75,319 | 72,826 | 96.7 | 2,493 | 3.3 |
| Montana | 8,761 | 8,388 | 95.7 | 373 | 4.3 |
| Nebraska | 4,027 | 3,871 | 96.1 | 156 | 3.9 |
| Nevada | 17,857 | 15,679 | 87.8 | 2,178 | 12.2 |
| New Hampshire | 44,458 | 40,039 | 90.1 | 4,419 | 9.9 |
| New Mexico | 6,403 | 6,153 | 96.1 | 250 | 3.9 |
| New York | 55,969 | 51,586 | 92.2 | 4,383 | 7.8 |
| North Dakota | 3,910 | 3,771 | 96.4 | 139 | 3.6 |
| Oregon | 1,776 | 1,701 | 95.8 | 75 | 4.2 |
| South Dakota | 4,059 | 3,772 | 92.9 | 287 | 7.1 |
| Texas | 15,110 | 14,618 | 96.7 | 492 | 3.3 |
| Utah | 7,494 | 6,468 | 86.3 | 1,026 | 13.7 |
| Vermont | 41,599 | 38,686 | 93.0 | 2,913 | 7.0 |
| Washington | 86 | 85 | 98.8 | 1 | 1.2 |
| Wyoming | 38,018 | 32,977 | 86.7 | 5,041 | 13.3 |

[^1]Table A-3. Addresses Added During List/Enumerate that Match to the Delivery Sequence File by State

| State | Total | Matches to DSF |  | Does Not Match to DSF |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $\begin{gathered} \text { \# of } \\ \text { Addresses } \end{gathered}$ | \% of <br> Addresses | $\begin{gathered} \text { \# of } \\ \text { Addresses } \end{gathered}$ | \% of Addresses |
| TOTAL | 392,368 | 70,751 | 18.0 | 321,617 | 82.0 |
| Alaska | 3,568 | 3 | 0.1 | 3,565 | 99.9 |
| Arizona | 25,196 | 1,673 | 6.6 | 23,523 | 93.4 |
| California | 35,127 | 13,445 | 38.3 | 21,682 | 61.7 |
| Hawaii | 208 | 0 | 0.0 | 208 | 100.0 |
| Idaho | 3,423 | 55 | 1.6 | 3,368 | 98.4 |
| Maine | 75,319 | 8,147 | 10.8 | 67,172 | 89.2 |
| Montana | 8,761 | 673 | 7.7 | 8,088 | 92.3 |
| Nebraska | 4,027 | 293 | 7.3 | 3,734 | 92.7 |
| Nevada | 17,857 | 4,578 | 25.6 | 13,279 | 74.4 |
| New Hampshire | 44,458 | 8,162 | 18.4 | 36,296 | 81.6 |
| New Mexico | 6,403 | 202 | 3.2 | 6,201 | 96.8 |
| New York | 55,969 | 7,512 | 13.4 | 48,457 | 86.6 |
| North Dakota | 3,910 | 680 | 17.4 | 3,230 | 82.6 |
| Oregon | 1,776 | 51 | 2.9 | 1,725 | 97.1 |
| South Dakota | 4,059 | 421 | 10.4 | 3,638 | 89.6 |
| Texas | 15,110 | 467 | 3.1 | 14,643 | 96.9 |
| Utah | 7,494 | 1,380 | 18.4 | 6,114 | 81.6 |
| Vermont | 41,599 | 11,182 | 26.9 | 30,417 | 73.1 |
| Washington | 86 | 2 | 2.3 | 84 | 97.7 |
| Wyoming | 38,018 | 11,825 | 31.1 | 26,193 | 68.9 |

[^2]Table A-4. Delivery Sequence File Matched Addresses by Type of Structure, by State

| State | Total | Single Unit Structure |  | Multi-Unit Structure |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $\begin{gathered} \text { \# of } \\ \text { Addresses } \end{gathered}$ | \% of <br> Addresses | \# of <br> Addresses | \% of Addresses |
| TOTAL | 70,751 | 59,189 | 83.7 | 11,562 | 16.3 |
| Alaska | 3 | 3 | 100.0 | 0 | 0.0 |
| Arizona | 1,673 | 1,575 | 94.1 | 98 | 5.9 |
| California | 13,445 | 10,488 | 78.0 | 2,957 | 22.0 |
| Idaho | 55 | 43 | 78.2 | 12 | 21.8 |
| Maine | 8,147 | 6,935 | 85.1 | 1,212 | 14.9 |
| Montana | 673 | 606 | 90.0 | 67 | 10.0 |
| Nebraska | 293 | 273 | 93.2 | 20 | 6.8 |
| Nevada | 4,578 | 3,765 | 82.2 | 813 | 17.8 |
| New Hampshire | 8,162 | 6,942 | 85.1 | 1,220 | 14.9 |
| New Mexico | 202 | 173 | 85.6 | 29 | 14.4 |
| New York | 7,512 | 5,310 | 70.7 | 2,202 | 29.3 |
| North Dakota | 680 | 653 | 96.0 | 27 | 4.0 |
| Oregon | 51 | 47 | 92.2 | 4 | 7.8 |
| South Dakota | 421 | 310 | 73.6 | 111 | 26.4 |
| Texas | 467 | 428 | 91.6 | 39 | 8.4 |
| Utah | 1,380 | 949 | 68.8 | 431 | 31.2 |
| Vermont | 11,182 | 10,595 | 94.8 | 587 | 5.3 |
| Washington | 2 | 2 | 100.0 | 0 | 0.0 |
| Wyoming | 11,825 | 10,092 | 85.3 | 1,733 | 14.7 |

