



CTPP 2000 Status Report

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U.S. Department of Transportation
Federal Highway Administration
Bureau of Transportation Statistics
Federal Transit Administration
In cooperation with the TRB Census Subcommittee

CTPP Data Access Software Specifications

By Sarah Clements, Federal Transit Administration

The Census Transportation Planning Package Working Group is designing functional specifications for the software that transportation planners and others will use to access CTPP 2000 data. The Census Bureau will select the vendor to produce the software.

The expected data users include transportation planners from metropolitan planning organizations (MPOs) and State Departments of Transportation. This group has varying degrees of experience with CTPP data – from novices to expert CTPP users. However, even the most experienced user will benefit from an easy way to take a quick look at the data.

Other data users are likely to be the media, community groups, universities and market analysts. The data should be accessible. The goal, therefore, is to have software that provides an easy way to access the data, without sophisticated database or geographic information system (GIS) expertise.

The CTPP software will perform three main functions: Finding a CTPP table; browsing or examining the data; and saving, printing or exporting the data to other formats.

.....Continued on page 2

Attention: State DOTs Opportunity to obtain CTPP 2000 data for your statewide geography

For CTPP 2000, a number of State DOTs have requested data at a more detailed geographic level than was available in the 1990 CTPP Statewide Element. For 1990, data were provided for places (incorporated places and Census Designated Places) with a population of 2,500 or more, but there was no detailed geography like TAZ available in the Statewide Element, only in the Urban Element.

Because of an interest for more detailed geography in some states, the TAZ delineation process was opened up to state DOTs for 2000. A number of states participated in the program and defined TAZs for some or all of the counties in their state. These state-defined TAZs are contained in TIGER, just like the MPO-defined TAZs. In fact, they are indistinguishable from the MPO TAZs. However, there is only one TAZ field reserved in TIGER, so for any county there could only be one set of TAZs defined in TIGER. This limit, of one set of TAZ definitions per county, meant that state DOTs could not define TAZs in counties where an MPO was defining them.

To address this limitation, we told the state DOTs that they would have another opportunity to delineate another small-area geographic unit in counties where MPOs defined TAZs. It is now time to begin thinking about this issue. The new units can be made from existing geography, using equivalency files, and will not be inserted into TIGER. They will only be used to present CTPP 2000 data.

.....Continued on page 8

Public Use Microdata Area (PUMA) Definition Process

State Data Centers from 49 States and the District of Columbia have volunteered to participate in the PUMA definition process. We hope that many MPOs and State DOTs will work with their SDC to ensure that transportation needs are considered in PUMA definition. The deadline to provide PUMA geographic equivalency files to the Census Bureau is August 31, 2001.

The Census Bureau guidelines require that PUMAs should be defined using either census place boundaries or census tract boundaries. A note discussing the transportation planning implications of using place or tract boundaries is posted at: <http://www.mcs.com/~berwyned/census/articles/puma050801.pdf>

Public Use Microdata Sample (PUMS) from Census 2000 will likely be used in many transportation applications. The April 2001 issue of the CTPP Status Report (<http://www.fhwa.dot.gov/ctpp/status.htm>) lists previous applications of PUMS.

For more information on the PUMA definition process, please visit <http://www.mcs.com/~berwyned/census/articles/pumaguidelines.pdf>

CTPP Data Access Software Specifications *(Continued from page 1)*

To find a table, options will be provided to select geography, the data set and tables.

To browse or examine CTPP data with the software, users will be able to look at the data from a specific table and a specific geographic area on the screen without having to export the data into another software package. Options will also be provided to aggregate categories and summarize the data.

The software also will allow the data to be exported to such formats as ASCII, GIS, transportation planning packages, spreadsheets and databases.

Urbanized Area Criteria

MPOs and TMAs are designated based on urbanized area population (50,000 threshold for MPOs and 200,000 threshold for TMAs). The Census Bureau issued a Federal Register notice in March 2001 recommending a new process for defining urbanized areas and urban clusters.

