

APPENDIX C METHODS AND ASSUMPTIONS

C.1 - Introduction

This appendix documents the methods and assumptions that were used to develop the base year 2006 and future year 2035 socio-economic data at TAZ level for the region. The socio-economic data is used in the construction of a Travel Demand Model (TDM). The TDM is a tool, which will identify current deficiencies, as well as to anticipate future changes in travel patterns and to target the region's transportation system needs. The data is collected, analyzed and compiled from various sources by the Columbus-Phenix City Metropolitan Planning Organization (C-PCMPO). The socio-economic data that were used for the C-PCMPO model included:

- Population
- School Enrollment
- Service Employment
- Wholesale Employment
- Median Household Income
- Households
- Retail Employment
- Manufacturing Employment
- Total Employment
- Zonal Area in Acres

C.2- Baseline Socio-economic Data

For transportation modeling purposes, a base year or baseline data is required to calibrate the model to forecast for future years and scenarios. The C-PCMPO collected base year (2006) data from several sources, which contains socio-economic information concerning population, housing, school enrollment, median income and employment. The sources which were utilized included the U.S. Bureau of the Census, Georgia Department of Labor, Alabama Department of Labor, the U.S. Department of Housing and Urban Development, the Columbus Chamber of Commerce, the school systems of Muscogee County, Lee County, Russell County and Chattahoochee County.

Population, housing and median income information is gathered using Census Block 2000 data (SF1 and SF3). This block level information was aggregated at the Traffic Analysis Zone (TAZ) level using Geographic Information Systems. Since the base year for calibration purposes was to be set to 2006, a growth factor of XX per year was applied to bump the population and housing figures to 2006. Additionally, school enrollment information (year 2006) was geographically referenced to individual TAZ's using similar GIS software. Table C1 indicates the population, housing, school enrollment, and median income information at the TAZ level.

4. Retail employment was added based on current commercial density and expected trends in retail development. Service employment was added based on new school enrollment and expected trends.

C.3 - School Enrollment Projections

Control Totals

1. Projected enrollment figure(s) (2035) for C-PCMPO region were based on the population growth rate figures. It was assumed that all schools would grow at a rate of 13 percent in Muscogee and Russell counties between 2006 and 2035. Lee County School Enrollment is forecasted to grow by 70 percent.

Allocation At TAZ Level

2. Due to lack of information on specific locations, TAZ level allocation is done in a similar manner as population and housing using the percentage share as in the baseline year 2006.

C.4 - Median Income Projections

Since the 2006 model was calibrated using Census 2000 median incomes, the 2030 median incomes do not need to be adjusted for inflation. However, the median incomes for each TAZ were reviewed to determine if the relative median incomes (in 2000 dollars) will change in the future due to the addition of more expensive or less expensive homes in the future. Considering no change, the 2035 median incomes will remain in "2000 constant dollars."

C.5 - Population Projections

Control Totals

1. Estimated population figure(s) (1970-2035) for Alabama and Georgia counties were made available from Center for Business and Economic Research, University of Alabama-Montgomery and Woods & Poole Economics 2009 Data respectively.
2. The 2035 control total for projected population for Muscogee County is determined by developing a Compounded Annual Average Growth Rate from the (1970-2035) time series data. However, for Russell and Lee counties, a percentage share method was used based on the control totals (2025) developed by University of Alabama-Montgomery.

