



# CTPP Status Report

December 2009

U.S. Department of Transportation  
 Federal Highway Administration  
 Bureau of Transportation Statistics  
 Federal Transit Administration  
 AASHTO Standing Committee on Planning  
 In cooperation with the TRB Census Subcommittee

## Census Transportation Planning Products (CTPP) AASHTO Update

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### CTPP Oversight Board Meeting

On November 12, the CTPP Oversight Board, chaired by Mary Lynn Tischer, Virginia DOT, met by conference call. As a result of the meeting several new subcommittees were formed to look at areas of interest to the CTPP community. One group will look at data archiving and another at research. These groups intend to explore the hard questions of both how and where do we keep data, and alternatives to ACS for small area data. The meeting also touched on future training needs, TAZ Delineation and the upcoming data and software for CTPP ACS three-year (2006-2008) data.

### CTPP Access Software

AASHTO has contracted with Beyond 20/20 and Citygate for the development and production of the software. As the software developer will only get empty tables shells beforehand for software testing, the work plan includes 12 weeks for data delivery from AASHTO to the operational web-based software. The software will primarily be a web-based solution, with a desktop solution using Beyond 20/20 Professional Browser.

### CTPP Three-Year ACS Data Products

The Census Bureau's ACS Office is working on the tabulations using ACS records from 2006-2007-2008 and expects to deliver a file to AASHTO and FHWA on or before June 2010. AASHTO will then deliver the file to Beyond 20/20 to be imported into the CTPP Access Software.

## The Upcoming 2010 Census

Kristen Rohanna, San Diego Association Of Governments (SANDAG), [kroh@sandag.org](mailto:kroh@sandag.org)

For more than 200 years, the Census Bureau has conducted a census every 10 years to collect population, housing, and socioeconomic data from the public. While the U.S. Constitution mandates a census be held every 10 years for the purposes of Congressional reapportionment and legislative redistricting, the data are used for many other purposes. For example, Federal funds are allocated based on the official population counts (e.g., funds for Head Start programs, public transportation, and road rehabilitation and construction).

The 2010 Census is rapidly approaching. Even though Census forms will be sent out during March, April 1<sup>st</sup> is the official Census Day. The Census form will ask 10 questions, including questions about the number of people living in a residence, tenure, and race/ethnicity. A copy of the form can be found at:

<http://2010.census.gov/2010census/how/interactive-form.php>.

The full implementation of the American Community Survey (ACS) which began in 2005 and collects more detailed person and household characteristics, means the 2010 Census will be a short form only Census.

(continued on page 2)

### CTPP Five-Year ACS Data Products

The first CTPP using ACS with small area tabulation will use ACS records from 2006 to 2010. We expect the data will be modified in some fashion to reduce the use of data suppression to protect individual confidentiality. We are hopeful that the techniques developed resulting from NCHRP 08-79 *Producing Transportation Data Products from the American Community Survey that Comply with Disclosure Rules* will be used. The data are expected to be released in 2012.

## **TAZ Delineation: Agency Responsibility Spreadsheet Due January 8, 2010**

*Liang Long, Cambridge Systematics, liang.long@dot.gov*

We are now working with the U.S. Census Bureau (CB) Geography Division on TAZ delineation for incorporation into the TIGER file. The incorporation of TAZs into TIGER will permit the next Census Transportation Planning Products (CTPP) to use these TAZs for tabulation and for mapping. The first small area CTPP is expected to use data from the American Community Survey for 2006 through 2010.

The Census Bureau will be working with a vendor to develop and distribute a GIS-based software for TAZ delineation. We expect the software to be distributed in spring (April-June) 2011, with four months for files to be returned to the CB. We are planning for two levels of custom tabulation geography for CTPP: First, the small TAZs (or base TAZ) will have a recommended threshold of 1,200 population, and second, Transportation Analysis Districts (TAD) will have a recommended threshold of 20,000. The TAD will be accumulations of

TAZs or census tracts and should be designed with three-year ACS tabulation in mind.

As a first step, I have sent a spreadsheet to each state DOT. I have asked them to identify the agency who will most likely define TAZs for each county or independent city. MPOs can be selected using a drop-down list in the spreadsheet. For some counties, there may be more than one MPO who is interested in defining TAZs. If there are conflicts about which agency will be the lead agency, these conflicts need to be resolved before we submit the list to the CB.