Source: March 2001 MAF extracts

Table A-5. List/Enumerate Block and Address Counts by Percent of Delivery Sequence File Matched Addresses per Block by State

| State | Percent of Delivery Sequence File Matched Addresses |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Total |  | 0-29\% |  | 30-59\% |  | 60-89\% |  | 90-94\% |  | 95-99\% |  | 100\% |  |
|  | $\begin{aligned} & \tilde{0} \\ & \frac{0}{0} \\ & \frac{0}{0} \\ & 0 \\ & \# \\ & \# \end{aligned}$ |  | $\begin{aligned} & \frac{\tilde{\partial}}{0} \\ & \frac{0}{0} \\ & \frac{0}{0} \\ & \# \end{aligned}$ |  | $\begin{aligned} & \tilde{0} \\ & \frac{0}{0} \\ & \frac{0}{0} \\ & \frac{0}{0} \\ & \# \end{aligned}$ |  | $\begin{aligned} & \tilde{0} \\ & \frac{0}{0} \\ & \frac{0}{0} \\ & \frac{0}{0} \\ & \# \end{aligned}$ |  | $\begin{aligned} & \tilde{0} \\ & \stackrel{0}{0} \\ & \stackrel{0}{0} \\ & 0 \\ & \# \end{aligned}$ |  | $\begin{aligned} & \stackrel{0}{0} \\ & \stackrel{0}{0} \\ & \stackrel{0}{0} \\ & \# \\ & \# \end{aligned}$ |  | $\begin{aligned} & \frac{0}{0} \\ & \frac{0}{0} \\ & \frac{0}{\infty} \\ & \ddot{O} \\ & \# \end{aligned}$ |  |
| TOTAL | 47,927 | 70,751 | 40,298 | 6,585 | 2,926 | 18,147 | 2,242 | 30,679 | 178 | 6,973 | 52 | 2,863 | 2,231 | 5,504 |
| Alaska | 302 | 3 | 302 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Arizona | 2,836 | 1,673 | 2,756 | 236 | 49 | 557 | 17 | 851 | 0 | 0 | 0 | 0 | 14 | 29 |
| California | 2,343 | 13,445 | 1,712 | 612 | 236 | 3,137 | 247 | 5,821 | 22 | 2,108 | 13 | 1,361 | 113 | 406 |
| Hawaii | 41 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Idaho | 751 | 55 | 737 | 1 | 11 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| Maine | 6,690 | 8,147 | 5,894 | 762 | 293 | 2,417 | 303 | 3,457 | 36 | 703 | 6 | 180 | 158 | 628 |
| Montana | 2,587 | 673 | 2,430 | 43 | 52 | 141 | 41 | 377 | 0 | 0 | 0 | 0 | 64 | 112 |
| Nebraska | 1,033 | 293 | 941 | 32 | 49 | 129 | 18 | 70 | 1 | 32 | 0 | 0 | 24 | 30 |
| Nevada | 2,462 | 4,578 | 2,379 | 227 | 18 | 313 | 33 | 1,864 | 8 | 1,367 | 3 | 341 | 21 | 466 |
| New Hampshire | 2,889 | 8,162 | 2,142 | 1,262 | 322 | 2,471 | 268 | 3,405 | 25 | 460 | 5 | 145 | 127 | 419 |
| New Mexico | 2,093 | 202 | 2,015 | 30 | 27 | 70 | 9 | 29 | 0 | 0 | 1 | 22 | 41 | 51 |
| New York | 4,802 | 7,512 | 4,245 | 655 | 186 | 1,666 | 253 | 4,064 | 31 | 724 | 5 | 137 | 82 | 266 |
| North Dakota | 1,593 | 680 | 1,184 | 44 | 117 | 177 | 44 | 147 | 0 | 0 | 0 | 0 | 248 | 312 |
| Oregon | 549 | 51 | 541 | 8 | 4 | 32 | 1 | 5 | 0 | 0 | 0 | 0 | 3 | 6 |
| South Dakota | 873 | 421 | 804 | 52 | 35 | 155 | 15 | 187 | 0 | 0 | 0 | 0 | 19 | 27 |
| Texas | 3,092 | 467 | 3,027 | 95 | 23 | 109 | 28 | 201 | 2 | 25 | 0 | 0 | 12 | 37 |
| Utah | 1,139 | 1,380 | 1,087 | 149 | 16 | 137 | 14 | 795 | 4 | 262 | 0 | 0 | 18 | 37 |
| Vermont | 4,146 | 11,182 | 2,458 | 1,931 | 823 | 4,543 | 470 | 3,742 | 8 | 118 | 4 | 116 | 383 | 732 |
| Washington | 15 | 2 | 15 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wyoming | 7,691 | 11,825 | 5,588 | 441 | 665 | 2,042 | 481 | 5,664 | 41 | 1,174 | 15 | 561 | 901 | 1,943 |

