

Census Transportation Planning Package (CTPP)

Problem: Sound Transportation Planning and Programming Requires Sound Data

Effective transportation planning and programming requires strong technical and analytical capabilities. These capabilities are built upon sound data. The Census Transportation Planning Package (CTPP) 2000 is a set of special tabulations from the decennial census survey, especially designed for transportation planners. The data are tabulated from answers to the Census 2000 long form questionnaire, mailed to one in six U.S. households. Because the decennial Census is not primarily a transportation survey, there have been historical challenges that have limited data accessibility and quality for transportation planning. Improvements have been underway to enhance CTPP data for transportation planning purposes.

Putting it in Perspective:

Transportation planners use CTPP data to evaluate existing conditions, develop or update travel demand models and analyze demographic and travel trends. Because of the large sample size, the CTPP data are reliable and accurate. CTPP provides comprehensive and cost-effective data, in a standard format, across the United States. CTPP is used to assess:

- **Existing Conditions:** CTPP's Traffic Analysis Zone (TAZ)-level information about existing travel patterns makes it particularly useful in corridor analysis and condition assessments. Graphically displaying commuter flows and travel times can immediately assist planners and decision-makers in understanding the dynamics of the transportation system more accurately and completely.
- **Short-Term Planning:** CTPP enables planners to design near-term improvements to transit and roadway systems. In the CTPP, worker characteristics such as age, household income, and vehicle availability are tabulated by commute mode. Route design may be adjusted to maximize service to specific population groups. Information on low-income workers and their commute characteristics can be used to design and improve welfare-to-work programs.

- **Trend Analysis:** When combined with the 1990 CTPP and/or the 1980 UTPP (Urban Transportation Planning Package), the CTPP 2000 provides transportation planners with extensive information about population, households, employment, and commuter trends. CTPP allows examination of local trends compared to the nation, and to areas of similar size.
- **Equity and Mobility Analysis:** CTPP helps transportation planners estimate the impact of transportation programs on different groups of communities. CTPP can be used to identify spatial distributions of different groups, such as minorities, people with disabilities, and people in poverty. This allows evaluation of regional transportation accessibility by race and income groups.
- **Planning for the Future:** CTPP is an extremely useful source of data to design, build, and calibrate travel demand forecasting models. Travel demand forecasts developed with CTPP data are prime inputs into vehicle emissions forecasts. These emissions forecasts are required for compliance with the Clean Air Act.

Solution: Improve Data Accessibility and Quality to Enhance Transportation Planning

Several improvements have occurred with the decennial Census data and the CTPP 2000 that will enhance their use for transportation planning. A U.S. Department of Transportation (DOT) inter-agency working group, including the Federal Highway Administration, coordinated efforts to improve CTPP data products, training materials, outreach to State DOTs, MPOs and the larger transportation planning community. Some of the CTPP 2000 improvements include: development of a standard, comprehensive and consistent database; availability of small area geography data; greater use of Geographic Information Systems (GIS) for data visualization and many new data tables to support emerging planning issues.

CTPP 2000 Data Products

CTPP 2000 contains 203 tables, with key variables for transportation planners, including: a geographical zone system uniquely designed by the States and MPOs; detailed summaries of workers at work; and the characteristics of the workers commuting between any two areas. Improvements to CTPP 2000 from the 1990 product include: more tables with race and Hispanic origin, more tables with disability status, new tables with poverty status, State-defined tabulation zones, a doubling of the worker/workplace tables, and more robust software for extraction and analysis. The first CTPP 2000 products were the State and County Profiles, released in November 2002, issued on CD-ROM and posted on the AASHTO web site (<http://www.transportation.org/ctpp/>). In July 2003, CTPP Part 1 draft files were released in August 2003 followed by Part 2 draft files in February 2004.

Data Accessibility

Data accessibility has also been enhanced through a new extraction tool and new website. The CTPP Access Tool (CAT) is a user-friendly software extraction tool for the CTPP 2000 data in a PC environment. It has a flexible data browser, basic mapping functionality, can be used to create custom-defined tables, and can combine variables as determined by the user. In addition to this new tool, the accessibility of the 1990 CTPP data has also been enhanced through the development of a new website. The Bureau of Transportation Statistics now makes the 1990 CTPP data available on their website at www.transtats.bts.gov

Successful Applications:

States' Results Demonstrate Success

Lane Council of Governments, Eugene, Oregon

The Lane Council of Governments (LCOG), the MPO for the Eugene-Springfield area in Oregon, uses CTPP data in travel demand forecasting. LCOG has found CTPP data to be essential in developing models for smaller communities in Lane County. Many of these communities have no household travel surveys, so the CTPP is one of the few sources of local travel data. CTPP data allow LCOG to calibrate the trip distribution model for work trips in these small communities. To do this, LCOG forecasters use the flow data from the CTPP with data from the trip generation model, based upon current land use, in an iterative proportional fitting procedure that scales the flows into a trip table.

Metropolitan Transportation Commission, Oakland, California

Forecasters at the Metropolitan Transportation Commission (MTC), the MPO for the San Francisco Bay area, use the journey to work data in CTPP for calibrating and validating their work trip distribution model. The journey to work data serves as observed work trip data in the calibration and validation process. MTC forecasters convert CTPP data to a form that can be used in the model. Because the CTPP gives information on workers, a conversion factor must be applied to convert the CTPP data from workers to trips. Once this conversion is made, the CTPP data are ready to be used to validate the home-based work trip distribution model. For example, the CTPP data can provide the observed trip length frequency distribution for comparison with the model-estimated frequency distribution.

Chicago Area Transportation Study, Chicago, Illinois

The CTPP provides a rich source of data for analyzing trends in local areas. Consistent methods and consistent questions over time allow for comparisons between 1980, 1990 and 2000. The consistency of the CTPP was a key factor when the Chicago Area Transportation Study (CATS) studied downtown commuting patterns. CATS used 1980 and 1990 CTPP data to examine the county of origin and means of transportation for downtown Chicago workers. The CTPP showed that the majority of work trips to downtown were made by transit, but that transit's share declined from 1980 to 1990. CTPP data also allowed CATS to examine geographic shifts in employment within the downtown area.

Benefits:

Improved data quality and access enhances transportation planning at local and MPO levels, as data are essential to the development of travel demand models and other key planning studies and documents.

Additional Resources

CTPP Electronic Guidebook, Overview Course visit: ctpp@fhwa.dot.gov

CTPP Seminar
(available, contact: Resource Center Planning Team)

To learn more, visit <http://www.dot.gov/ctpp> or <http://www.TRBcensus.com>

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