



Summary Report

Workshop on Priority Census Data Uses and Needs For Transportation

June 2006

**Sponsored By
AASHTO Standing Committee on Planning
Census Data Work Group
Supported By
FHWA Planning Capacity Building Program
Cosponsored By
Transportation Research Board Committees
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Workshop on Priority Census Data Uses and Needs for Transportation April 10-11, 2006

Executive Summary In April 2006, a Workshop on Census Data Needs and Priorities for Transportation was held to:

- Share information on how census data are being used in the transportation community
- Learn more about future census data products and services
- Identify future census data needs and priorities
- Scope out a multi-year program of tasks and potential pooled fund contract components

The workshop was sponsored by the AASHTO Standing Committee on Planning (SCOP) Census Data Work Group, supported by the FHWA Planning Capacity Building Program and cosponsored by several Transportation Research Board (TRB) data committees.

Thirty-three representatives from AASHTO, federal agencies, state transportation departments, metropolitan planning organizations (MPOs), the National Association of Regional Councils, and TRB data committees attended the workshop.

There was consensus among workshop participants on the continuing need for census data to support sound transportation planning processes. The participants also agreed that past AASHTO pooled fund projects were a valuable and effective means of providing census data products and tools for state and local transportation agencies.

Changes to census data products associated with the transition to the new American Community Survey (ACS) have created a need for data tabulations, as well as other census related training, technical support and research. To effectively address these needs will require collaborative approaches and funding from multiple program sources.

The following recommendations were identified to address overall census data, training, technical support and research priorities and needs.

- 1. Recommend that AASHTO SCOP support a new Census Transportation Planning Products (CTPP) pooled fund project beginning in 2007.** Priority activities include: creating data products and special tabulations; preparing guidance for states and MPOs to assist in the establishment of new Transportation Analysis Zones (TAZs); preparing new census based workplace geocoding; providing technical support to users; developing software; overseeing census pooled fund contract activities; and increasing awareness among users of the upcoming changes and opportunities associated with the transition to the ACS.
- 2. Recommend that AASHTO SCOP give census data capacity building activities high priority for FHWA STEP Program funds.** Activities include creating a website for sharing information on ACS data products; developing training tools and guidelines for using new ACS data; and conducting workshops and/or conferences on best practices for using and applying census data.

- 3. Recommend that AASHTO SCOP give census data related research high priority for future National Cooperative Highway Research Program (NCHRP) and Transit Cooperative Research Program (TCRP) projects.** Priority projects include research to assist with implementing the ACS, minimizing disclosure avoidance and confidentiality issues, and implementing and integrating census data with other data sources.
- 4. Recommend that AASHTO SCOP support the development of a National Highway Institute/National Transit Institute training course on the ACS.** Changes in future census data products will increase the need for training in the analysis, interpretation and reporting of results in the new ACS environment.
- 5. Recommend that AASHTO SCOP assess the feasibility and potential parameters for a new national data program to address overall census and household travel data needs.** Federal funding for national data programs has been significantly reduced. The establishment of a national data program would provide financial support for census related activities as well as other important national data programs such as the National Household Travel Survey (NHTS).

The following report summarizes the Workshop on Priority Census Data Uses and Needs, including workshop findings and recommendations.

Workshop on Priority Census Data Uses and Needs for Transportation

Introduction

In April 2006, a Workshop on Census Data Needs and Priorities for Transportation was held at the Keck Center of the National Academies of Science in Washington, D.C. The objectives of the workshop were to:

- Share information on how census data are being used in the transportation community
- Learn more about future census data products and services
- Identify future census data needs and priorities
- Scope out a multi-year program of tasks and potential pooled fund contract components

The workshop was sponsored by the AASHTO Standing Committee on Planning (SCOP) Census Data Work Group, with financial support from the FHWA Planning Capacity Building Program. Several Transportation Research Board (TRB) data committees cosponsored the workshop. Thirty-three representatives from AASHTO, federal and state agencies, metropolitan planning organizations (MPOs), the National Association of Regional Councils, and TRB data committees attended the workshop. (Appendix A) The group included individuals from throughout the nation, representing a wealth of knowledge and experience in using and applying census data in transportation policy and planning work.