State DOTs have been asked to submit their list by January 8, 2010.

I will compile a list for review in 2010 before it is sent to the Census Bureau Geography Division. If you have questions, please contact me, Liang Long at liang.long@dot.gov, 202-366-6971.

## **The Upcoming 2010 Census (continued)**

Over the past few years, the Census Bureau has been working with many cities, counties, and metropolitan planning organizations (MPO) around the country to ensure that everyone is counted. 2010 Census planning activities included the Local Update to Census Addresses (LUCA) program and the Participant Statistical Areas Program (PSAP). The LUCA program gave local jurisdictions the opportunity to confirm all addresses in its jurisdiction and supply addresses that were missing from the Census Bureau's master address list. The PSAP gave local jurisdictions input into the census geography boundaries, such as block groups, that are used to distribute the data.

Currently, the Census Bureau is conducting outreach for the 2010 Census. Local Census offices have opened up in many cities around the country. Working with many local organizations, including cities/counties, MPOs, and community groups, local Census Bureau staff have helped establish numerous Complete Count Committees to get the word out. The Census Bureau is conducting a media campaign to promote the 2010 Census as well. More information about promotional materials can be found at: <http://2010.census.gov/partners/materials/>.

## Sources of Employment Data

*Ed Christopher, FHWA Resource Center Planning Team, edc@berwyned.com*

A major concern in transportation planning is the acquisition of quality employment data. Employment data are used in transportation planning to model the journey to work, conduct economic assessments, carry out transit and travel demand planning, examine and plan social service delivery and evaluate fixed physical infrastructure investments. Rarely is it collected solely for transportation purposes. For the transportation community this means using someone else's data.

To help those interested in this topic I have tried to assemble a list of the sources of employment (jobs) data from both private and public sources. This list should be considered a draft and does not include every possible supplier of these types of data. If anyone has a source that they would like to add, please contact me, Ed Christopher at [edc@berwyned.com](mailto:edc@berwyned.com), 708-283-3534.

### a. PRIVATE

<b>InfoUSA</b>	<a href="http://www.infousa.com/">http://www.infousa.com/</a>
<b>Dun &amp; Bradstreet</b>	<a href="http://www.dnb.com/">http://www.dnb.com/</a>
<b>Experian</b>	<a href="http://www.experian.com/products/national_business_database.html">http://www.experian.com/products/national_business_database.html</a> <a href="http://www.experian.com/">http://www.experian.com/</a>
<b>Claritas</b>	<a href="http://en-us.nielsen.com/tab/product_families/nielsen_claritas">http://en-us.nielsen.com/tab/product_families/nielsen_claritas</a>
<b>Geo Results</b>	<a href="http://www.georeresults.com/">http://www.georeresults.com/</a>
<b>MapInfo Business Points</b>	<a href="http://www.MapInfo.com/">http://www.MapInfo.com/</a>
<b>AGS – Applied Geographic Solutions</b>	<a href="http://www.appliedgeographic.com/">http://www.appliedgeographic.com/</a>
<b>Equifax</b>	<a href="http://www.equifax.com/">http://www.equifax.com/</a>
<b>Global Insight</b>	<a href="http://www.globalinsight.com/">http://www.globalinsight.com/</a>
<b>0-0 DataNetwork Corporation</b>	<a href="http://www.0-0.net/">http://www.0-0.net/</a>

### b. FEDERAL

<b>Quarterly Census of Employment and Wages-(ES202) Program</b>	<a href="http://www.bls.gov/cew/">http://www.bls.gov/cew/</a>
<b>Current Employment Statistics (CES) program</b>	<a href="http://www.bls.gov/ces/">http://www.bls.gov/ces/</a>
<b>Current Population Survey (CPS)</b>	<a href="http://www.census.gov/cps/">http://www.census.gov/cps/</a>
<b>Local Area Unemployment Statistics (LAUS)</b>	<a href="http://www.bls.gov/lau">http://www.bls.gov/lau</a>
<b>American Community Survey (ACS)</b>	<a href="http://www.census.gov/acs/www/">http://www.census.gov/acs/www/</a>
<b>Longitudinal Employer-Household Dynamics (LEHD) Program</b>	<a href="http://lehd.did.census.gov/led/index.php">http://lehd.did.census.gov/led/index.php</a>
<b>Census Transportation Planning Package 2000 (CTPP 2000)</b>	<a href="http://www.dot.gov/ctpp/">http://www.dot.gov/ctpp/</a>
<b>Regional Industrial Multiplier System (RIMS)</b>	<a href="http://www.bea.gov/regional/">http://www.bea.gov/regional/</a>

## Commute Differences by Gender

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This is an excerpt of a paper given at the TRB international conference on Women's Issues in Transportation, October 2009.