Source: March 2001 MAF extracts

## Appendix B: List/Enumerate Addresses Eligible to be in the Census

Table B-1. List/Enumerate Addresses Eligible to be in the Census by State

| State | \# of Addresses | \% of Addresses |
| :---: | :---: | :---: |
| TOTAL | 391,276 | 100.0 |
| Alaska | 3,561 | 0.9 |
| Arizona | 25,162 | 6.4 |
| California | 35,039 | 9.0 |
| Hawaii | 208 | 0.1 |
| Idaho | 3,421 | 0.9 |
| Maine | 75,177 | 19.2 |
| Montana | 8,755 | 2.2 |
| Nebraska | 4,012 | 1.0 |
| Nevada | 17,836 | 4.6 |
| New Hampshire | 44,364 | 11.3 |
| New Mexico | 6,366 | 1.6 |
| New York | 55,718 | 14.2 |
| North Dakota | 3,905 | 1.0 |
| Oregon | 1,757 | 0.4 |
| South Dakota | 4,011 | 1.0 |
| Texas | 15,066 | 3.9 |
| Utah | 7,481 | 1.9 |
| Vermont | 41,446 | 10.6 |
| Washington | 86 | 0.0 |
| Wyoming | 37,905 | 9.7 |

Source: March 2001 MAF extracts

Table B-2. List/Enumerate Addresses Eligible to be in the Census by Address Type

| Address Type | \# of Addresses | \% of Total |
| :---: | :---: | :---: |
| TOTAL | 391,276 | 100.0 |
| with location description | 201,897 | 51.6 |
| without location description | 189,379 | 48.4 |
| Complete City-Style Address | 197,341 | 50.4 |
| with location description | 32,827 | 8.4 |
| without location description | 164,514 | 42.0 |
| Complete Rural Route Address | 34,611 | 8.8 |
| with location description | 32,787 | 8.4 |
| without location description | 1,824 | 0.5 |
| Complete Post Office Box Address | 37,227 | 9.5 |
| with location description | 33,602 | 8.6 |
| without location description | 3,625 | 0.9 |
| Incomplete Address (any of the 3) | 12,150 | 3.1 |
| with location description | 6,026 | 1.5 |
| without location description | 6,124 | 1.6 |
| Nonexistent Address | 109,947 | 28.1 |
| with location description | 96,655 | 24.7 |
| without location description | 13,292 | 3.4 |

Source: March 2001 MAF extracts

Table B-3. List/Enumerate Addresses Eligible to be in the Census by Map Spot Status, by State

| State | Total | Valid Map Spot Exists |  | No Valid Map Spot Exists |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | \# of <br> Addresses | \% of <br> Addresses | $\begin{gathered} \text { \# of } \\ \text { Addresses } \end{gathered}$ | \% of <br> Addresses |
| TOTAL | 391,276 | 386,336 | 98.7 | 4,940 | 1.3 |
| Alaska | 3,561 | 3,557 | 99.9 | 4 | 0.1 |
| Arizona | 25,162 | 24,215 | 96.2 | 947 | 3.8 |
| California | 35,039 | 34,443 | 98.3 | 596 | 1.7 |
| Hawaii | 208 | 144 | 69.2 | 64 | 30.8 |
| Idaho | 3,421 | 3,317 | 97.0 | 104 | 3.0 |
| Maine | 75,177 | 74,881 | 99.6 | 296 | 0.4 |
| Montana | 8,755 | 8,666 | 99.0 | 89 | 1.0 |
| Nebraska | 4,012 | 3,992 | 99.5 | 20 | 0.5 |
| Nevada | 17,836 | 17,373 | 97.4 | 463 | 2.6 |
| New Hampshire | 44,364 | 44,088 | 99.4 | 276 | 0.6 |
| New Mexico | 6,366 | 6,156 | 96.7 | 210 | 3.3 |
| New York | 55,718 | 55,382 | 99.4 | 336 | 0.6 |
| North Dakota | 3,905 | 3,873 | 99.2 | 32 | 0.8 |
| Oregon | 1,757 | 1,721 | 98.0 | 36 | 2.0 |
| South Dakota | 4,011 | 3,964 | 98.8 | 47 | 1.2 |
| Texas | 15,066 | 14,677 | 97.4 | 389 | 2.6 |
| Utah | 7,481 | 7,364 | 98.4 | 117 | 1.6 |
| Vermont | 41,446 | 41,112 | 99.2 | 334 | 0.8 |
| Washington | 86 | 86 | 100.0 | 0 | 0.0 |
| Wyoming | 37,905 | 37,325 | 98.5 | 580 | 1.5 |