This report summarizes the results of the workshop. It will be shared with the AASHTO Standing Committee on Planning and other interested partners and stakeholders.

Workshop Format

To help participants prepare for the workshop, a website (Appendix B) was set up with background materials and census related information.

At the start of the workshop, speakers shared information on the following topics:

- Alan Pisarski, consultant and author of *Commuting in America*, set the stage for the workshop and shared information on the value of census data for transportation.
- David Clawson, AASHTO, provided background information on previous AASHTO sponsored Census Transportation Planning Package (CTPP) pooled fund contracts.
- Ed Weiner, US DOT Office of the Secretary/Policy Office discussed FHWA, BTS and FTA roles in providing support for census data, training and analysis.
- Dunbar Brooks, Baltimore Metropolitan Planning Organization, updated participants on the new American Community Survey (ACS).
- Ed Christopher, FHWA Resource Center, gave an overview on the timing for release of future census data products.

Following the presentations, participants shared their comments on future census data opportunities and issues. There were questions about the availability and stability of funds to support census work. There was discussion about the quality, consistency and comparability of new ACS census data products. In addition, there were concerns about the potential impacts of data suppression and the challenges of working in an ACS environment with smaller sampling sizes, broader data ranges and data averaging.

There was agreement that additional work is needed to make states, MPOs, transportation consultants and other partners aware of these and other changes associated with the new ACS.

Following speakers and general discussion, workshop participants spent time in breakout sessions discussing:

1. What specific residence, workplace, and home to work flow data are needed for a sound transportation process?
2. What discrepancies exist between what data are needed and what data are expected to be available from the census? How could these discrepancies be addressed?
3. What training, research and technical support components could be included in a pooled fund contract to improve transportation planning and decision making processes?
4. Is a future census data pooled fund contract needed to support transportation planning and policy activities?

Breakout group reports focused on:

- ★ What key components and tasks are recommended for a potential pooled fund contract?
- ★ What are the priorities for funding and timing of activities?
- ★ How would you allocate relative shares of dollars among priority components and tasks?
- ★ What issues should be considered as we move forward?

The workshop concluded with a discussion of next steps for sharing workshop results and involving additional partners and stakeholders. The following pages summarize workshop findings and recommendations.

Finding 1

Census data products are changing.

The 2010 decennial census will not include a long form. The long form has been the primary source of data for transportation analysts, modelers and planners on journey to work flows, work place data and travel mode to work. Long-form journey to work data has been cross-tabulated with other census data on household size, income, race, vehicle ownership, household members with disabilities and other variables to provide rich sources of data for transportation planning and policy analysis.

To replace the census long-form, the Census Bureau has introduced a new American Community Survey (ACS). ACS is a continuous survey with households being sampled every month beginning in January 2005. Because ACS sample sizes at the end of each year are much less than the one-in-six households sampled for the decennial census long-form, multiple years of data, averaged over time are required to support analyses in areas with under 20,000 people.

Given the continuous measurement features of the ACS, 5-year accumulated average data that includes group quarters would not be available for all levels of geography until 2011. The Census Bureau will be revising boundaries in 2007-2008. It appears that TAZ and/or “super TAZ” definitions could be submitted to the Census Bureau in 2008, with extended workplace allocation routines implemented in 2009 - 2010.

As noted, the ACS introduces a number of issues for census data users. For example, it will not be possible to compare ACS results directly with decennial data in many cases.

ACS sample sizes are smaller than the traditional decennial long-form. It has been suggested that ACS sampling rates will generate a standard error one-third higher than the 2000 census. In addition, disclosure avoidance rules such as thresholds, rounding and collapsing will likely result in data suppression that prevents meaningful transportation analysis in some areas.

All of these and other data issues suggest that ACS data will be harder to use and apply. In addition, data results will be more difficult to explain to decision makers and the public. Substantial training and technical support will be needed to ensure that all transportation partners, including states, MPOs and transit operators understand the opportunities, challenges and limitations of working in the new ACS environment.

Finding 2

Census data are needed to support a sound transportation planning process.