The Census Bureau expects to issue a second Federal Register notice with corrections by July 27, 2001, with a new 30 day comment period. The Census Bureau is planning to define and release urbanized area boundaries in Spring 2002.

To learn more about the Urbanized area criteria, please visit the FHWA portal on Census geography issues at <http://www.fhwa.dot.gov/planning/census/cengeo.htm>.

The CTPP 2000 data access software also will be able to make and print simple maps without a separate GIS or mapping software.

The process for building the data-access software for CTPP 2000 represents a significant change from the 1990 software. For CTPP 2000, the data access software is being built in conjunction with the data, as the CTPP is prepared. The CTPP 1990 software, TransVu, was commissioned by BTS after the CTPP was completed.

How to Convert Block Level Data from Summary File 1 to your TAZs

By Nanda Srinivasan, Cambridge Systematics Inc.

On June 13, 2001, the Census Bureau (CB) started release of Summary File 1 (SF1) data. The CB is scheduled to release SF1 data for 35 states by July 25 and complete release for all states by September 2001.

SF1 contains 100-percent data using questions common to both the short and the long forms. Most of the SF1 data is reported at the census block level. Since the Transportation Analysis Zones defined in TIGER/Line 2000 are aggregations of Census Blocks, transportation planning agencies can assemble SF1 data for their TAZs. A process for converting block level data from SF1 into a GIS and aggregating the data to your TAZs is posted at:

<http://www.fhwa.dot.gov/planning/census/sf1.htm>

SF1 contains both population items and housing items. Population items include age, race, sex, Hispanic or Latino origin, household relationship and group quarters. Housing items include occupancy status, tenure (owner occupied or renter occupied), and vacancy status.

In SF1, there are 171 population tables (identified with a "P") and 56 housing tables (identified with an "H") available at the geographic detail of census blocks. In addition, there are 59 population tables with detailed race and ethnic origin available at the geographic detail of census tracts (identified with a "PCT").

You can obtain SF1 data in three ways:

1. Census Bureau FTP site:

http://www2.census.gov/census_2000/datasets/Summary_File_1/

The FTP (File Transfer Protocol) application is intended for experienced users of census data, and spreadsheet/database software. Due to the size of the files, the FTP user should have a fast ftp capability (for example: DSL, ISDN or T1 connection). Data are arranged in the FTP site by state. The file structure consists of a header file and 39 data files.

To read the downloaded SF1 data into SAS or SPSS, the CB state data centers have developed some coding. The code can be accessed from the SDC clearing house website at:

<http://www.sdcbidc.iupui.edu/Profiles/profiles.html>

A process to transfer SF1 data to an Oracle platform was developed by Darryl Scott, South Western Regional Planning Agency. You can access his procedure and code at: <http://www.fhwa.dot.gov/planning/census/oracle.htm>

2. American FactFinder (AFF)

<http://factfinder.census.gov>

Using American FactFinder, individual tables can be downloaded in a text delimited or comma delimited format.

3. CD-ROM

For users without immediate need for the data, CD-ROMs containing the data and access software are scheduled for shipping shortly after the state file release. They can be ordered from the Census Bureau's Customer Services Center at 301-457-4100.

Disclaimer:

The CTPP Working Group is primarily involved in the creation, dissemination, and optimum use of the CTPP. But, we also want to do our best in making the transportation community aware of other decennial census data products. However, we do not have the staff resources to provide technical assistance to MPO or State DOT staff on these other products. Please contact your Census Bureau State Data Center for further assistance on SF1.

Status of American Community Survey (ACS)

By Elaine Murakami, Federal Highway Administration

The Committee on Government Reform, Subcommittee on the Census conducted a hearing, "Oversight of the Census Bureau's Proposed American Community Survey" on June 13, 2001.

The hearing was chaired by Rep. Dan Miller (R-FL). William Barron, the Acting Director of the Census Bureau (CB) was the first witness.