[^3]Table B-4. List/Enumerate Addresses Eligible to be in the Census by Type of Structure, by State

| State | Total | Single Unit Structure |  | Multi-Unit Structure |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $\begin{gathered} \text { \# of } \\ \text { Addresses } \end{gathered}$ | \% of Addresses | $\begin{gathered} \text { \# of } \\ \text { Addresses } \end{gathered}$ | \% of Addresses |
| TOTAL | 391,276 | 359,296 | 91.8 | 31,980 | 8.2 |
| Alaska | 3,561 | 3,449 | 96.9 | 112 | 3.1 |
| Arizona | 25,162 | 23,321 | 92.7 | 1,841 | 7.3 |
| California | 35,039 | 29,341 | 83.7 | 5,698 | 16.3 |
| Hawaii | 208 | 206 | 99.0 | 2 | 1.0 |
| Idaho | 3,421 | 3,313 | 96.8 | 108 | 3.2 |
| Maine | 75,177 | 72,684 | 96.7 | 2,493 | 3.3 |
| Montana | 8,755 | 8,382 | 95.7 | 373 | 4.3 |
| Nebraska | 4,012 | 3,856 | 96.1 | 156 | 3.9 |
| Nevada | 17,836 | 15,658 | 87.8 | 2,178 | 12.2 |
| New Hampshire | 44,364 | 39,945 | 90.0 | 4,419 | 10.0 |
| New Mexico | 6,366 | 6,116 | 96.1 | 250 | 3.9 |
| New York | 55,718 | 51,338 | 92.1 | 4,380 | 7.9 |
| North Dakota | 3,905 | 3,766 | 96.4 | 139 | 3.6 |
| Oregon | 1,757 | 1,682 | 95.7 | 75 | 4.3 |
| South Dakota | 4,011 | 3,724 | 92.8 | 287 | 7.2 |
| Texas | 15,066 | 14,574 | 96.7 | 492 | 3.3 |
| Utah | 7,481 | 6,458 | 86.3 | 1,023 | 13.7 |
| Vermont | 41,446 | 38,533 | 93.0 | 2,913 | 7.0 |
| Washington | 86 | 85 | 98.8 | 1 | 1.2 |
| Wyoming | 37,905 | 32,865 | 86.7 | 5,040 | 13.3 |

[^4]Table B-5. List/Enumerate Addresses Eligible to be in the Census that Match to the Delivery Sequence File by State

|  |  | Matches to DSF |  |  | Does Not Match to DSF |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |

Source: March 2001 MAF extracts

Table B-6. Delivery Sequence File Matched Addresses by Type of Structure, by State

| State | Total | Single Unit Structure |  | Multi-Unit Structure |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | \# of <br> Addresses | \% of Addresses | \# of <br> Addresses | \% of Addresses |
| TOTAL | 70,751 | 59,189 | 83.7 | 11,562 | 16.3 |
| Alaska | 3 | 3 | 100.0 | 0 | 0.0 |
| Arizona | 1,673 | 1,575 | 94.1 | 98 | 5.9 |
| California | 13,445 | 10,488 | 78.0 | 2,957 | 22.0 |
| Idaho | 55 | 43 | 78.2 | 12 | 21.8 |
| Maine | 8,147 | 6,935 | 85.1 | 1,212 | 14.9 |
| Montana | 673 | 606 | 90.0 | 67 | 10.0 |
| Nebraska | 293 | 273 | 93.2 | 20 | 6.8 |
| Nevada | 4,578 | 3,765 | 82.2 | 813 | 17.8 |
| New Hampshire | 8,162 | 6,942 | 85.1 | 1,220 | 14.9 |
| New Mexico | 202 | 173 | 85.6 | 29 | 14.4 |
| New York | 7,512 | 5,310 | 70.7 | 2,202 | 29.3 |
| North Dakota | 680 | 653 | 96.0 | 27 | 4.0 |
| Oregon | 51 | 47 | 92.2 | 4 | 7.8 |
| South Dakota | 421 | 310 | 73.6 | 111 | 26.4 |
| Texas | 467 | 428 | 91.6 | 39 | 8.4 |
| Utah | 1,380 | 949 | 68.8 | 431 | 31.2 |
| Vermont | 11,182 | 10,595 | 94.8 | 587 | 5.2 |
| Washington | 2 | 2 | 100.0 | 0 | 0.0 |
| Wyoming | 11,825 | 10,092 | 85.3 | 1,733 | 14.7 |