Workshop participants agree that census data are needed to support a wide variety of key transportation activities including: policy analysis, statewide and regional planning, travel demand modeling, air quality analysis, transit needs assessments, bicycle and pedestrian planning and environmental justice studies. Appendix C outlines a few examples offered by workshop participants on transportation uses of census data.

Workshop participants agree there is a continuing need for data on demographic and commuting characteristics at home and workplace locations, as well as data on flows from home to work - including trip lengths, frequencies, travel times, vehicle occupancy rates and mode choices.

Although some reductions may be possible, it appears that many of the tables produced as part of previous pooled fund contracts will continue to be required to support sound transportation planning processes. Suggested priorities for future census data tables include:

Residence data needs...

- Number of workers in household by number of vehicles
- Age and sex of workers
- Poverty status
- Race and ethnic origin
- Income by race, by disability, by age, and by sex
- Vehicles by workers, by income, and by household size
- Auto occupancy rates
- People over 65 years of age

Work place data needs...

- Workers by occupation and industry type
- Workers by mode use
- Workers by age and sex
- Workers by vehicles available and by mode use
- Arrival and departure times
- Travel times

Flow data needs...

- Total workers
- Total workers by household income
- Total workers by travel mode
- Total workers by arrival time
- Total workers by departure time

Census data and the levels of geographic detail needed for transportation planning generated considerable discussion.

Policy analysis, project studies and travel demand models benefit from census data that will permit the assignment of trips and analysis of home to work flows at Traffic Analysis Zone (TAZ) levels of geography. Current census data disclosure and suppression rules will make it difficult to get complete ACS data for TAZs.

To address this issue, workshop participants discussed the pros and cons of developing “super TAZs”. Another suggested option would limit modal breakdown tabulations for smaller metropolitan areas, assuming they have fewer passenger mode choices. Current and/or expanded tabulations could then be developed for the larger metropolitan areas that have more mode choices. This option may increase the likelihood of meeting Disclosure Review Board tabulation thresholds in smaller metropolitan areas, assuming there are fewer passenger mode choices in those areas.

In addition to CTPP special tabulations, the ACS Public Use Microdata Sample (PUMS) is another important data set that would be needed in a new census data package. These microdata (individual records with limited geographic detail) are used by many MPOs and are becoming increasingly important as travel models become more integrated with microsimulation models.

Finding 3

AASHTO CTPP pooled fund contracts have been an effective means of supporting census data needs for states and metropolitan planning organizations.

For the 1990 Census and the 2000 Census, AASHTO initiated a pooled fund contract for a Census Transportation Planning Package (CTPP).

The pooled fund contracts provided consistent data across states to meet state and metropolitan area planning requirements and ultimately reduced the costs and time required for states to contract individually with the Census Bureau. Costs for the 2000 CTPP were allocated among the states at a rate of 1.1 cent per person, resulting in a total contract cost of approximately \$3.02 million.

The 2000 CTPP contract supported the development of special data tabulations and extended workplace allocation routines. Funds were used to pay salaries of Census Bureau personnel working on the project, contract programmers to produce the special tabulations, access tools, licenses, and related work.

Finding 4

Federal funding capabilities to support census data activities have been reduced.

FHWA, BTS and FTA provided considerable financial support to the CTPP. For the time period 1999-2006 expenditures for contractual costs are estimated to be over \$2.3 million, with staff support expenditures of approximately \$3.8 million. Contractual costs were divided among the following activities:

- TRB Census Conference	\$ 150,000
- CTPP Guidebook	\$ 200,000
- Technical support	\$1,300,000
- BTS Website at TranStats	\$ 180,000
- TAZ-Up and definitions	\$ 440,000
- Journey to Work Trends report	\$ 30,000
- Research on ACS plus special tabulations	\$ 242,000

Title 5 of the most recent SAFETEA-LU transportation reauthorization bill does not include sufficient funds for FHWA “discretionary” research projects or programs, such as financial support of a new census data pooled fund contract.

In addition, the National Personal Travel Survey (NPTS) was not mentioned in the SAFETEA-LU reauthorization. Internal discussions are continuing within US DOT to determine if funding can be found for a NPTS national survey in 2008.

