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Delaware Valley Regional
Planning Commission

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MEMORANDUM

Date: June 8, 2005

To: cttp-news@chrispy.net

From: Thabet Zakaria

Subject: Comments on the Transportation Research Board National Conference
"Census Data for Transportation Planning" held in Irvine, California,
May 11-13, 2005

The purpose of this e-mail is to briefly document the major comments and recommendations that I have made at various sessions of the "Census Data for Transportation Planning" conference in Irvine, CA, May 2005. I think these comments and recommendations are useful to the transportation planning community, especially to transportation planners who did not attend the conference. The recommendations are also useful to the Census Bureau (CB), the conference planning committee, and the persons who make the final decisions on the 2010 decennial census and the American Community Survey (ACS).

The conference was held to address four subjects:

1. Assess the use of the 2000 census data,
2. Review the current plans for the ACS,
3. Review ACS-related transportation research, and
4. Assess future transportation data needs.

1. Census 2000 Data

The evaluation of Census 2000 data for the Delaware Valley region shows that the decennial census data are generally accurate and invaluable for transportation, land use, and economic development planning studies. However, there are two types of errors in the data. The first type, which is due to definitions, geocoding, coordination, and weighting procedures can be easily corrected by data users. The second type of error results from sampling and disclosure requirements. The CB disclosure threshold destroyed the value of several data tables on worker flows by means of transportation and the data became totally useless. The CB should be expected to correct three major errors concerning the nonresponse to the questionnaire, rounding, and disclosure requirements.

- a. Implement a 20 percent call back or reinterview of those households who do not respond to most census questions. This reinterview sub-sample will reduce the nonsampling error and improve the data quality significantly;
- b. Change rounding rules to: 1-3 rounds to 2, 4-6 rounds to 5, 7-9 rounds to 8, 10 or greater should not be rounded. This recommended rounding system will protect confidentiality and reduce the data loss; and
- c. Eliminate the disclosure threshold since it made the data totally useless. Census imputation procedure, swapping, and data rounding were sufficient to protect confidentiality in previous censuses.

2. American Community Survey

The evaluation of the 2000 ACS results for the Delaware Valley region indicated that the sampling and nonsampling errors are very large and the data cannot be used for transportation planning. For example, the errors in the means of transportation in Mercer County, New Jersey are 4.5 percent for drive along, 18.5 percent for carpool, 28.8 percent for bus, 68.8 percent for bicycle, and 106.6 percent for other means for commuting to work. The ACS underestimated the population of the City of Philadelphia by 54,731 people, or 3.61 percent, and underestimated the population of Mercer County by 6.01 percent.

The CB's reports that evaluate the ACS results nationwide indicate similar findings to the DVRPC evaluation. For example, Report No. 5 indicates that 76 percent of the ACS estimates differ significantly from Census 2000 at the 90 percent confidence limit. Yet, the CB concluded incorrectly that the estimates from the ACS and decennial census are "very similar," and the "results of the comparison affirms the suitability of the ACS as a replacement for the decennial long-form questionnaire."

According to the sampling theory, the margin of error in the latest ACS program (2005 Full Nationwide Implementation) will be very large and the annual and 3-year ACS data cannot be used to make rational conclusions in transportation planning studies. There are many reasons for this conclusion, such as the ACS sample is too small, does not include group quarters population, and is weighted to an estimated population rather than census counts. The current ACS program does not provide for accurate geocoding of the place of work address, which is changing annually, and has no comprehensive marketing, communication and partnership programs to obtain quality data from households. The ACS zonal data should be evaluated to determine the margin of error before they can be used in transportation planning. In June 2002, the CB agreed that "a thorough evaluation of the ACS must take place before this program can replace the 2010 decennial census long form." Such an evaluation has not yet been accomplished by the CB.

To obtain accurate zonal data for transportation planning studies from the ACS, the CB should:

- a. Acknowledge the fact that the proposed ACS program will not provide accurate data comparable to the decennial census. The proposed 2005 ACS data for areas with 65,000 plus population and areas with population

- between 20,000 and 65,000 will be useless;
- b. Conduct the ACS for five years to be able to accumulate zonal data that may be used in transportation planning studies, such data will not be available until 2010; and
- c. Keep the long-form questionnaire in Census 2010 to obtain accurate zonal data for transportation planning and for evaluating the results of the ACS program initiated in 2005 (Full Nationwide Implementation). Without data from the 2010 census, it is impossible to assess the quality of the ACS 2005-2009 data.

3. ACS - Related Transportation Research

As part of the ACS program, the CB is planning to revise the employment questions to improve the quality of labor force estimates. According to the CB, Census 2000 tended to underestimate employment and overestimate unemployment relative to the Current Population Survey (CPS). In collaboration with other governmental agencies, the CB intends to include the improved employment questions in the 2006 content test for the ACS. If these changes are successful, they will be implemented in the 2008 ACS program. My response to this research effort was:

- a. Improve the employment questions and test the questions in the 2006 ACS,
- b. Enhance the data collection procedure of the 2006 ACS program, and
- c. Analyze and evaluate the results of this research effort in cooperation with data users before full implementation in the 2008 ACS.

4. Future Transportation Data Needs

The workshop on future transportation data needs focused on the usefulness of the ACS products and whether the transportation data users desire an annual CTPP-like product from the ACS. There was also a discussion about updating TIGER/Line files and the Master Address File which are essential for the decennial census. The CB presented "new ACS data for use in transportation planning: 2004 and beyond." These new data tables, which include selected population profile and commuting characteristics of workers by place of residence or by place of work will be provided by the CB as part of the Standard Tabulations. No data tables have been proposed for zonal worker flows by means of transportation, which are essential for transportation planning studies. The data tables presented had not yet been approved by decision makers within the CB or by FHWA, FTA, MPOs, and AASHTO.

In a response to a question by Nancy Rogers about the proposed new ACS data tables, Ed Christopher of FHWA correctly wrote on this network on May 25, 2005 that the proposed products from the ACS are "probably confusing to all of us." On the same day, Elaine Murakami wrote more clarification on when ACS data will be available, and stated, that the 2005-2009 data will be weighted to the County Population Estimates while the 2006-2010 will be weighted to the 2010 decennial census. This might result in "oranges and apples."

Such questions and comments indicate that there is no coordination between the CB and other federal agencies concerning the ACS method and products. There is no formal document that describes the ACS products and data tables needed for transportation planning. As stated above, there are many problems with the accuracy of the ACS data that have not been addressed by the CB. In order to resolve these statistical and technical problems, I recommend the formation of a committee consisting of members from the CB, FHWA, FTA, MPOs, AASHTO, and universities to:

- a. Review and evaluate the existing census data tables, including CTPP 2000, PUMS, Summary File 3, and the proposed ACS Standard Tabulation;
- b. Select the data tables needed for transportation planning from the ACS using a 5-year accumulation of data. According to the current ACS program, such tables will not be provided until 2010; and
- c. Request the CB to include the selected tables in the ACS Standard Tabulations.

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