

Transportation Analysis Zones (TAZ) FAQs

Delineation criteria and guidelines

Q. Is there a population threshold for TAZs?

A. No, however, it is strongly suggested that TAZs should be delineated with a resident or worker population of 1,200 or greater.

This minimum population suggestion is the result of the relatively small sample size in the ACS which even after 5 years of data accumulation remains small with some large Margins of Error (MOE). For example, in an average census tract with a population of 4,000 residents the Census Bureau estimates that there are 120 unweighted households, and 150 unweighted workers. Assuming that there are approximately 5 TAZs in the census tract, there would only be about 30 unweighted workers in a TAZ from which to tabulate the Census Transportation Planning Product (CTPP). Thirty unweighted records are not going to give very good results in the CTPP.

The TAZ delineation software, TAZ MAF/TIGER Partnership Software (MTPS) has a verification check that identifies TAZs if the population (resident populations based on 2010 Census), and/or worker estimate (based on CTPP 2000 and distributed to 2010 blocks by land area) is below 600.

Q. Can a Transportation Analysis District (TAD) include multiple counties?

A. Yes, a TAD can include multiple counties or parts of multiple counties. This would be more likely to occur in more rural areas where the population in a county falls below 20,000, and by combining areas across county lines the TAD population threshold of 20,000 can be reached.

Q. What, if any, are the nesting requirements for TAZs?

A. TAZs must nest within counties (and also cover the entire area of a county). Additionally, TAZs must nest within TADs.

Q. What, if any, are the nesting requirements for TADs?

A. TADs are not required to nest within a county. TADs must only nest within the delineation coverage assigned to the MPO/DOT (which are composed of complete counties). Additionally, TADs must be composed of whole TAZs.

Q. IF TAZs are not delineated for a county, how can TADs be defined?

A. If no TAZs are present, TADs can be built from 2010 block groups or 2010 census tracts.

Q. Do TAZs have to nest within Counties (and defacto, States) besides nesting within TADs?

A. TAZs must nest within counties (and by default, States). An easier way to think about it (instead of TAZs nesting within TADs) is that TAZs are aggregated to create TADs (i.e., TAZs are the geographic building blocks for TADs). If you are delineating TADs, then delineate TAZs first, and then build TADs by aggregating TAZs.

Q. Will the TAZ MTPS contain criteria and guidelines verification checks for TAZs and TADs?

A. Yes. The TAZ MTPS will check for code uniqueness (TAZ codes are unique with the county, TAD codes are unique within the delineation coverage), TAZ/TAD nesting (TADs are composed of complete TAZs), completeness (TAZs cover the entire county, TADs cover the entire county/counties within the delineation coverage), minimum populations (600 residents or workers for TAZs – suggested, and 20,000 residents or workers for TADs - required), and possible TAZ/TAD delineation errors/anomalies (contiguity and shape index).

Delineation software (TAZ MTPS) and partnership shapefile data download

Q. What is my username and password to download the TAZ MTPS software?

A. Call the GEO TAZ team at 301.763.1099 for this information.

Q. What is the password to launch the TAZ MTPS software (after installation)?

A. The password to launch the TAZ MTPS software (after installation) is “TAZ” (case sensitive).

Q. Can I download partnership shapefile data for counties outside my delineation coverage?

A. Yes, however you should only download counties within your delineation coverage since the Census Bureau will only accept TAZ/TAD delineations for counties within your assigned delineation coverage.

Q. What do I need to start my TAZ/TAD delineation project? How will I obtain these materials?

A. To start your TAZ delineation project you’ll need the TAZ MTPS, the county-based partnership shapefiles for the counties within your delineation coverage, participant guidelines, and a setup file.

The TAZ MTPS, county-based partnership shapefile data, and participant guidelines that will be used in the TAZ MTPS will be available for download from the Census Bureau’s website. The custom setup file (necessary for each project) will be emailed to program participants. More specifically, when the county-based partnership shapefiles for your delineation coverage are available for download, the Census Bureau will email the TAZ program participant with a customized setup file, asking that the participant call the GEO TAZ team for the username and password to download the TAZ MTPS from the Census Bureau’s website. The emailed setup file contains a list of the county(ies) within your delineation coverage. The participant will download the TAZ MTPS, the partnership shapefiles that correspond to the county(ies) within the setup file, and the participant guidelines from the Census Bureau’s website. At this time, the participant will follow the instructions for installation and starting the TAZ MTPS within the participant guidelines.

Delineation program (general)

Q. Why have people been talking about using two different TAZ structures: a TAZ for the regional model and a TAZ for CTPP?

A. In the past, it made a lot of sense for the TAZs used for the regional models to be the same as for aggregating census data. However, with the advent of GIS and advanced statistical tools, it is possible to fit zone sizes to the quality of the underlying data and have zones sensitive to travel forecasting and modeling needs. For the ACS data, bigger is better, but for modeling, smaller is preferred as agencies move toward microsimulation. One recommendation is for the regional model TAZs to nest within the Census TAZs, especially if regional model TAZs are very small.

Q. Can TAZ and TADs be submitted to the Census Bureau incrementally, that is one county at a time, or do I have submit “all” the counties for which I am responsible at one time?

