

Quality of Data, Needs, and Improvement of 2000 Census Products

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Each of four working groups of conference participants discussed the issues relating to the quality of decennial census data, what data are needed by the transportation planning community, and what improvements should be made to products from the 2000 census. The four recorders were Mary Lynn Tischer, Dave McElhaney, Russ Robertson, and Randy Wade. The workshop chair wishes to recognize and thank the recorders for their diligent and valuable efforts. Any omissions, errors, or misinterpretations of the material submitted by them are unintentional.

The list of issues distributed to each conference participant for discussion under this heading included the following:

1. What data are needed to address current and emerging transportation issues?
2. To what extent can the year 2000 decennial census support those needs?
3. What improvements or changes to census data are needed (geocoding, etc.)?
4. If data items and tabulations are reduced, can more timely delivery of (or access to) the information be achieved?
5. How should users be provided data?
6. What is necessary to ensure maximum use of data?

The recorders agreed to treat issues 1 and 2 as one, rather than deal with them separately. It was also noted that issue 4 was not discussed as an issue, but was really a question to be addressed to the Census Bureau.

ISSUES 1 AND 2

The discussions in the four working groups on issues 1 and 2 are summarized in Table 1. The data items that are needed by transportation planners are given in the first column. The items are shown in groups based on item similarity. For example, the first two data items are from the census short (100 percent) form; they are followed by two other critical items, income and

TABLE 1 Summary of Discussion on Issues 1 and 2
(1. What data are needed to address current and emerging transportation issues
2. To what extent can the year 2000 decennial census support those needs?)

Data Needed ^a	Priority ^b	How Supported
Population	Critical	Current short-form item
Housing units	Critical	Current short-form item
Income	Critical	Current long-form item
Number of vehicles	Critical	Current long-form item
Other model inputs	High	Current long-form items
Means of transportation	High	Current long-form item
Vehicle occupancy	High	Current long-form item
Multiple modes (chks.)	High	Modify long-form item
Stops (chaining)	Medium	New item
Frequency (no. of days)	Medium	New item
Starting point	Low	New item
Place of work	High	Current long-form item
No fixed place	Medium	New item
Work at home freq.	Low	New item
Small office home office	Low	New item
No. of jobs	Medium	New item Labor force
Departure time	Medium	Current long-form item
Travel time	Medium	Current long-form item
Arrival time	Medium	Alternate long-form item
Distance to work	Low	New item
Mobility limitation	Medium	Modify long-form item
Driver's license	Low	New item
Nonwork trips	Medium	New item

^a Includes only transportation-related data items.

^b No consensus was reached in the group regarding the priority classification.

the number of vehicles available. Other groups of items consist of means of transportation and related items, place of work and related items, and departure time or travel time and related items.

The middle column of Table 1 contains priority evaluations. The priority categorization generated considerable discussion during the presentation of this report to the assembled groups, and should only be considered a minority view, since no consensus was reached regarding priorities.

The third column, "How Supported," attempts to indicate the nature of the change that would be required in order to get the particular item onto the census questionnaire. Items currently contained on the census short or long form are indicated as such. Topics requiring only minor changes to existing questions are listed as necessitating the Census Bureau to modify a current item.

Data items labeled "new item" in the third column would require more drastic changes. These topics would need to be thoroughly tested before being included in the census and would also require the deletion of currently included items. The number of questions on the census form is likely to be reduced, not increased. Thus, each new question added will require the deletion of an existing question.

Since the Census Bureau's National Content Survey is already in the field, there is little chance to test any of these items before the Census 2000. The trade-off with other topics, that is, which current questions to drop from the census, would also be quite problematical because it would destroy comparability with past data.

It should be noted that Table 1 addresses only the transportation-related items on the census (with the addition of income). Comments from the working groups during the presentation of this report highlighted the importance to transportation planners of other census items such as basic demographic indicators like age, sex, and race, as well as the count of workers

and the prime importance of the labor force variables like industry, occupation, and class of worker.

The meaning of most of the items listed in the "Data Needed" column is self-evident. A few, however, require some clarification. The item "Other model inputs" is meant to refer to variables that are used in standard models of trip production or trip attraction or other applications currently in place. The "Multiple modes" item would be one in which the respondent checked all modes usually used to get to work, not just the principal one. "Stops" refers to stops made on the way to work, a facet of trip chaining. "Frequency" means the number of days worked during the week, and "Starting point" would attempt to identify work trips that did not begin at the normal place of residence.

