dvrpc
MEMORANDUM
Delaware Valley Regional
Planning Commission
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MEMORANDUM

Date: **September 9, 2005**

To: **ctpp-news@crispy.net**

From: **Thabet Zakaria**

Subject: **2004 American Community Survey (ACS) Data Release**

Last week, the Census Bureau (CB) released 2004 ACS data. These data are based on a small sample of households. The 2004 ACS sample is less than a million housing unit (838,000) nationwide vs. about 17 million in Census 2000. According to sampling theory, the margin of error in the 2004 data is expected to be very large since the sample is very small. In addition, the population used to weight and expand the 2004 ACS data is an estimate, not a census.

My previous evaluation of the 2000 ACS results for the Delaware Valley region indicated that the sampling and nonsampling errors are very large, and therefore the data cannot be used for transportation planning. For example, the errors in the means of transportation in Mercer County, New Jersey (one of the nine counties of DVRPC) are 4.5 percent for drive alone, 18.5 percent for car pool, 28.8 percent for bus, 68.8 percent fo bicycle, and 106.6 percent for other means for commuting to work. It should be noted that the CB's technical reports that evaluate the ACS results nationwide indicate conclusions similar to the DVRPC findings. Yet the CB concluded incorrectly that the ACS data are useful and can be used every year to update the decennial data.

Also last week, I read three e-mails posted on this network regarding the 2004 ACS data. The first was from Jeffrey P. Levin from the City of Oakland, CA questioning the 2004 ACS population estimates. He says the ACS underestimated the population of Oakland by at least 27,000 persons (392,000-365,000), even after subtracting group quarters population. He asked "Does anyone else have similar problems?" These problems are not unique to Oakland since the ACS methodology and assumptions are applied nationwide. Philadelphia lost 43, 521 persons in four years (2000-2004). The ACS population data are taken from the CB annual population estimates, not from census. They are developed based on data including births, deaths, federal tax returns, medicare enrollment, and immigration. Any error in such data will certainly introduce a larger error in the ACS population estimates. Likewise, Chuck Purvis found that the ACS estimates for Alameda County are much lower than those estimated by the California Department of Finance, which are probably more reasonable than the 2004 ACS estimates. According to the CB, the ACS estimates are used in federal funding allocations, in setting the levels of national surveys, and in monitoring recent

demographic changes. As Jeffrey Levin stated this kind of undercounting can "cost cities a lot of money."

For Mercer County, NJ, the CB subtracted the 2000 census group quarters population from the 2004 annual population estimates to obtain 2004 ACS population that was used for expanding the ACS variables. Two errors are apparent in the 2004 Mercer County population. The CB is using an estimate of population rather than a census and is assuming that group quarters population does not change at all in four years.

On September 1, 2005, Elaine Murakami listed nine things to keep in mind when using the ACS 2004 tabulations.

1. The ACS data are biased toward counties with more than 250,000 population.

2. She says: "It is better to compare ACS 2000 to ACS 2004 data." The comparison of ACS workers by mode of travel for Mercer County indicates that the walk mode has declined by 47.5 percent from 2000 to 2004, a very unreasonable estimate for this growing county. Comparing two wrong numbers will not result in a correct answer.

3. The 2004 ACS data do not include group quarters population. As stated above for Mercer County, the CB did not estimate group quarters population correctly.

4. ACS collects data over 12 months and has different residence rules than the decennial census.

5. Average travel time is 1 minute lower in ACS than in Census 2000. For Mercer County, the average travel time in ACS is 2.2 minutes lower than the census.

6. The decennial census reported a greater proportion of households without a vehicle. In Mercer County, the opposite is true (11.7% vs. 12.7%).

7. The decennial census consistently has more workers who select "carpool" as their mode of travel. In Mercer County, the opposite is true (17,976 vs. 18,858 workers.)

8. The CB added more means of transportation by travel time in the 2004 ACS. The sampling error increases significantly with the increase in the number of travel modes.

9. The CB is going to include tabulation by place of work from ACS as part of its standard product. Since they are based on the same sample, the ACS tabulations by place of work will have similar problems to the ACS tabulations by place of residence.

Data users, including DVRPC, are not interested in the factors or reasons for producing erroneous ACS data. They are simply interested in receiving quality data they can use in their studies to make reasonable conclusions. In summary, there are several serious problems in the ACS program, including:

1. The errors in the annual ACS data for 2000-2004 are very large and the data cannot be used to make rational conclusions in transportation planning.

2. Like 2004, the current 2005 ACS (Full Nationwide Implementation) for areas with 65,000 plus population and areas with population between 20,000 and 65,000 will be useless because of the reasons mentioned above. It will not produce reasonable data as promised by the CB.

3. The CB is promising to produce zonal (TAZ) data for transportation planning after accumulating zonal data for five years after 2005. Such data will not be comparable to the decennial census because of many reasons including the ACS sample is smaller than the decennial census, does not include group quarters population, and is weighted to an estimated population rather than census counts.

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