Congressional concerns included cost, the number of questions, mandatory vs. voluntary completion, weighting, and missing units. Testimony from data users raised issues on the quality of small area data, weighting using state/county estimates program, and recommending a research program using 1999-2001 data.

For a complete account of the hearing, please visit the Congressional website at: <http://www.house.gov/danmiller/census/hearing/hearing1.html#6.13.01hearing> For our notes on the hearing, please visit <http://www.mcs.com/~berwyned/census/notes/acshearing061301.html>

The July 6 "News Alert" issue of the Census 2000 Initiative's newsletter also contains a summary of the hearing. You can access this report at: <http://www.census2000.org/news/01/july6.html>

This summer, the Census Bureau will release a national comparison file; which is a sample of 700,000 addresses, surveyed over 12 months, compared to decennial census April 1, 2000. The first results will be limited to state data. Tables for counties and cities with a

population of 250,000 or over are expected to be available by the end of 2001. The records are weighted to Census 2000 counts (PL-94-171). The ACS home page is www.census.gov/CMS/www/.

The USDOT is working to establish two small research projects through the Census Bureau's Research Data Center (RDC) Program. CB RDC program was established through the Census Bureau's Center for Economic Studies. The RDC provides an opportunity for researchers to use non-publicly available Census Bureau data files, however, they do not have a history of working with demographic survey data.

Through the RDC program, we are hoping to conduct research using the 1999 and 2000 ACS comparison site data for at least 2 counties. There are many limitations to the research. First, there are only 31 county comparison sites for ACS, and second, there are only six RDCs. The number of possible intersections of a place having ACS test data, and having a nearby RDC is small. Since the research MUST be conducted on-site at the CB RDC, the USDOT is trying to set up two projects, San Francisco City/County with Metropolitan Transportation Commission, and Hampden County, Massachusetts, with University of Massachusetts.

Use of 1990 CTPP and NCHRP 365 Report to Build a Travel Demand Model for Las Cruces, New Mexico

By Kenneth Wall, New Mexico State University

The objective of my thesis research at New Mexico State University was to build a travel demand model for Las Cruces, New Mexico; a small metropolitan area 45 miles northwest of El Paso, Texas with a population of 85,000. Two basic components of developing the travel demand forecasting model were locating and calculating socioeconomic data and travel parameters. This report describes how socioeconomic data found in the 1990 CTPP and travel parameters found in the National Cooperative Highway Research Program's "Travel Estimation Techniques for Urban Planning" (NCHRP 365) were applied, along with other data, to successfully develop a local travel demand model.

The 1990 CTPP, on CD-ROM, was easy to install and easy to use. A patch was required to run CTPP in Windows NT. Following the installation of the program, I selected the appropriate datasets from the program menus.

One of the first steps was to identify the TAZs to include. Because this was a regional study, it was only necessary to include freeways and arterials in the highway network. The CTPP database included a map of the Las Cruces urban area. This map showed the geographic location of all CTPP TAZs in the Las Cruces urban area relative to the highways and arterials in the urban area. In the model, the TAZs were delineated by the highway network, therefore, the CTPP TAZs were regrouped into larger

geographic units to develop the 47 TAZs used in the travel demand model. For example CTPP TAZs 87, 88, 89, 90, and 91 were aggregated to form TAZ 7 in the travel demand model.

The travel demand forecasting software required that several socioeconomic attributes be entered for each TAZ. Attributes included the mean income, the number of households, and the number of retail and non-retail employees. The number of households in a CTPP TAZ was found in Table U104 "Households by TAZ" and the mean income of each CTPP TAZ was found in Table U116 "Mean HH Income by Number of Workers in HH." It was a simple exercise to sum the number of households in each group of CTPP TAZs to find the number of households in the corresponding model TAZ. For example CTPP TAZ 87 had 218 households, 88 had 259, 89 had 441, 90 had 280, and 91 had 401 for a total of 1599 households in TAZ 7. Likewise, the mean income of each group of CTPP TAZs was calculated and used for the mean income of the corresponding model TAZ. The number of retail and non-retail employees in CTPP TAZ was found in a socioeconomic study that had been completed for the Las Cruces Metropolitan Planning Organization (LCMPO) in 1995. The LCMPO study used the 1990 CTPP TAZ system to organize its data; therefore, it was easily incorporated with the 1990 CTPP database.