Historically, in the United States, men have commuted further and longer than their female counterparts. But, as women's participation rate in the labor force approaches men's, and young women increase their influence on household location decisions, how gender influences travel - especially the commute - might be changing too.

Much of the literature focuses on the role of household responsibilities in women's travel behavior, and another part of the literature explores women's changing roles in labor markets. The availability of men and women for home-centered activities, such as child rearing or elder care, will vary with their opportunity costs,

such as wages and other measures of the rewards of one's career.

This report uses 20 years (1985 to 2005) of the American Housing Survey. Questions on the commute trip include self-reported travel times and distances, and demographic characteristics, including income, education level, marital status, race/ethnicity, age, gender, and family structure. This analysis is restricted to national totals, with analysis using the urban sample alone.

Looking at Table 1, there is no evidence of a closing gap in commute times in these data. The difference in commute times by gender ranges from 8 to 14 percent over the 20-year period, with women's commute time consistently shorter than men's. Both men and women increased their average commute time by 11.5 percent over the same period.

**Table 1. Mean One-Way Commute Duration (Minutes), by Sex, Year, and Mode**

Year	By Car or Truck			By Bus/Transit		
	Women	Men	Percent Difference	Women	Men	Percent Difference
1985	18.2	20.9	12.9%	38.8	38.8	0%
1987	N/A	N/A		N/A	N/A	
1989	N/A	N/A		N/A	N/A	
1991	18.8	20.9	10.0%	35.9	38.8	7.5%
1993	18.8	21.1	10.9%	36.6	37.0	1.1%
1995	19.4	21.1	8.1%	34.3	35.6	3.7%
1997	19.2	22.3	13.9%	35.8	38.4	6.8%
1999	19.6	22.9	14.4%	36.9	36.7	-0.5%
2001	19.7	22.8	13.6%	35.1	34.4	-2.0%
2003	20.1	23.2	13.4%	35.1	36.8	4.6%
2005	20.3	23.3	12.9%	36.6	37.9	3.4%
Percent Change 1985-2005	11.5%	11.5%		-5.7%	-2.3%	

Source: American Housing Survey, excluding non-urban, group and institutional quarters, and trips of 0 duration.

Figure 1. Gap by Mode, 1985-2005, as of % Difference in Mean One-Way Commute Time (Clockwise from upper left)