The "No fixed place" item would be a check box for those who worked at various locations each day, such as truck drivers, route salesmen, and contractors. The "Small office home office" item would try to get a more complete picture of this phenomenon, not only the instances in which it is the principal or main job.

In addition to the current data needs, the following emerging issues were identified in the working groups. It was believed that these items may represent data needs in the future:

- **Telecommuting** (who, how often). This item is related to data needs listed earlier on the frequency of working at home and the small office home office phenomenon.
- **Aging of America** (where do older people live, do they have to go outside their communities to shop, etc.). Little is currently known about the activities of older people and what their transportation needs are.
- **Data to meet Transportation Model Improvement Program (TMIP) requirements; data to address air-quality issues.**
- **Characteristics of the fleet mix** (age, type and amount of fuel used, accidents, seat belts, air bags).
- **Life-style, activity changes.** These need to be monitored more frequently than once a decade.
- **Social issues, environmental justice, and social equity issues.** These will need to be addressed in future and cannot be answered without census data.
- **Other aspects of the increasing variability of work schedules and work experiences.** These may need to be tapped by future census questions.
- **Freight and nonmotorized transportation issues.**

ISSUE 3

The following points were made; they are given in no particular order:

- The questionnaire and the wording of the items should be simplified.
- Space on the questionnaire could be conserved if the departure and arrival time questions were combined into one item.
- The public transportation categories that should be used on the questionnaire are bus, rail, and other public. The group as a whole did not support the idea formulated at the 1994 conference that only one category, public transportation, should be used on the Census 2000 questionnaire.
- Research should be conducted on the 1990 responses to determine if the indicator for inside or outside city limits is really needed and still useful.
- The U.S. Department of Transportation (DOT) should work more closely with the U.S. Department of Health and Human Services and other agencies on the long-form questions about disability.
- If critical changes to the Census 2000 questionnaire are identified, attempts should be made to find funding to test the items after the National Content Survey.
- Proper identification of public transportation modes could be improved if the Census Bureau produced an insert with each questionnaire that listed the names of the local transit

systems and showed the correct category that should be checked for each. An alternative for identifying detailed transit rail types correctly would be to use pictures or icons.

- Census data would be improved if more internal consistency checks were made, for example, to ensure that the mode shown is available in the city of residence and that the travel time is reasonable for the trip origin and destination.

- The completeness and accuracy of place-of-work geocoding need to be substantially improved.

- The Census Bureau should work more on improving block coding than on improving place-of-work allocation.

- Cooperation between the Census Bureau and MPOs needs to be increased with regard to geocoding and improving the Topologically Integrated Geographic Encoding and Referencing (TIGER) file. Consideration should be given to funding for a person to go to the Bureau and work with MPOs on the TIGER Improvement Program and other geocoding issues.

- It seems that in the past, communication and cooperation between the Census Bureau and the MPOs has been piecemeal, on-and-off, and not well integrated into an overall plan. A schedule and timeline of activities needing to be completed during the precensus period should be constructed by the Census Bureau and given to the MPOs so they can put activities in their work plans, allocate staff resources, or take other actions to perform the activities they choose to participate in.

- An integrated, cooperative program between the Census Bureau and DOT designed to cover the whole gamut of operations from TIGER file update through place-of-work coding, geocoding problem resolution, and data product production and delivery is needed. A major benefit of such a program would be that each of the parties would know what was expected of them, and when, and also what they would be getting out of the program. In particular, the MPOs are currently being asked to do a lot of work without an up-front guarantee of what they are going to get out of their investment.

- The Census Bureau needs to be able to accept updated TIGER files from local geographic information systems (GISs) more readily. The current paper-and-pencil update process is clumsy, labor-intensive, and redundant for areas that have a GIS. The Census Bureau needs to review technology and be able to accept updates in electronic formats. Why not use the Spatial Data Transfer Standard? These issues will be even more critical with continuous measurement.

- MPOs should consider contracting with private-sector data providers to do the TIGER updating work, instead of tying up limited staff resources.

- Since it is difficult to work with such a large number of MPOs, the Census Bureau should look at working with private companies to help code the place-of-work responses. One contractor could try using several private files and work with the MPOs as well.