Source: March 2001 MAF extracts

| State | Percent of Delivery Sequence File Matched Addresses |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Total |  | 0-29\% |  | 30-59\% |  | 60-89\% |  | 90-94\% |  | 95-99\% |  | 100\% |  |
|  |  |  | $\begin{aligned} & \frac{\tilde{\partial}}{0} \\ & \frac{0}{0} \\ & 0 \\ & \ddot{0} \\ & \# \end{aligned}$ |  |  |  | $\begin{aligned} & \stackrel{0}{\ddot{0}} \\ & \frac{0}{0} \\ & \frac{0}{0} \\ & \# \\ & \# \end{aligned}$ | 0 <br> 0 <br> 0 <br> 0 <br> 0 <br> 0 <br>  <br>  <br> $\#$ | $\begin{aligned} & \frac{0}{0} \\ & \frac{0}{0} \\ & \frac{0}{M} \\ & \frac{0}{0} \\ & \# \end{aligned}$ |  | $\begin{aligned} & \frac{0}{\ddot{0}} \\ & \frac{0}{6} \\ & \frac{0}{0} \\ & \# \end{aligned}$ |  | $\begin{aligned} & \stackrel{0}{\ddot{0}} \\ & \frac{0}{0} \\ & \frac{0}{0} \\ & \# \\ & \# \end{aligned}$ |  |
| TOTAL | 47,917 | 70,751 | 40,282 | 6,569 | 2,926 | 18,135 | 2,238 | 30,615 | 180 | 7,009 | 53 | 2,884 | 2,238 | 5,539 |
| Alaska | 302 | 3 | 302 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Arizona | 2,835 | 1,673 | 2,755 | 236 | 49 | 557 | 17 | 851 | 0 | 0 | 0 | 0 | 14 | 29 |
| California | 2,341 | 13,445 | 1,710 | 612 | 236 | 3,137 | 246 | 5,805 | 23 | 2,124 | 13 | 1,361 | 113 | 406 |
| Hawaii | 41 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Idaho | 751 | 55 | 737 | 1 | 11 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| Maine | 6,690 | 8,147 | 5,894 | 762 | 293 | 2,417 | 303 | 3,457 | 36 | 703 | 6 | 180 | 158 | 628 |
| Montana | 2,587 | 673 | 2,430 | 43 | 52 | 141 | 41 | 377 | 0 | 0 | 0 | 0 | 64 | 112 |
| Nebraska | 1,033 | 293 | 940 | 31 | 50 | 130 | 18 | 70 | 1 | 32 | 0 | 0 | 24 | 30 |
| Nevada | 2,462 | 4,578 | 2,379 | 227 | 18 | 313 | 33 | 1,864 | 8 | 1,367 | 3 | 341 | 21 | 466 |
| New Hampshire | 2,889 | 8,162 | 2,139 | 1,249 | 324 | 2,483 | 268 | 3,405 | 25 | 460 | 5 | 145 | 128 | 420 |
| New Mexico | 2,092 | 202 | 2,014 | 30 | 27 | 70 | 9 | 29 | 0 | 0 | 1 | 22 | 41 | 51 |
| New York | 4,799 | 7,512 | 4,242 | 655 | 186 | 1,666 | 251 | 4,036 | 32 | 744 | 5 | 137 | 83 | 274 |
| North Dakota | 1,593 | 680 | 1,183 | 43 | 118 | 178 | 44 | 147 | 0 | 0 | 0 | 0 | 248 | 312 |
| Oregon | 548 | 51 | 540 | 8 | 4 | 32 | 1 | 5 | 0 | 0 | 0 | 0 | 3 | 6 |
| South Dakota | 873 | 421 | 804 | 52 | 35 | 155 | 15 | 187 | 0 | 0 | 0 | 0 | 19 | 27 |
| Texas | 3,091 | 467 | 3,026 | 95 | 23 | 109 | 28 | 201 | 2 | 25 | 0 | 0 | 12 | 37 |
| Utah | 1,139 | 1,380 | 1,087 | 149 | 16 | 137 | 14 | 795 | 4 | 262 | 0 | 0 | 18 | 37 |
| Vermont | 4,146 | 11,182 | 2,458 | 1,931 | 823 | 4,543 | 470 | 3,742 | 8 | 118 | 4 | 116 | 383 | 732 |
| Washington | 15 | 2 | 15 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wyoming | 7,690 | 11,825 | 5,586 | 440 | 661 | 2,016 | 480 | 5,644 | 41 | 1,174 | 16 | 582 | 906 | 1,969 |

## Source: March 2001 MAF extracts

## Appendix C: List/Enumerate Addresses Included in the Census

Table C-1. List/Enumerate Addresses Included in the Census by State

| State | \# of Addresses | \% of Addresses |
| :---: | :---: | :---: |
| TOTAL | 389,749 | 100.0 |
| Alaska | 3,558 | 0.9 |
| Arizona | 25,043 | 6.4 |
| California | 34,897 | 9.0 |
| Hawaii | 208 | 0.1 |
| Idaho | 3,411 | 0.9 |
| Maine | 75,032 | 19.3 |
| Montana | 8,717 | 2.2 |
| Nebraska | 3,990 | 1.0 |
| Nevada | 17,697 | 4.5 |
| New Hampshire | 44,281 | 11.4 |
| New Mexico | 6,323 | 1.6 |
| New York | 55,584 | 14.3 |
| North Dakota | 3,899 | 1.0 |
| Oregon | 1,741 | 0.4 |
| South Dakota | 3,994 | 1.0 |
| Texas | 14,961 | 3.8 |
| Utah | 7,437 | 1.9 |
| Vermont | 41,312 | 10.6 |
| Washington | 86 | 0.0 |
| Wyoming | 37,578 | 9.6 |

Source: March 2001 MAF extracts

Table C-2. List/Enumerate Addresses Included in the Census by Address Type

| Address Type | \# of Addresses | \% of Total |
| :---: | :---: | :---: |
| TOTAL | 389,749 | 100.0 |
| with location description | 201,439 | 51.7 |
| without location description | 188,310 | 48.3 |
| Complete City-Style Address | 196,322 | 50.4 |
| with location description | 32,690 | 8.4 |
| without location description | 163,632 | 42.0 |
| Complete Rural Route Address | 34,506 | 8.9 |
| with location description | 32,694 | 8.4 |
| without location description | 1,812 | 0.5 |
| Complete Post Office Box Address | 37,126 | 9.5 |
| with location description | 33,510 | 8.6 |
| without location description | 3,616 | 0.9 |
| Incomplete Address (any of the 3) | 12,104 | 3.1 |
| with location description | 6,020 | 1.5 |
| without location description | 6,084 | 1.6 |
| Nonexistent Address | 109,691 | 28.1 |
| with location description | 96,525 | 24.8 |
| without location description | 13,166 | 3.4 |