A new STEP cooperative research program was created in SAFETEA-LU to be administered by FHWA. The program is designed to be the primary source of funding for FHWA planning, environment and realty research and capacity building activities. This program may provide some level of support for census data related activities.

The National Highway Institute (NHI) and National Transit Institute (NTI) training programs may provide other funding opportunities.

Finding 5

Other data sources are important to transportation planning.

In addition to census data, other data sources were identified as being important to the transportation planning process, including:

- The National Personal Travel Survey (NPTS)
- Longitudinal Employer Dynamic (LED) data -- a new Census Bureau data product that links labor office data on employment to federal administrative records, and to Census Bureau sample surveys.

- Data on trip chaining to support new activity based models
- Household travel surveys and data on interregional trips
- Proprietary data sources that provide information on freight and travel trends

Some of these data have the potential to become even more important as data suppression, rounding and other issues impact the quality and consistency of ACS data.

Workshop participants supported funding for the NPTS, although no specific funding source was identified for this program. They agreed that household travel surveys, including the NPTS, are critical because they cover all trip purposes and are not limited to journey to work. There was also interest in evaluating LED as a supplemental or alternative data source, including comparisons of LED to CTPP and ACS data. In addition, workshop participants identified the need for research to develop better methods for comparing and integrating economic, demographic, and travel data available from other public and proprietary sources.

Finding 6

It takes a village to raise a child.

Workshop participants applauded the strong and effective relationships that have evolved between AASHTO, US DOT, the Census Bureau, states, MPOs and regional associations. They agreed the success of future national data programs will depend increasingly on collaborative approaches and partnerships.

There was support to explore partnership opportunities with others who use census data.

Examples include local governments, universities and state transportation centers, transportation consultants as well as many federal agencies interested in demographic, place of work and home to work flow data, such as:

- The Environmental Protection Agency (EPA)
- The Homeland Security Administration
- The Federal Emergency Management Agency (FEMA)
- Health and Human Services (HHS)
- The Center for Disease Control (CDC)
- The Bureau of Labor Statistics (BLS)
- The Bureau of Economic Analysis (BEA).

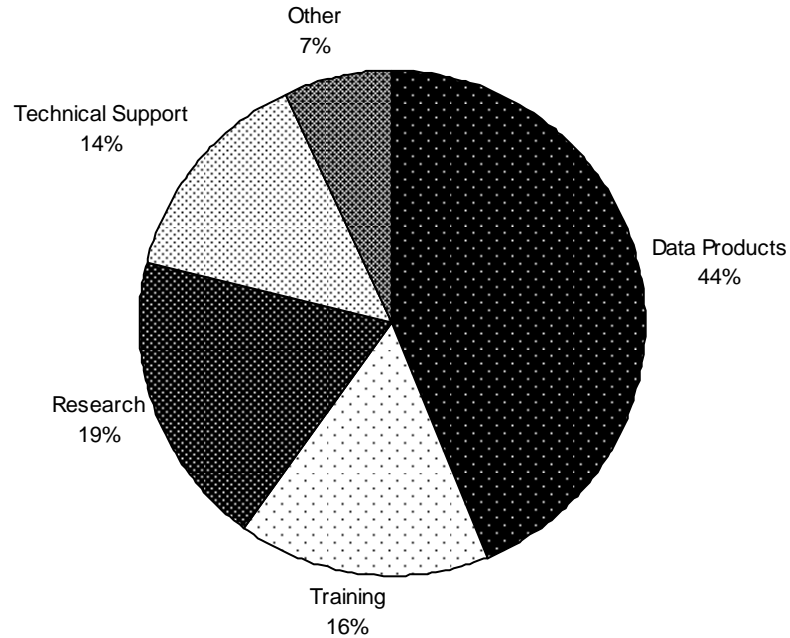
Finding 7

Future census pooled fund contracts will need to address a combination of data products, training, research and technical support components.

The nature of new ACS data products, the increasing interest in alternative data sources and the financial limitations of US DOT to support census related activities suggest that a future census pooled fund contract will need to address more than data tabulations and data products.

To support sound transportation planning, workshop participants stressed the importance of an approach that will address overall census data, training, research, and technical support priorities and needs. The following table shows on average how workshop participants allocated funds among these various census tasks and components.