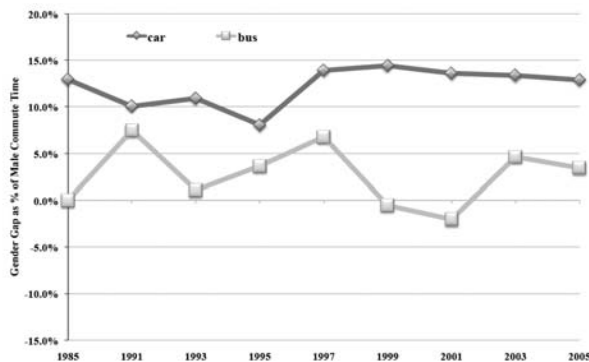


Figure a. Gender Gap by Mode

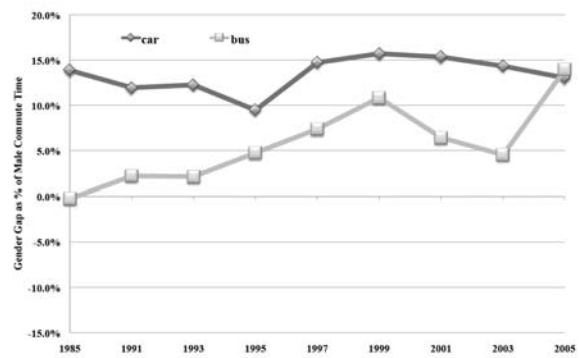


Figure b. White Gender Gap by Mode

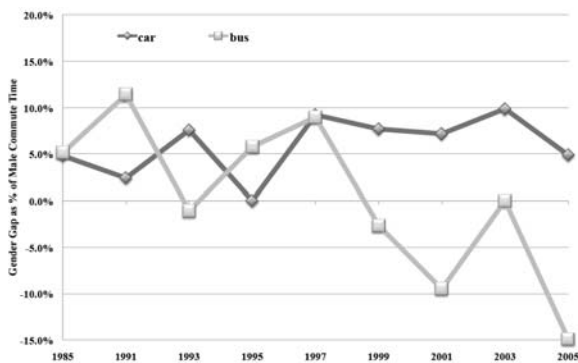


Figure c. Black Gender Gap by Mode

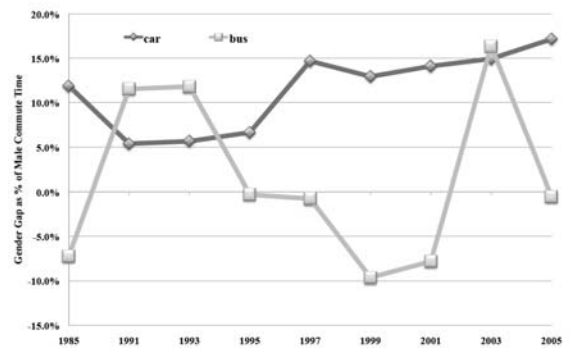


Figure d. Hispanic Gender Gap by Mode

When race/ethnicity are accounted for, different patterns start to emerge. Hispanic women’s commute time by car shows greater convergence with Hispanic men from 1991 to 1995, but shorter commute times by car in other periods. Hispanic women’s commute time by bus, however, showed relative convergence with Hispanic men. For Black/African American women and men, women’s commute time by car was shorter than men’s, but less so than with white or Hispanic women and men. For Black women’s commute time by bus, there is much more variability, and during many of the years, Black women had longer commute times by bus than Black men.

The gender gap in commute length of older workers is growing, even while that of younger workers steadily closes. At the same time, racial differences in mode choice and commute times are becoming less pronounced, both by race and by gender, thus, gendered elements of travel

demand are evolving, if not in predictable directions.

- The gender gap in **commuting times** *widened* slightly. While women’s commutes are lengthening in duration, they are not quite matching the growth in the average male commute time.
- The gender gap in **transit use** is *shrinking* by race, largely because Hispanic and Black commuting by transit dropped dramatically.
- The gender gap is *growing* for **older workers**, while narrowing for younger workers.

Due to space constraints, the tables and figures for the results by age are not included in this excerpt.

The report concludes that while gender matters as much as ever for commuting patterns, it also appears to be greatly influenced by race and age. The gender gap remains, but changes across groups and life course stage.

## Model-Based Synthesis of Household Travel Survey Data

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### Introduction

Household travel data synthesis/simulation has become a very promising alternative or supplement of survey data to both small urban areas and large metropolitan regions in which data are expensive to collect or the data required to support the planning process become outdated. This study proposes and applies model-based approaches (i.e., Small Area Estimation (SAE) methods) to synthesize household travel characteristics. The proposed methods address the sampling- biases concerns in the existing methods. Specifically, three SAE methods – the Generalized Regression Estimators (GREG) method, the Empirical Best Linear Unbiased Predictor (EBLUP) method, and the Synthetic method – an EBLUP without random area effects, are applied to synthesize household travel characteristics at census tract level. The SAE framework of synthesizing household travel characteristics is demonstrated with the 2001 National Household Travel Survey data (NHTS) and Census Transportation Planning Package (CTPP) 2000 data in the Des Moines metropolitan area in central Iowa.

### Tract Level Estimation and Validation

Figure 1 plots the SAE estimates with the CTPP values across 107 census tracts in Des Moines,

Iowa. The NHTS sample averages also are included in the plot. It is apparent that the SAE estimates, especially the EBLUP and Synthetic ones, are much closer to the validation values (CTPP values) than the NHTS sample averages. Using NHTS sample averages produces large biases. The fact that the EBLUP and Synthetic estimations are better than the GREG’s indicates significant area heterogeneity across the census tracts and thus mixed effect models are better.

Table 1 compares the mean values and standard deviations among the SAE estimates, sample averages from NHTS and the CTPP values. The t-test is used to compare the mean values and the non-parametric Kolmogorov-Smirnov two-sample test is used to compare the distribution between each data pair. By either measure, the Synthetic estimates are statistically identical to the CTPP values (at the 0.05 significant level). This result is consistent with the visual inspection in Figure 2. Mean Absolute Relative Error (MARE) measures the average absolute deviation of the estimated values from the true values. It is another way to tell how closes the estimated values to the true values. Not surprisingly, the Synthetic estimates give the least MARE. This is consistent with the previous findings.