[^5]Table C-3. List/Enumerate Addresses Included in the Census by Map Spot Status, by State

| State | Total | Valid Map Spot Exists |  | No Valid Map Spot Exists |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | \# of <br> Addresses | \% of <br> Addresses | $\begin{gathered} \text { \# of } \\ \text { Addresses } \end{gathered}$ | \% of <br> Addresses |
| TOTAL | 389,749 | 384,851 | 98.7 | 4,898 | 1.3 |
| Alaska | 3,558 | 3,554 | 99.9 | 4 | 0.1 |
| Arizona | 25,043 | 24,100 | 96.2 | 943 | 3.8 |
| California | 34,897 | 34,309 | 98.3 | 588 | 1.7 |
| Hawaii | 208 | 144 | 69.2 | 64 | 30.8 |
| Idaho | 3,411 | 3,309 | 97.0 | 102 | 3.0 |
| Maine | 75,032 | 74,738 | 99.6 | 294 | 0.4 |
| Montana | 8,717 | 8,628 | 99.0 | 89 | 1.0 |
| Nebraska | 3,990 | 3,971 | 99.5 | 19 | 0.5 |
| Nevada | 17,697 | 17,235 | 97.4 | 462 | 2.6 |
| New Hampshire | 44,281 | 44,006 | 99.4 | 275 | 0.6 |
| New Mexico | 6,323 | 6,116 | 96.7 | 207 | 3.3 |
| New York | 55,584 | 55,248 | 99.4 | 336 | 0.6 |
| North Dakota | 3,899 | 3,867 | 99.2 | 32 | 0.8 |
| Oregon | 1,741 | 1,705 | 97.9 | 36 | 2.1 |
| South Dakota | 3,994 | 3,947 | 98.8 | 47 | 1.2 |
| Texas | 14,961 | 14,574 | 97.4 | 387 | 2.6 |
| Utah | 7,437 | 7,323 | 98.5 | 114 | 1.5 |
| Vermont | 41,312 | 40,980 | 99.2 | 332 | 0.8 |
| Washington | 86 | 86 | 100.0 | 0 | 0.0 |
| Wyoming | 37,578 | 37,011 | 98.5 | 567 | 1.5 |

[^6]Table C-4. List/Enumerate Addresses Included in the Census by Type of Structure, by State

| State | Total | Single Unit Structure |  | Multi-Unit Structure |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $\begin{gathered} \text { \# of } \\ \text { Addresses } \end{gathered}$ | \% of <br> Addresses | \# of <br> Addresses | \% of Addresses |
| TOTAL | 389,749 | 358,063 | 91.9 | 31,686 | 8.1 |
| Alaska | 3,558 | 3,446 | 96.9 | 112 | 3.1 |
| Arizona | 25,043 | 23,218 | 92.7 | 1,825 | 7.3 |
| California | 34,897 | 29,227 | 83.8 | 5,670 | 16.2 |
| Hawaii | 208 | 206 | 99.0 | 2 | 1.0 |
| Idaho | 3,411 | 3,303 | 96.8 | 108 | 3.2 |
| Maine | 75,032 | 72,552 | 96.7 | 2,480 | 3.3 |
| Montana | 8,717 | 8,351 | 95.8 | 366 | 4.2 |
| Nebraska | 3,990 | 3,834 | 96.1 | 156 | 3.9 |
| Nevada | 17,697 | 15,541 | 87.8 | 2,156 | 12.2 |
| New Hampshire | 44,281 | 39,872 | 90.0 | 4,409 | 10.0 |
| New Mexico | 6,323 | 6,079 | 96.1 | 244 | 3.9 |
| New York | 55,584 | 51,221 | 92.2 | 4,363 | 7.8 |
| North Dakota | 3,899 | 3,763 | 96.5 | 136 | 3.5 |
| Oregon | 1,741 | 1,669 | 95.9 | 72 | 4.1 |
| South Dakota | 3,994 | 3,709 | 92.9 | 285 | 7.1 |
| Texas | 14,961 | 14,476 | 96.8 | 485 | 3.2 |
| Utah | 7,437 | 6,426 | 86.4 | 1,011 | 13.6 |
| Vermont | 41,312 | 38,426 | 93.0 | 2,886 | 7.0 |
| Washington | 86 | 85 | 98.8 | 1 | 1.2 |
| Wyoming | 37,578 | 32,659 | 86.9 | 4,919 | 13.1 |

[^7]Table C-5. List/Enumerate Addresses Included in the Census that Match to the Delivery Sequence File by State