The next step was to select the travel parameters and techniques that would be used to model travel demand in the urban area. NCHRP 365 contains tables of transferable parameters and many analytical techniques that can be used to

model travel demand when more accurate local data is unavailable. The travel demand forecasting software that was used to develop the model included files of transferable parameters, such as production and attraction rates, taken directly from NCHRP 365. Most parameters, such as the ones mentioned above, were automatically set; however, others parameters, such as auto-occupancy rates, Bureau of Public Roads (BPR) curve parameters, and constants used in the calculation of friction factors with the negative exponential function, were calculated using techniques found in NCHRP 365. For example, in small urban areas, NCHRP 365 recommends that the v/c multiplier and the v/c coefficient in the BPR function are set to 0.84 and 5.5. NCHRP 365 techniques were also used to estimate external travel and special generator travel.

Once the network was developed and checked for errors, the software was run for the first time. The model was calibrated by comparing the model's output with standard values for small urban areas in the U.S. that are found in the U.S. DOT's "Calibrating and Adjustment of System Planning Models" (CASPM). CASPM also provides Techniques for adjusting the model in order to calibrate it. The model was run and adjusted a dozen times before the calibration process was complete.

The travel demand model met three key criteria presented by the U.S. DOT in CASPM. The first step was to determine whether or not the total number of

person trips produced per household was reasonable. The total number of person trips produced per household by the model was estimated to be 10.9. The standard number of trip productions for a small urban area is 9.1 trips per household. While the estimated number of trips produced per household was higher than the national average, the difference may be due to unique demographic characteristics of Las Cruces. The second step was to check that the daily vehicle miles traveled (VMT) was reasonable. For a small urban area, the national average is between 1,001,010 and 1,334,680 VMT. The estimated VMT calculated by the model was 1,216,750. Finally, traffic volumes were sampled along six screenlines in the urban area. The percent deviation of assigned traffic flows from maximum desirable errors averaged 9.0 percent.

While the travel demand modeling process was complex, in the end, few resources were used. A calibrated model was developed that used available socioeconomic and highway network data, transferable parameters and techniques, a commercial travel demand modeling software, and a standard computer spreadsheet. The calibrated model would later serve as a research tool for measuring the impact of land use on travel demand.

Note: Kenneth won the New Mexico chapter of the American Planning Association "Graduate student research award" for his thesis.

To order a copy of the 1990 CTPP for your area, please visit:

State wide element: <http://206.4.84.245/btsproducts/category.cfm?Category=111>

Urban Element: <http://206.4.84.245/btsproducts/category.cfm?Category=110>

Windows NT Patch: <http://www.bts.gov/programs/btsprod/setupnt.exe>

To order a copy of NCHRP 365, please visit <http://www.nationalacademies.org/trb/bookstore/>.

The publication can be ordered online for a cost of \$41.00.

TRB Subcommittee: Message from the Chair: Odds and Ends

Now that its summer and most of the Census 2000 data has not yet been delivered, one would think that we could sit back and take it easy--NOT. Sometimes it almost feels like the more that we do, the less gets done.

On the TRB front, the subcommittee has two activities underway. We are developing a half-day workshop to be held in conjunction with 81st Annual TRB Meetings in January. The workshop will be Sunday, January 13, 2002 and will focus on the American Community Survey – the replacement for the census long form. Although the content of the workshop is still being developed, it promises to be a worthwhile experience for those can make it. We will of course have more details available as the Workshop comes together.