A. The Census Bureau requests that all the counties for which you are responsible be submitted at the same time.

Q. Do you have any advice on how to define my regional model TAZs?

A. Please see the links to recommendations from the Florida State Model Users’ Group, and Guy Rousseau from Atlanta Regional Commission that may help you.

http://www.fsutmsonline.net/images/uploads/reports/FR1_FDOT_Taz_White_Paper_Final.pdf

<http://ctpp.transportation.org/Documents/ARC%20TAZ%20DELINEATION%20STRATEGIC%20PLAN.pdf>

Q. Is it required to use the Census Bureau’s MTPS TAZ module, or can I write my own code and use the 2010 TIGER files to make my own block equivalency file?

A. The Census Bureau Geography Division requests that all 2010 TAZ and TAD delineation files submitted to the Bureau be output from the TAZ delineation software (TAZ MTPS). This is to ensure that all TAZ and TAD criteria are met, and that the files submitted to the Bureau contain a standardized format and content. However, participants may delineate TAZs and TADs using other types of software by creating block equivalency files (BEFs) to import into the TAZ MTPS.

To clarify; if you've created block equivalency files (BEFs) from the 2010 TIGER/Line shapefiles, then this process should be relatively quick and simple:

- (1) import the BEF (s) in the TAZ MTPS,
- (2) review the TAZ/TAD delineations,
- (3) run the verification checks (includes checks to identify issues in code uniqueness, completeness, TAZs/TAD nesting, and other possible errors/anomalies),
- (4) create output files (includes shapefiles and BEFs) to submit to the Bureau.

If you've delineated your TAZs and/or TADs in a GIS and have the delineations in shapefiles or another GIS file format (but have not created BEFs), you can:

- (1) add your spatial files as a layer in the TAZ MTPS,
- (2) interactively aggregate census blocks/block groups/census tracts to create your 2010 TAZs (and then aggregate 2010 TAZs to create your 2010 TADs),
- (3) run the verification checks, and
- (4) create output files to submit to the Bureau.

Q What if we ask for all our States’ rural counties with the intention of Delineating TAD, but decide in process not to do it.

A There is no “penalty” or consequence for asking for all the counties and then opting to not delineate some of them, however, if you choose to do it this way, CB Geo asks that you either let them know as soon as possible that you have decided not to (within the allotted delineation timeframe of 90 days), so that if an automatic TAD aggregator is available it can be implemented on those counties, or that you, at a minimum, return a firm statement of that you are not delineating, and not just let those counties age past the submittal deadline.

CTPP and ACS Data

Q. Is the CTPP data going to be suppressed at the TAZ level if I make very small TAZs?

A. No, the data will not be suppressed, but it will be of questionable value due to high sample error and small sample size. Right now, regional models are moving toward smaller and smaller TAZs, but there are fewer and fewer ACS records available for CTPP tabulation. Therefore, if the TAZs used in your regional models are small, it is recommended that the TAZs used in the regional models be different than the TAZs used for Census and CTPP data products. The TAZs for CTPP could be an aggregate of 2 or 3 model TAZs.

Q. There was too much data suppression in CTPP 2000 at the tract and TAZ level. Is this going to happen again?

A. No. There is a project underway (NCHRP 08-79) to take all the tables that would be suppressed for disclosure and confidentiality reasons and statistically manipulate them to satisfy the disclosure rules. The company doing the work is Westat, and their method will perturb the ACS microdata records sufficiently to protect individual confidentiality, but still allow for TAZ level tabulation without destroying the underlying statistical reliability of the data.

Q. I don't like the idea of synthetic data.

A. Can you rephrase that in the form of a question? ☺ The Census Bureau is already using data synthesis in the ACS, you just didn't know about it. This is just another layer of data synthesis for the custom CTPP. Some of the tables in the CTPP do not need any synthesis applied, so those will be "real." Since the data synthesis will be done at the Census Bureau, the results can be compared against the "true" ACS results, so that the method chosen can be validated before it is implemented.

Imputation is one kind of data synthesis, and imputation has long been used even with decennial census "long form" tabulations for CTPP. For example, household income has a high imputation rate, and place of work has consistently required about 25% imputation for block level geography.

Q. Are there any other planned uses of Census TAZs and TADs after the CTPP 2006-2010?

A. The current CTPP is funded to include the 3-year (2006-2008) tabulation and the 5-year (2006-2010) tabulation, but depending on how things go, future 3-year and/or 5-year CTPP tabulations are possible if someone wants to pay for them. The Census Bureau did not create a geographic tabulation unit for the 20,000 population threshold (for the 3-year ACS), to provide complete coverage, therefore, 3-year ACS tabulations have a "Swiss cheese" coverage of counties and places. This is the transportation data community's opportunity to do something about incomplete coverage. The PUMAs (100,000 population threshold) provide a consistent geographic tabulation unit for the 1-year ACS, but how they have been defined has not always been useful to transportation planners. Although PUMAs were not designed to be tabulation units, they have become tabulation geographic units in the ACS. (

Q. Do you think it is worthwhile to spend the time on delineating TAZs or should I just get CTPP tabulations for census tracts or block groups?

A. It depends on how easy or difficult it will be for you to allocate tract or block group data to your model TAZs. Even if you choose not to define TAZs, we highly recommend that you delineate TADs for

potential future 3-year CTPP tabulations as there is currently no other geographic entity of equivalent size.

Q. How good or bad are the CTPP data using the ACS survey results going to be at the TAZ level?

A. That is an excellent question, and that is why a TRB Conference on Census data for Transportation Planning is scheduled for October 27-29, 2011. We hope that you will have time to review and use the 2006-2008 CTPP, and also the 2005-2009 ACS, so that you can share your experiences with small area ACS results. This kind of evaluation will be critical to determine the future of the CTPP program, especially to consider alternate data sources for travel flows for small geography.