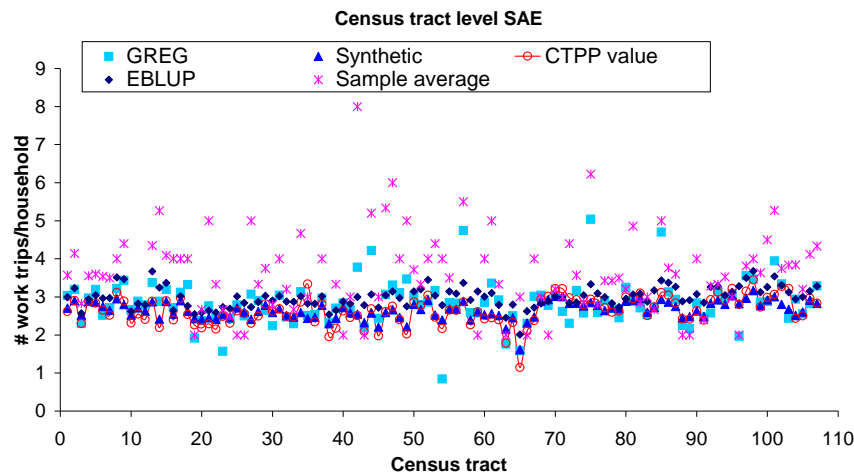


Figure1. Estimated and observed number of work trips at census tract level.

**Table 1. Comparison of SAE Estimates to CTPP Values for Number of Work Trips**

	<b>Means</b>	<b>Standard Deviation</b>	<b>T Value (Pr &gt; T)</b>	<b>Per Household Trip Rate (Pr &gt; Ksa)</b>	<b>MARE</b>
<i>CTPP Value</i>	2.648	-	-	-	
<b>Sample Average</b>	3.61	0.7200	<0.0001	<0.0001	
<b>EBLUP</b>	2.981	0.4169	<0.0001	<0.0001	0.1508
<b>Synthetic</b>	2.65	0.1807	0.8251	0.0968	0.0517
<b>GREG</b>	2.84	0.5586	<0.0001	<0.0001	0.2571

**Conclusion**

This paper has proposed and evaluated model-based small area estimation methods to synthesize household travel survey data in small- and mid-size metropolitan areas. The SAE approach addresses the sampling biases concerns in the existing methods. The paper has verified that SAE is a plausible statistical approach to providing reliable and unbiased travel information for local areas. The proposed methods of dealing with household travel survey data in this research and the analysis findings will provide a useful and economical tool for practitioners, planners and policy-makers in transportation analyses.

This study is part of the transferability study of household travel survey data funded by the Federal Highway Administration (FHWA).

For detailed information of this study, please refer to the following paper:

Long, L., J. Lin, W. Pu. Model-Based Synthesis of Household Travel Survey Data in Small- and Mid-Size Metropolitan Areas. *Transportation Research Record, Journal of Transportation Research Board 2105*: 64-70, 2009.

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**CTPP Listserv:** <http://www.chrispy.net/mailman/listinfo/ctpp-news>

CTPP Web Site: <http://www.dot.gov/ctpp>

FHWA Web Site for Census issues: <http://www.fhwa.dot.gov/planning/census>

2005-2007 ACS Profiles: [http://ctpp.transportation.org/profiles\\_2005-2007/ctpp\\_profiles.html](http://ctpp.transportation.org/profiles_2005-2007/ctpp_profiles.html)

AASHTO Web Site for CTPP: <http://ctpp.transportation.org>

1990 and 2000 CTPP downloadable via Transtats: <http://transtats.bts.gov/>

TRB Subcommittee on census data: <http://www.trbcensus.com>

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### **CTPP Listserv**

The CTPP Listserv serves as a web-forum for posting questions, and sharing information on Census and ACS. Currently, over 700 users are subscribed to the listserv. To subscribe, please register by completing a form posted at: <http://www.chrispy.net/mailman/listinfo/ctpp-news>.

On the form, you can indicate if you want e-mails to be batched in a daily digest. The web site also includes an archive of past e-mails posted to the listserv.