Allocation of Resources Among Census Tasks and Components By Workshop Participants



Workshop participants discussed how the timing of census data releases might influence a future pooled fund contract. There were suggestions that a multi-phased pooled fund contract might be appropriate. A first phase in 2006-2007 could focus on training and capacity building, technical support to users and research into alternative data sources and data integration. Subsequent phases could then emphasize TAZ development, preparation of extended workplace allocations, data tabulations, technical support, data release formats and data use tools.

Workshop participants agreed that addressing all priority census data needs will require an innovative and collaborative approach that takes advantage of funding available from multiple programs and sources.

Recommendations The following outlines five recommendations for addressing overall census data, training, research and technical support priorities and needs for transportation.

1. Recommend that AASHTO SCOP support a new Census Transportation Planning Products (CTPP) pooled fund project beginning in 2007. Funds would be used for:

- Creating data products, including special tabulations.
- Preparing guidance and assisting states and MPOs in establishing new boundaries for TAZs that minimize data suppression issues.
- Preparing new census based workplace geocoding, including extended workplace allocations to make ACS data available at TAZ levels.
- Providing on-going technical support to census data users.
- Developing and sharing user friendly, non-proprietary, open-source format software with users.
- Overseeing census pooled fund contract activities.
- Expanding outreach and communication efforts to increase awareness of upcoming changes, issues and opportunities associated with the transition to the ACS.

2. Recommend that AASHTO SCOP give census data capacity building activities high priority for FHWA STEP Program funds. Priority activities include:

- Creating a website to share information on the status of census data products.

- Providing web based training tools and guidelines for using new ACS data, including cross walks between ACS and CTPP.
- Conducting workshops and/or conferences to share best practices in applying and integrating ACS data.

3. Recommend that AASHTO SCOP give census data related research high priority for future National Cooperative Highway Research Program (NCHRP) and Transit Cooperative Research Program (TCRP) projects. Priority projects include:

ACS Implementation

- a. Develop methods for extended workplace allocations in the ACS environment.
- b. Compare results of the ACS with the census long-form, and LED and recommend best practices for reconciling differences and applying results.
- c. Prepare a synthesis of case studies illustrating best practices in using and applying ACS data.

Disclosure Avoidance and Confidentiality

- a. Research the use of dynamic aggregation and averaging data over different time periods (e.g., 5, 6, 7 or 8 years) to reduce suppression impacts.
- b. Conduct more detailed analysis to determine if Census Bureau data disclosure rules are statistically valid.
- c. Investigate the opportunities and challenges of using “synthetic” population and workforce data with journey to work flow data.

Integrating Data Sources

- a. Evaluate the pros and cons of using proprietary private data sets to fill gaps for residence, workplace and journey to work flow data.
- b. Develop guidance and best practices for integrating public and private residence, workplace and journey to work flow data from administrative records, sample surveys, GPS and other innovative methods.

4. Recommend that AASHTO SCOP support the development of a NHI/NTI training course on the ACS.

- Localized state and/or MPO based training.
- Mixed media including classroom, self-study, webinars, telecasts, and computer and web enabled training.

5. Recommend that AASHTO SCOP assess the feasibility and potential parameters for a new national data program to address overall census and household travel data needs.

Conclusion

The workshop concluded with many expressing cautious optimism about the future. Workshop participants believe there is growing support for more robust data programs and stronger analytical tools, especially in a world where economics, travel, and transportation have become infinitely more complex. This report presents a comprehensive approach for providing transportation decision makers with census data and information to assist them in making effective investment and policy choices. Workshop participants look forward to working with AASHTO, US DOT and other partners and stakeholders on next steps and implementation strategies.

