

1. Demographic Development

Accomplishments Over the Past Five Years

The San Antonio – Bexar County Metropolitan Planning Organization (MPO) continually improves upon its' demographic forecasting processes and methodology. For this update of the Metropolitan Transportation Plan, for the first time, three demographic scenarios (Current Trends Development, Infill Development, and Transit Oriented Development) were produced, tested for their impacts on the transportation system and received a significant amount of public review prior to the MPO's Transportation Policy Board selecting a growth scenario in March 2009 to use in the development of the Plan. The selected growth scenario is a combination of Infill and Transit Oriented Development. Historical databases continued to be refined and the Demographic Working Group expanded its membership to not just include the traditional transportation agency partners (Alamo Area Council of Governments, Bexar County, City of San Antonio, MPO, Texas Department of Transportation and VIA Metropolitan Transit) but also CPS Energy and San Antonio Water System. The refinement of demographic forecasting procedures will continue to be a priority for the MPO.

Background

The basis of any effective planning effort rests primarily on a determination of the area's base year demographics (population, household size, employment, household income, and land use) and future projections of these demographics. The MPO used 2005 as the base year for this update of the Metropolitan Transportation Plan (MTP). For the future years, various federal and state government data sources were used for the population and employment forecast totals in five-year increments to the year 2035 for the San Antonio region.

The process for forecasting future growth in population and employment is not an exact science. Multiple forecasting models exist with differing assumptions and results. What is needed for the transportation planning process is a "comfort level" with the demographic control totals used to predict future travel. The tendency is to be more comfortable with the recent trends. If the economy is doing well and jobs and housing are expanding, the tendency is to select an optimistic forecast. The tendency to select a conservative forecast usually occurs if the current or most recent trend is decreasing or if a flat economy exists. Upturns and downturns in the economy occur in cycles that, over a 20 or 30-year time span, tend to counteract each other. That is why annualized growth rates are important indicators for long term demographic projections.

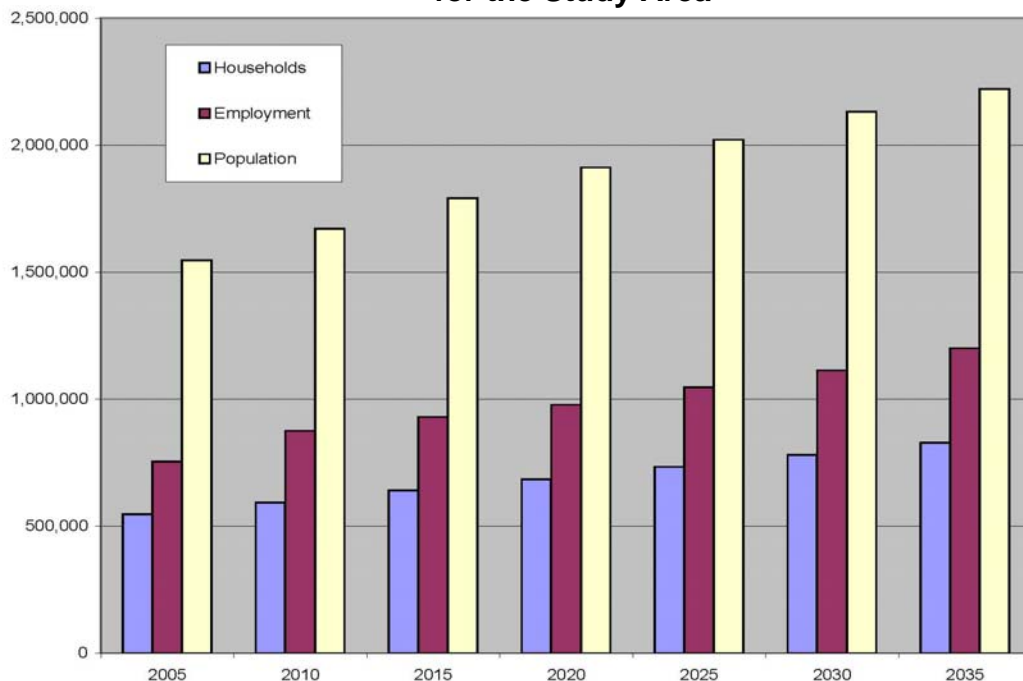
If a conservative approach is taken and selected control totals are too low then the risk is to be behind in planning for needed infrastructure. If the control totals are too optimistic, this could result in a false or premature justification for roadway and/or transit infrastructure improvements.

While area-wide demographic control totals were readily available, these figures needed to be disaggregated to census tracts and eventually to the traffic serial zone level for use in the travel demand model. It should be noted that while the allocation model used for the disaggregation process will produce an estimate of what may happen in the future, there is no way to predict the occurrence of unforeseeable changes that would effect the future distribution of employment and population. This, in part, necessitates that the forecast be reviewed and updated on a regular interval. The adopted population and employment control totals are shown in Table 1.1 and are graphically represented in Figure 1.1.

