

**I. PROBLEM Number: 2010 B-23**

**II. PROBLEM TITLE**

Identifying Credible Alternatives for Producing 5-year CTPP Data Products from the ACS

**III. RESEARCH PROBLEM STATEMENT**

In 2006, AASHTO approved a new Census Transportation Planning Products (CTPP) program to provide vital home, work place and journey to work data for effective transportation planning and policy analysis. The CTPP will use data from the Census Bureau's new American Community Survey (ACS) to produce 3-year and 5-year data tabulations to support a host of state and local transportation planning efforts, including air quality and environmental analyses, transit studies, policy and investment scenarios and travel demand modeling.

Over the years, transportation planning mandates and requirements have increasingly called for census data at finer levels of granularity for smaller and smaller areas of geography. For example, in travel demand modeling, data is typically required for smaller geographic units defined as Traffic Analysis Zones (TAZs). However, because TAZs tend to be small, data for many geographic areas will be suppressed under new Census Bureau disclosure rules aimed at protecting an individual's confidentiality. Therefore, to meet the critical transportation planning needs for data, credible alternative methods must be identified for producing 5-year small area, TAZ level data using the ACS.

Although this can be done using different data synthesizing\* techniques, any methods, be they Bayesian, Iterative Proportional Fitting, Cell Contingency, Reconstructions or Generalized Regression Estimations must be vetted throughout the transportation community and meet with the US Census Bureau's rules, requirements and processes. Preliminary research done under NCHRP 8-36 (71) suggests that credible techniques can be found to produce disclosure risk free representative data for small areas.

For the past four decades the transportation planning community has relied on CTPP data products developed from the decennial Census "long form" for travel demand forecasting, policy analysis and project planning. The CTPP data products were designed by the states and MPOs and represent one of the most used and recognized data sources. In 2005, when the US Census Bureau decided to eliminate the "long form" and replace it with the ACS, the states and MPOs responded with NCHRP 588 in an attempt understand how to use this new data. The research proposed in this problem statement is an out growth of that work.

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\* Synthetic data techniques are well accepted statistical methods to assure that significant chances of personal privacy disclosure are prevented while not losing the intended validity and statistical value of the data.

#### **IV. RESEARCH OBJECTIVE**

The objectives of this research are to:

1. Refine and clarify transportation community acceptance, requirements and needs for synthetic data.

This portion of the research will focus on clarifying the 5-year data product user needs, the structure of the data product and its content. The questions to be answered will address the feasibility of a synthetic data product, should the 5-year CTPP consist of tables and be structured like the 4 previous data products or should some sort of synthetic data set with “tables on demand” be created?

2. Conduct research and identify credible synthetic data techniques

This portion of the research will be to develop an appropriate data framework to satisfy the transportation planning needs of the states and MPOs while meeting the Census Bureau’s confidentiality concerns. Once the desired framework is identified, the research would shift to develop the actual methodology that would then be turned over to the Census Bureau staff for implementation. Currently there is a small NCHRP 8-36 (task 71) project underway that has laid some of the ground work for this effort.

Due to the need to develop a successful synthesizing process that meets the needs of the transportation community, satisfies the Census Bureau’s confidentiality requirements and can be implemented by the Census Bureau ACS staff, much of this research must take place at the Census Bureau and requires “sworn status” to access to the ACS microdata. Without this partnership arrangement it would be impossible for this project to move forward.

#### **V. ESTIMATE OF PROBLEM FUNDING AND RESEARCH PERIOD**

Costs: \$550,000  
Duration: 15 months

#### **VI. URGENCY, PAYOFF POTENTIAL AND IMPLEMENTATION**

This is a high priority project as a final data set needs to be completed and distributed to the states and MPOs by 2012. To meet this deadline the Census Bureau will need to have the transportation community’s’ final table design and data framework by mid to late 2011. Any data product, framework or methodology will need to be reviewed and cleared by the Census Bureau’s Disclosure Review Board.

## NCHRP Proposed Problem Statement

The payoff potential of this work is that the states and MPOs will be able to continue to update, calibrate and validate their travel demand models thereby meeting their basic planning requirements as specified in SAFETEA-LU and reiterated in TRB Special Report 288. In addition to travel forecasting many areas rely on this data for their day-to-day planning needs. The payoff potential of completing this project and producing the data could save literally several hundreds of millions of dollars over the cost of replacing this data with localized data collection efforts around the country.

### VII PERSONS DEVELOPING THE PROBLEM

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## NCHRP Proposed Problem Statement

### **Attachment 1 Related work**

#### **NCHRP**

NCHRP Report 588: Using American Community Survey Data for Transportation Planning (Completed September 2006)

08-36 Task 71: Disclosure Avoidance Techniques to Improve ACS Data Availability (Active, Expected Completion, September 2008)

NCHRP 8-36 Task 81: Enhancing the American Community Survey Data as a Source for Home-to-Work Flows (Active, Exeptive Completion, May 2009)

#### **Other Resources**

Christopher, E. and Nanda Srinivasan, "Disclosure and Utility of Census Journey-to-Work Flow Data from the American Community Survey Is There a Right Balance?", Presented at TRB Census data Conference, Irvine, California, May 2005, last viewed 8-22-2008 at <http://www.trbcensus.com/notes/disclosure.pdf>

Christopher, E. "CTPP, The History of the CTPP", last viewed 8-22-2008 at <http://www.trbcensus.com/articles/ctpphistory.pdf>

AASHTO Peer Exchange "Using ACS Data in Transportation Planning Applications", Daytona Beach, Florida, May 2007, last viewed 8-22-2008 at [http://trbcensus.com/SCOP/docs/acs\\_peer\\_exchange\\_may2007.pdf](http://trbcensus.com/SCOP/docs/acs_peer_exchange_may2007.pdf)