Appendix A
Workshop on Priority Census Data Uses and Needs
Participants

Paul Agnello Virginia DOT	Phil Mescher Iowa DOT
Alex Bond National Association of Regional Councils	Elaine Murakami Office of Planning, FHWA
Dunbar Brooks Baltimore MPO	Joel North Georgia DOT
Paul Buckley Connecticut DOT	Bob Paddock Minneapolis-St. Paul MPO
Huiwei Chen Florida DOT	Tom Palmerlee TRB
Ed Christopher Resource Center, FHWA	Alan Pisarski Consultant
David Clawson AASHTO	Clara Reschovsky US Census Bureau
Kent Cooper Nevada DOT	Phil Salopek US Census Bureau
Nathan Erlbaum New York DOT	Ken Skirokane Hawaii DOT
Laine Heltebridle Pennsylvania DOT	Pheny Smith Bureau of Transportation Statistics, RITA
Shimon Israel San Francisco MPO	Bruce Spear Office of Planning, FHWA
Xiahong Ju Houston-Galveston MPO	Franklin Spielberg Vanasse, Hangen, Brustlin, Inc. (VHB)
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Bill Knowles Texas DOT	Ed Weiner Office of the Secretary/Policy Office, USDOT
Robert Kominski US Census Bureau	Jeremy Wu Longitudinal Employer Household Dynamics, Census Bureau
Jonette Kreideweis Minnesota DOT	Johanna Zmud NuStats
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Appendix B

AASHTO SCOP Census Data Work Group Web Page

SCOP CTPP page

Page 1 of 2

Census Data for Transportation Planning

TRB Subcommittee on Census Data for Transportation Planning, ABJ30(1)

Site Navigation

[Home](#)
[Calendar](#)
[Notes & News](#)
[CTPP 2000](#)
[Internet Mailing List](#)
[Publications](#)
[Newsletters](#)
[TAZUP / WORKUP](#)
[Old Data \(pre-2000\)](#)

[PUMS & PUMAs](#)
[Urbanized Areas](#)
[ACS & C2SS](#)
[Links](#)
[Contacts](#)
[Adjustment](#)

AASHTO Standing Committee On Planning (SCOP) Census Data Work Group

The work group was established to serve as a focal point for AASHTO SCOP on current and future census data products. The work group will assist SCOP in:

- Identifying census data issues important to the transportation community.
- Providing a forum for sharing census data issues and opportunities with SCOP and for communicating policy perspectives, positions, and concerns with the Census Bureau and U.S. Department of Transportation (DOT).
- Recommending actions that AASHTO and SCOP can take to promote more effective use of census data for transportation decision making needs, including follow-up products to the CTPP.
- Evaluating and supporting strategies to address census data training and capacity building needs within the transportation community.
- Identifying additional census data related research needs.

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Work Group Minutes

[August 2005](#)
[September 2005](#)
[October 2005](#)
[December 2005](#)
[February 2006](#)

April Workshop Materials

- o [Invitation Letter](#)
- o Pisarski--Setting the Stage
- o Clawson--Background on Pooled Fund
- o Weiner--USDOT Roles
- o Brooks--ACS Update
- o Christopher--Product Release Timing
- o Summary Report

■ CTPP 2000

- o [Historical Overview](#) (by Ed Christopher, Dec 2002, PDF format)
- o [CTPP 2000 Purchase Information](#) (PDF)
- o [1990 Purchase Resolution](#) (PDF)
- o [Impacts of Thresholds and Disclosure Rules](#) (by Nandu Srinivasan and Ed Christopher, May 2005, Irvine Conference, PDF)

■ ACS Overview

- o [ACS Overview](#) (by Larry McGinn, May 2005, Irvine, PPT)
- o [Census Bureau Data Products](#) (by Phil Salopek, May 2005, Irvine, ppt)

<http://trbcensus.com/SCOP/>

5/3/2006

- [ACS Guidebook Developed by the Transportation Community](#) (PDF, May 2005 Irvine)
- [Opportunities and Issues](#) (PDF, Elaine Murakami, Oct 2005)
- [Participant reactions to ACS](#) (PDF, May 2005, Irvine)
- [DRB Issues, Sept 20, 2005](#) (PDF, Dec 2005)
- [Sorting Through the Disclosure Rules on Small Area ACS Data-A Discussion Draft](#) (PDF, Dec 2005)
- [Alternatives to CTPP 2000, Part 2](#) (PDF, Nathan Erlbaum, Feb 2006 – Warning – Large File 2.58 MB)