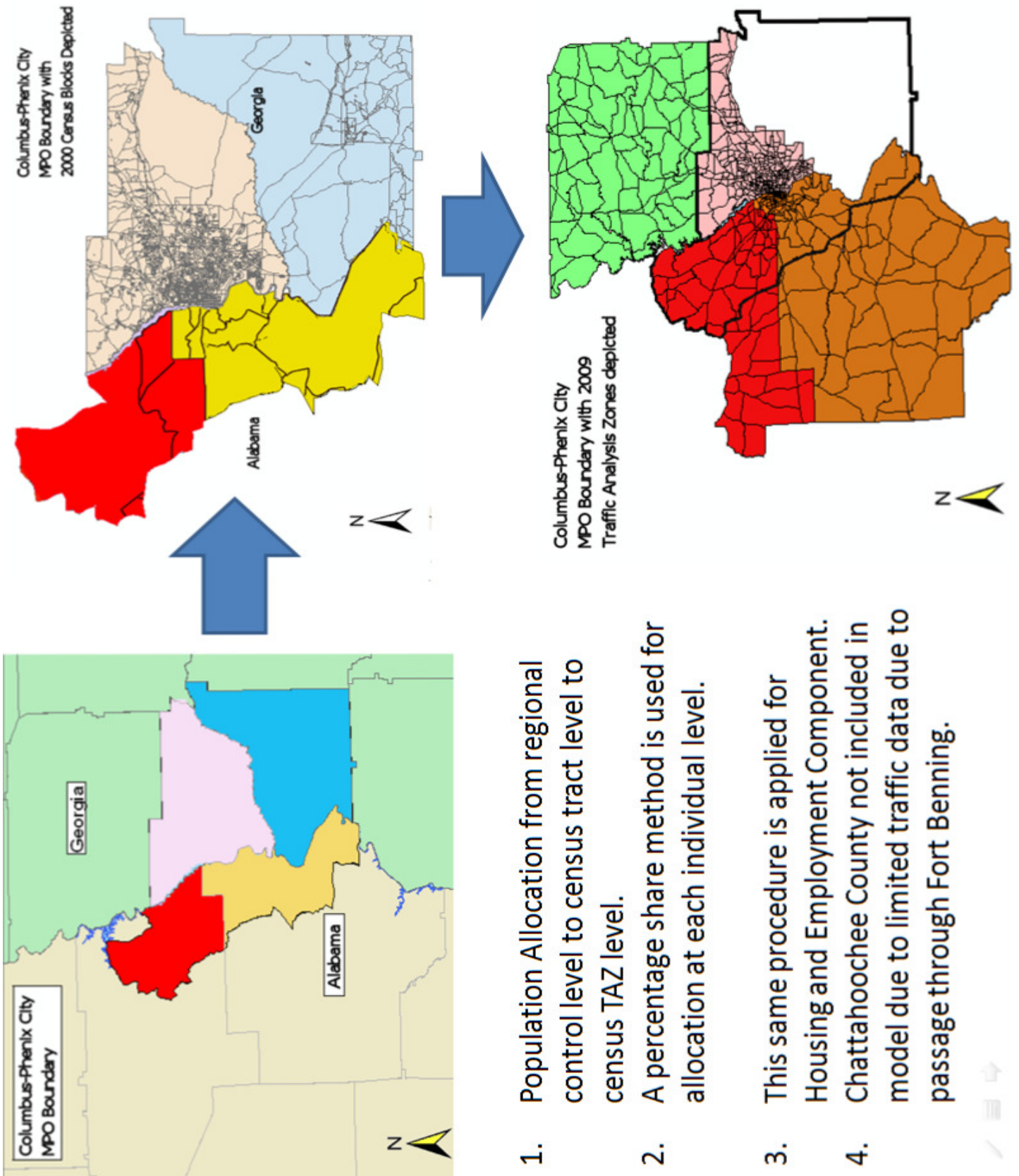
Census Tracts – Filter

3. Population for census tracts 2000 (Muscogee=56, Russell=8, and Lee=3) in C-PCMPO are projected based on combination of a percentage-share and trend-line method using 1980-2000 time series data.
4. The census tract projected (2030) population serves as control total for population allocation at the TAZ level.

Allocation At TAZ Level

5. TAZ level population figures for the baseline year 2006 are based on the Census 2000 block-level data for C-PCMPO region. Figure C-1 illustrates the allocation procedure.
6. The projected tract population 2030 will be allocated at TAZ level based on the percentage share as in the baseline year 2002. For example, TAZ 1 has a population of 1,000 persons in the year 2002. It is located in census tract 1 having a population of 5,000 in the same year. So, it contains 20 percent population in the baseline year 2002. The same percentage would be applied to the projected population at tract level in the year 2030 to estimate the TAZ level population. Population density at the TAZ level will be used as a guiding factor to estimate reasonable population allocation.
7. Besides population density, Future Land Use Plan 2020 was used to guide population allocation at the TAZ level.

Map C-1
Population Allocation for C-PCMPO in Modeling Process



1. Population Allocation from regional control level to census tract level to census TAZ level.
2. A percentage share method is used for allocation at each individual level.
3. This same procedure is applied for Housing and Employment Component.
4. Chattahoochee County not included in model due to limited traffic data due to passage through Fort Benning.