- The Census Bureau should ensure that it can provide MPOs with copies of the census employer list and the uncoded place-of-work responses.

- MPOs need to see preliminary results of coding before allocation so they can review before the data are finalized. They also need to review data after allocation, before they are finalized.

- Allocation of place of work needs review and improvement. Perhaps there should be an expert panel to work on ways to allocate to newly developed areas. Default traffic analysis zones (TAZs) are a problem for MPO users.

- A better indication in data products of the percent coded versus the percent allocated by TAZ is needed.

- Seven digits are needed for the TAZ code, not six.

- Better access to the base census data is needed.

- The Census Bureau needs to provide data in a more timely manner. The Data Access and Dissemination System (DADS) is not seen as guaranteeing earlier release of data. It could conceivably mean fewer data items available and fewer tabulations.

- If DADS results in a queue of users waiting to receive their data, how do those who use transportation data get priority? MPOs, states, and DOT should continue to look for other

ways to get the data they need in a timely manner, for example, hiring programmers to be lent to the Census Bureau to perform queries.

- There is a need to redefine the tables for the next Census Transportation Planning Package (CTPP). The experience of MPOs like SE Michigan should be used to enrich the next CTPP tables. Some tables should be eliminated; it may be better to have fewer tables and then charge for additional special tabulations. Fewer tables might mean quicker delivery of basic data; then DADS or some other tabulation system could be used for additional data.

- There is a need to field-test any software that is provided (like TransVU/CTPP) more carefully before it is distributed for use.

ISSUE 5

Some of the discussion points made are as follows:

- Some MPOs would prefer data in a more raw form. Some would like it in the same form as in 1990. A delimited format would help, or perhaps a data-base format. Access via Internet may also be a possibility. An ability to cross-tabulate any variables would be very valuable.

- For trend analysis, it will be important to issue 1990 census data on the same type of media as the 2000 data. It is a problem when historical census data are contained on media that are no longer accessible or readable. There are problems with old formats and with retaining the documentation and expertise necessary to use the old files.

- Most MPOs need access to data for MPOs in other states for comparison purposes.

- It would be useful to have a report that highlights the MPOs and small geographic areas in which big changes have occurred since the last census.

- A contextual Public Use Microdata Sample (PUMS) program would be an important addition to the products available from the census, for example, a PUMS file to which the transportation network level of service or other locally derived system attributes had been added.

- If data are provided through on-line access, care must be taken to avoid misuse or misinterpretation by nonprofessionals or others who do not understand the data.

- On-line access may be pay as you use; the Census Bureau is currently moving to a user-fee approach. Will states and MPOs be able to afford the fees? Should AASHTO or DOT develop an arrangement with the Census Bureau to make sure states and MPOs continue to get data free?

ISSUE 6

Discussion covered the following main points:

- Data products should be user friendly.

- Continuing, improved training is needed.

- First-time MPO users of census data for transportation planning need the most elementary, basic course or orientation program. Also helpful would be courses for major classes of users such as MPO staff, state policy staff, and system planning staff in which real-life examples are provided, perhaps including a slick, published report of 25 pages or so for ready reference.

- Another training option would be an interactive CD-ROM with a self-directed training program, possibly a tutorial allowing the student to assemble a data set for his or her own region or state.

- State department of transportation leadership in all aspects of data dissemination and training is essential.

- Documentation for users should be better, more complete, and more understandable.

- There should be better access for small MPOs, perhaps a technical person in each MPO.

- State Data Centers should provide assistance.
- The Internet should be a standard means of data dissemination.
- The Census Bureau should work with the National Association of Regional Councils (NARC) and the American Association of Metropolitan Planning Organizations (AAMPO).
 - There should be maximum exposure of 1990 data. For example, the case studies written for this conference contain descriptions of many uses of census data and the CTPP. Their distribution should be maximized by putting them on Internet, perhaps at the Bureau of Transportation Statistics (BTS) site.
 - DOT should establish a clearinghouse of information about data and reference other sites (the TRB Committee A1D08 home page is an excellent example).
 - Newsletters should present examples of use, one example at a time. Bulletin boards could be used to bring many examples together in one place.
 - Links from Census Bureau home page to the BTS site should be created where papers describing uses of census data are located.
 - Formal relationships should be created with universities to provide census data and information as part of their curricula.