- **LEHD**
- [Introduction and Overview](#) (PPT, by Jeremy Wu, May 2005, Irvine)
- [Report on BTS/Census 2003 Pilot](#) (PDF)
- [LEHD, A Journey-To-Work Alternative](#) (by Wende Mix and Phil Fulton, May 2005, Irvine, PDF)
- [Samples of mapping and reports from “On the Map Pilot”](#) (PDF – Warning – Large File 2.64 MB)

- **Additional Materials**
- [Census Data for Transportation Planning Conference](#) (May 2005), Irvine, CA
- [Irvine-Handout_Proposed_ACS_Standard_Tables.xls](#) (May 2005)
- [CTPP User Survey](#) (PDF, Dec 2005)

[Task Force Members](#)

For additional information and presentations browse the Task Force's FTP site at <ftp://ftp.camsys.com/clientsupport/CTPPdata/SCOP/>

Page last updated: May 3, 2006
<http://www.trbcensus.com/index.html>

Appendix C

Examples of Transportation Uses for Census and CTPP Data (Offered By Workshop Participants)

Activity	Description
Environmental Justice Studies	In the San Francisco Bay area, census data have been used in environmental justice analyses to identify existing minority and low-income neighborhoods, for purposes of evaluating the costs and benefits of a long-range transportation plan on communities of concern.
Passenger Rail	<p>In the San Francisco Bay area, census journey to work data are used in identifying emerging inter-regional, long-distance commute corridors to assist in planning efforts to assemble a regional rail plan.</p> <p>In Danbury, Connecticut CTPP data were used as part of a project to consider the feasibility of electrifying the Metro North Danbury commuter rail line.</p>
Policy Analysis & Planning	<p>The Hampton-Roads MPO used census data to:</p> <ul style="list-style-type: none"> • Analyze commuting patterns in the region of the Oceana Naval Air Station. • Document 1990 to 2000 changes in commuting characteristics. <p>Census Public Use Microdata Sample (PUMS) data are used in the San Francisco Bay area to address policy issues including vehicle ownership levels by housing characteristics and housing affordability and over-crowding.</p>
Project Studies	The Hampton-Roads MPO used census commuting flow data to identify potential commuters and users of a new Town Center planned for Virginia Beach. The data were used to target where to send home interview surveys designed to identify possible commuting alternatives for employees in the area.
Statewide Travel Demand Modeling	The Virginia Statewide Travel Demand Model developed its home-based work trip table directly from CTPP journey to work data.
Transit	CTPP data have been used to develop an application for identifying transit dependent populations. Knowing where there are transit dependent populations can assist policy makers in determining where new services are needed; modify existing systems to better needs; and conduct evacuation planning studies.

	<p>In the San Francisco Bay area, census data on the location of elderly and disabled persons are used in market analysis for para-transit and other transportation social services, including transit discount cards.</p> <hr/> <p>The San Francisco Bay area has also used PUMS data to do market demand analysis for transit marketing efforts. FTA has developed a CTPP based Aggregate Rail Ridership Forecasting Model.</p>
<p>Urban Travel Demand Models</p>	<p>In Georgia, CTPP data are used in MPO travel demand models to:</p> <ul style="list-style-type: none"> • Update the household size cross-classifications table. • Update the household income cross-classification table in the trip generation model. • Obtain the average home-to-work trip length for drive-to-work trips. • Obtain journey to work data for work trips between counties within an MPO. • The Atlanta MPO has used CTPP data to calibrate TAZ to TAZ flows. <hr/> <p>In the Des Moines, Iowa MPO the 2000 CTPP and the 2001 National Personal Travel Survey (NPTS) provided basic data for trip generation and trip distribution components.</p> <hr/> <p>Home-based work trip and journey to work data from the CTPP have been used in several Virginia MPO models. These models are in turn used to identify and target future improvements and investments in long-range plans, TIPs and project planning studies.</p> <hr/> <p>In New York, policy analysts and transportation planners routinely use census data in MPO models and applications across the state.</p> <hr/> <p>The San Francisco Bay area, census PUMS data are used in travel forecasting and modeling to validate auto ownership, work trip distribution, and work trip mode choice models, and market segmentation adjustments to travel models.</p>