| State | Total | Matches to DSF |  | Does Not Match to DSF |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | \# of <br> Addresses | $\begin{gathered} \% \text { of } \\ \text { Addresses } \end{gathered}$ | $\begin{gathered} \text { \# of } \\ \text { Addresses } \end{gathered}$ | $\%$ of <br> Addresses |
| TOTAL | 389,749 | 70,379 | 18.1 | 319,370 | 81.9 |
| Alaska | 3,558 | 3 | 0.1 | 3,555 | 99.9 |
| Arizona | 25,043 | 1,664 | 6.6 | 23,379 | 93.4 |
| California | 34,897 | 13,400 | 38.4 | 21,497 | 61.6 |
| Hawaii | 208 | 0 | 0.0 | 208 | 100.0 |
| Idaho | 3,411 | 55 | 1.6 | 3,356 | 98.4 |
| Maine | 75,032 | 8,123 | 10.8 | 66,909 | 89.2 |
| Montana | 8,717 | 670 | 7.7 | 8,047 | 92.3 |
| Nebraska | 3,990 | 288 | 7.2 | 3,702 | 92.8 |
| Nevada | 17,697 | 4,545 | 25.7 | 13,152 | 74.3 |
| New Hampshire | 44,281 | 8,149 | 18.4 | 36,132 | 81.6 |
| New Mexico | 6,323 | 200 | 3.2 | 6,123 | 96.8 |
| New York | 55,584 | 7,489 | 13.5 | 48,095 | 86.5 |
| North Dakota | 3,899 | 679 | 17.4 | 3,220 | 82.6 |
| Oregon | 1,741 | 50 | 2.9 | 1,691 | 97.1 |
| South Dakota | 3,994 | 413 | 10.3 | 3,581 | 89.7 |
| Texas | 14,961 | 454 | 3.0 | 14,507 | 97.0 |
| Utah | 7,437 | 1,375 | 18.5 | 6,062 | 81.5 |
| Vermont | 41,312 | 11,127 | 26.9 | 30,185 | 73.1 |
| Washington | 86 | 2 | 2.3 | 84 | 97.7 |
| Wyoming | 37,578 | 11,693 | 31.1 | 25,885 | 68.9 |

Source: March 2001 MAF extracts

Table C-6. Delivery Sequence File Matched Addresses by Type of Structure, by State

| State | Total | Single Unit Structure |  | Multi-Unit Structure |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $\begin{gathered} \text { \# of } \\ \text { Addresses } \end{gathered}$ | \% of <br> Addresses | \# of <br> Addresses | \% of Addresses |
| TOTAL | 70,379 | 58,914 | 83.7 | 11,465 | 16.3 |
| Alaska | 3 | 3 | 100.0 | 0 | 0.0 |
| Arizona | 1,664 | 1,567 | 94.2 | 97 | 5.8 |
| California | 13,400 | 10,450 | 78.0 | 2,950 | 22.0 |
| Idaho | 55 | 43 | 78.2 | 12 | 21.8 |
| Maine | 8,123 | 6,913 | 85.1 | 1,210 | 14.9 |
| Montana | 670 | 603 | 90.0 | 67 | 10.0 |
| Nebraska | 288 | 268 | 93.1 | 20 | 6.9 |
| Nevada | 4,545 | 3,735 | 82.2 | 810 | 17.8 |
| New Hampshire | 8,149 | 6,929 | 85.0 | 1,220 | 15.0 |
| New Mexico | 200 | 171 | 85.5 | 29 | 14.5 |
| New York | 7,489 | 5,294 | 70.7 | 2,195 | 29.3 |
| North Dakota | 679 | 652 | 96.0 | 27 | 4.0 |
| Oregon | 50 | 46 | 92.0 | 4 | 8.0 |
| South Dakota | 413 | 302 | 73.1 | 111 | 26.9 |
| Texas | 454 | 415 | 91.4 | 39 | 8.6 |
| Utah | 1,375 | 945 | 68.7 | 430 | 31.3 |
| Vermont | 11,127 | 10,547 | 94.8 | 580 | 5.2 |
| Washington | 2 | 2 | 100.0 | 0 | 0.0 |
| Wyoming | 11,693 | 10,029 | 85.8 | 1,664 | 14.2 |