Another activity, WHERE WE NEED YOUR HELP is in the development of a Poster Session to be held during the TRB Meetings this January. Our interest is in developing a poster session around the innovative and creative ways, in which census related data is being presented, displayed or delivered. For more information on the Poster Session Call for Papers/Presentations refer to <http://www.mcs.com/~berwyned/census/notes/postercall2002.html>

On a slightly different front, the Subcommittee secretary, Ed Limoges from the Southeast Michigan Council of Governments has taken on a side job. Ed will be assisting the Census Bureau's Journey-to-Work and Migration Branch

(those responsible for the tabulation of the CTPP) with the development of algorithms for improving the allocation of the work locations that can not be geocoded. We anxiously await Ed's work. For more information please contact Ed at limoges@semcog.org.

Other issues that we are watching include the developments in and around the ACS, the creation of PUMAs, the Urban Area Criteria for developing boundaries as well the continued development of the CTPP data package, outreach materials and extraction software. To stay on top of these issues and many more, make sure to be subscribed to the "CTPP-News" listserv. To subscribe e-mail me at berwyned@mcs.com

While thinking about my email address and the Subcommittee's website there is good news and bad news. The bad news is that later this summer, my email address and the subcommittee website will change locations (location to be determined). The good news is that the US Department of Transportation has allowed the CTPP to have a home on it's server. The web address of the "new" CTPP web site is <http://www.dot.gov/ctpp/>

Stay Tuned...

Ed Christopher
Chair, TRB Sub-committee on Census Data for Transportation Planning

**Opportunity to obtain
CTPP 2000 data for detailed
statewide geography ...**(Continued
from page 1)

The CTPP Working Group (WG) is now conceptualizing this part of the CTPP 2000 program. Pending approval by the Census Bureau's Disclosure Review Board (DRB), the Bureau intends to provide data for a detailed geographic summary level for state DOTs and MPOs. The process as envisioned would work in the following way:

For each county in their state (even those where MPOs did not define TAZs), the state DOT would select one type of detailed geography to be used in the CTPP standard tabulations. The choices would be:

1. Use the TAZs as defined in TIGER for the county. These TAZs may have been delineated by the state DOT, or an MPO. For many counties there are no TAZs defined in TIGER.
2. Use census tracts as the detailed geography for the county.
3. Create a new set of detailed geographic units for the county by combining census tracts **OR** by combining the TAZs already contained in TIGER. These new units have not been named, but they may be called something like "Combined Zones." (Suggestions for other names?)

The process of having state DOTs create the equivalency files for these Combined Zones needs to begin in October 2001. During the last week of September 2001, guidelines and instructions for the process will be mailed to the CTPP contact person in each state DOT

CTPP Hotline – 202-366-5000

FHWA

Elaine Murakami
PH: 202-366-6971 (206-220-4460 in Seattle)
FAX: 202-366-7660
Email: elaine.murakami@fhwa.dot.gov

Nanda Srinivasan
PH: 202-366-5021
FAX: 202-366-7742
Email: nanda.srinivasan@fhwa.dot.gov

BTS

Ed Christopher (Census Subcommittee Chair)
PH: 202-366-0412
FAX: 202 366-3640
Email: berwyned@mcs.com

FTA

Eric Pihl
PH: 202-366-6048
FAX: 202-493-2478
Email: eric.pihl@fta.dot.gov

Sarah Clements
PH: 202-366-4967
FAX: 202-493-2478
Email: sarah.clements@fta.dot.gov

Census Bureau Geography Division

Carrie Saunders
PH : 301-457-1099
FAX : 301-457-4710
E-mail : Csaunders@geo.census.gov

Census Population Division

Phil Salopek
PH: 301-457-2454
Fax: 301-457-2481
Email: phillip.a.salopek@census.gov

Clara Reschovsky
PH: 301-457-2454
FAX: 301-457-2481
Email: clara.a.reschovsky@census.gov

AASHTO

Dave Clawson
PH: 202-624-5839
FAX: 202-624-5806
Email: clawsond@aahto.org

TRB Committees

Ed Christopher (Census Subcommittee Chair)
Chuck Purvis (Urban Data Committee Chair)
PH: 510-464-7731
FAX: 510-464-7848
Email: cpurvis@mtc.ca.gov