Source: March 2001 MAF extracts

| State | Percent of Delivery Sequence File Matched Addresses |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Total |  | 0-29\% |  | 30-59\% |  | 60-89\% |  | 90-94\% |  | 95-99\% |  | 100\% |  |
|  | $\begin{aligned} & \frac{\tilde{\partial}}{0} \\ & \frac{0}{0} \\ & 0 \\ & \# \\ & \# \end{aligned}$ |  |  |  |  |  | $\begin{aligned} & \stackrel{y}{0} \\ & \frac{0}{0} \\ & 0 \\ & 0 \\ & \# \\ & \# \end{aligned}$ |  |  |  | $\begin{aligned} & \frac{0}{\ddot{\circ}} \\ & \frac{0}{6} \\ & \stackrel{0}{0} \\ & \# \end{aligned}$ | $\begin{aligned} & \ddot{0} \\ & 0 \\ & 0.0 \\ & \vdots \\ & \vdots \\ & \vdots \\ & 0 \\ & \# \\ & \hline \end{aligned}$ | $\begin{aligned} & \stackrel{0}{\ddot{0}} \\ & \frac{0}{0} \\ & \frac{0}{0} \\ & \# \\ & \# \end{aligned}$ |  |
| TOTAL | 47,820 | 70,379 | 40,207 | 6,527 | 2,916 | 17,969 | 2,226 | 30,218 | 185 | 7,258 | 53 | 2,692 | 2,233 | 5,715 |
| Alaska | 302 | 3 | 302 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Arizona | 2,829 | 1,664 | 2,751 | 235 | 47 | 525 | 18 | 876 | 0 | 0 | 0 | 0 | 13 | 28 |
| California | 2,337 | 13,400 | 1,705 | 579 | 238 | 3,184 | 245 | 5,746 | 25 | 2,151 | 12 | 1,337 | 112 | 403 |
| Hawaii | 41 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Idaho | 749 | 55 | 735 | 1 | 11 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| Maine | 6,686 | 8,123 | 5,890 | 754 | 292 | 2,399 | 305 | 3,485 | 35 | 683 | 6 | 178 | 158 | 624 |
| Montana | 2,582 | 670 | 2,427 | 43 | 52 | 141 | 40 | 318 | 1 | 58 | 0 | 0 | 62 | 110 |
| Nebraska | 1,029 | 288 | 937 | 31 | 50 | 130 | 18 | 70 | 1 | 28 | 0 | 0 | 23 | 29 |
| Nevada | 2,459 | 4,545 | 2,376 | 231 | 17 | 206 | 32 | 1,789 | 10 | 1,520 | 2 | 127 | 22 | 672 |
| New Hampshire | 2,884 | 8,149 | 2,131 | 1,238 | 325 | 2,481 | 267 | 3,379 | 26 | 482 | 5 | 145 | 130 | 424 |
| New Mexico | 2,084 | 200 | 2,008 | 32 | 25 | 66 | 9 | 29 | 0 | 0 | 1 | 22 | 41 | 51 |
| New York | 4,791 | 7,489 | 4,235 | 654 | 186 | 1,663 | 251 | 4,020 | 31 | 718 | 6 | 161 | 82 | 273 |
| North Dakota | 1,589 | 679 | 1,179 | 43 | 118 | 178 | 44 | 147 | 0 | 0 | 0 | 0 | 248 | 311 |
| Oregon | 548 | 50 | 540 | 8 | 4 | 31 | 1 | 5 | 0 | 0 | 0 | 0 | 3 | 6 |
| South Dakota | 872 | 413 | 803 | 50 | 35 | 177 | 15 | 159 | 0 | 0 | 0 | 0 | 19 | 27 |
| Texas | 3,086 | 454 | 3,020 | 92 | 25 | 113 | 27 | 193 | 2 | 25 | 0 | 0 | 12 | 31 |
| Utah | 1,133 | 1,375 | 1,081 | 149 | 16 | 137 | 13 | 786 | 4 | 262 | 0 | 0 | 19 | 41 |
| Vermont | 4,139 | 11,127 | 2,457 | 1,953 | 818 | 4,494 | 469 | 3,721 | 8 | 118 | 4 | 116 | 383 | 725 |
| Washington | 15 | 2 | 15 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wyoming | 7,665 | 11,693 | 5,574 | 429 | 657 | 1,993 | 472 | 5,495 | 42 | 1,213 | 17 | 606 | 903 | 1,957 |

Source: March 2001 MAF extracts

## Appendix D: March 2001 MAF Extract Variables

Type of Enumeration Area (TEA)
Based on 2000 collection block:
1: Mailout/Mailback
2: Update/Leave
3: List/Enumerate
4: Remote Alaska
5: "Rural" Update/Enumerate (from TEA 2)
6: Military in Update/Leave area
7: Urban Update/Leave
8: "Urban" Update/Enumerate (from TEA 1)
9: Update/Leave (from TEA 1)

Surviving MAFID:<br>Original State (ORIGST)<br>Original County (ORIGCOU)<br>Within-County ID (MAFID)<br>County Change Flag (COUCHG)

Map Spot ID (MAPSPOT)
Map Spot Suffix (MSSUFFIX)

Group Quarters/HU Flag (GQHUFLAG)

Customer Processing ID (CUSTID)

Number of Units at this BSA (NUMUNITS)
Delivery Specific Address Flag (DSAF)

0: No Change in County
1: County has changes

0: Housing Unit
1: Special Place
2: Group Quarters
3: GQ Embedded Unit
Contains 2000 collection block for tab MAF Extract.

1-9999
Y: Valid Address for this Delivery
N : Not a Valid Address for this Delivery

Questionnaire Delivery Action Code (QDACT)

DSF Flags:
DSF 1 - 11/97 DSF or Earlier (DSF1197)
DSF 2-9/98 (DSF0998)
DSF 3-11/99 (DSF1199)

In Census Flag (INCENSUS)
Blank: No action or not visited
A: Add
D: Delete
2: Duplicate
E: Add and Verify
M: Block Move
C: Other Correction
N : Non-residential
U: Uninhabitable
V: Verify
Blank: DSF Not available yet
0: Not indicated in the DSF
1: Flagged as Residential in the Indicated DSF
2: Flagged as Non-residential in the indicated DSF
3: Residential Status Unknown
NOTE: For the $11 / 97$ and 09/98 DSFs, a value of 3 means the Residential Status could not be determined from the MAF.
For 11/99 and later DSF's, a value of 3 means that it is an address with a DSF Delivery Type of " X ", which is not
classified as residential or commercial. These are often units that are not yet receiving mail, but could receive it in the future.
$\mathrm{Y}=$ Final Census 2000 record
$\mathrm{N}=$ Not a final Census 2000 record


[^0]:    Source: March 2001 MAF extracts

[^1]:    Source: March 2001 MAF extracts

[^2]:    Source: March 2001 MAF extracts

[^3]:    Source: March 2001 MAF extracts

[^4]:    Source: March 2001 MAF extracts

[^5]:    Source: March 2001 MAF extracts

[^6]:    Source: March 2001 MAF extracts

[^7]:    Source: March 2001 MAF extracts