Table 1.1 Population, Households and Employment Control Totals for the Study Area (in millions)

	2005	2010	2015	2020	2025	2030	2035
Population (in millions)	1.55	1.67	1.79	1.91	2.02	2.13	2.22
Households (in millions)	0.55	0.59	0.64	0.68	0.73	0.78	0.83
Employment (in millions)	0.75	0.86	0.93	0.98	1.05	1.11	1.20
Empl/Pop %	48.8%	52.4%	51.9%	51.1%	51.8%	52.2%	54.0%

Figure 1.1 Population, Households and Employment Control Totals for the Study Area



The demographic forecasting output at the traffic serial zone level for each future year increment is the result of a joint effort by the transportation planning agencies in the study area. Concurrence by these agencies on future demographics is necessary before work commences on a subsequent model run. Concurrence ensures minimizing duplication of effort in data development and maximizes local confidence in demographic forecasts. The MPO's partner agencies include the Alamo Area Council of Governments, Bexar County, City of San Antonio, CPS Energy, San Antonio Water System, Texas Department of Transportation, and VIA Metropolitan Transit.

Additionally, since the selected demographic scenario, a combination of transit oriented development and infill development, is a departure from the traditional growth pattern, it will be essential to monitor our partner agencies' efforts towards successfully implementing this selected growth pattern. Additional detail on the scenario planning activities in support of the development of the Metropolitan Transportation Plan can be found in Chapter 2 Scenario Planning.

METROPILUS

While the MPO continues to migrate to the UrbanSim demographic forecasting model, the software package METROPILUS was used for this update of the Plan. The model provides a reasonable and disaggregated data for future years. METROPILUS is an evolution of the DRAM (Disaggregated Residential Allocation Model) and EMPAL (Employment Allocation Model) package and combines employment, residence location, transportation networks, and land consumption in a single comprehensive package embedded in a Geographic Information Systems (GIS) environment.

The overall concept of the METROPILUS forecasting process can be stated simply: the model allocates the total growth in employment, households, and land use for an area into its sub-regional component zones. This allocation is made possible by using regional trends, transportation facility descriptions, and data on current location of employment and households. The required data for the METROPILUS model runs include current census of population and employment by place of work, total future population and employment, travel times between zones and current land use information. The forecasts are done in five-year increments with one forecast becoming input to the next five-year forecast.

One of the integral components of the METROPILUS forecasting process is land use. This model incorporates a connection between land use and the transportation system. In order to develop this data as input into the model, staff acquired a computerized parcel file and database file from the Bexar Appraisal District. The files were merged and the information grouped to reflect land use types throughout Bexar County. The balance of the land use in the study area (portions of Comal and Guadalupe Counties) was generated from additional aerial photos and windshield

surveys by staff. Table 1.2 shows the distribution of land uses by category in the MPO study area.

Table 1.2 MPO Study Area Land Use Distribution

Land Use Category	Number of Acres	Percent of Total Acreage
Residential	187,000	22%
Commercial	66,000	8%
Industrial	54,000	6%
Streets	66,000	8%
Vacant Developable	423,000	49%
Vacant Non-Developable	60,000	7%
Total	856,000	100%

In addition to local area knowledge of on-going developments in the area, staff collected data from the City of San Antonio Planning Department, San Antonio Water System, and the Bexar Appraisal District to assess near term growth patterns in the area.

As another one of the model inputs, median household income for the base year was gathered from the 2000 Census. The information was used to divide households into four income groups as needed for METROPILUS. The model specifies a roughly equal grouping of incomes; therefore, each of the categories roughly equate to 25% of the total number of households in the Study Area. The four income categories are shown in Table 1.3.

Table 1.3 Income Level Categories

Category	Income Level
Low	\$0 - \$19,999
Low-moderate	\$20,000 - \$34,999
High-moderate	\$35,000 - \$59,999
High	\$60,000+

Population and Households: 2005-2035

The base year input for METROPILUS was 2005. Since the travel demand model requires population and employment by traffic serial zones (TSZ), the final forecasting output was at the TSZ level. The population control totals for Bexar County

(forecasted number of persons in the study area) for the MPO Study Area, in five-year increments to year 2035, are from the Texas Water Development Board. The control totals for Bexar County were approved by the MPO Transportation Policy Board in February 2007. The population control totals for the other counties in the MPO's travel demand model (Comal, Guadalupe, Kendall and Wilson counties) were from the Texas State Data Center. These population forecasts were approved by the Alamo Area Council of Governments' Area Judges Committee in April 2007.

METROPILUS requires the number of persons in future years as a control total and it uses that number to predict the households. This is, in part, because households are the group unit where data is available for modeling the relationship between employment and people. Not everyone is employed at a given time and they are usually part of a family or housing relationship. Households are the way the software groups persons; they may not always be part of a family (as defined by the Census Bureau), but they are always part of a household.

The year 2035 total households by traffic serial zone map is shown in Figure 1.2 and the total household density by traffic serial zone map is shown in Figure 1.3. Because the selected growth scenario is a combination of Infill and Transit Oriented Development, zones inside Loop 1604 are proposed to become more dense than development under a 'trends' scenario.

Figure 1.2 2035 Households by Traffic Serial Zone

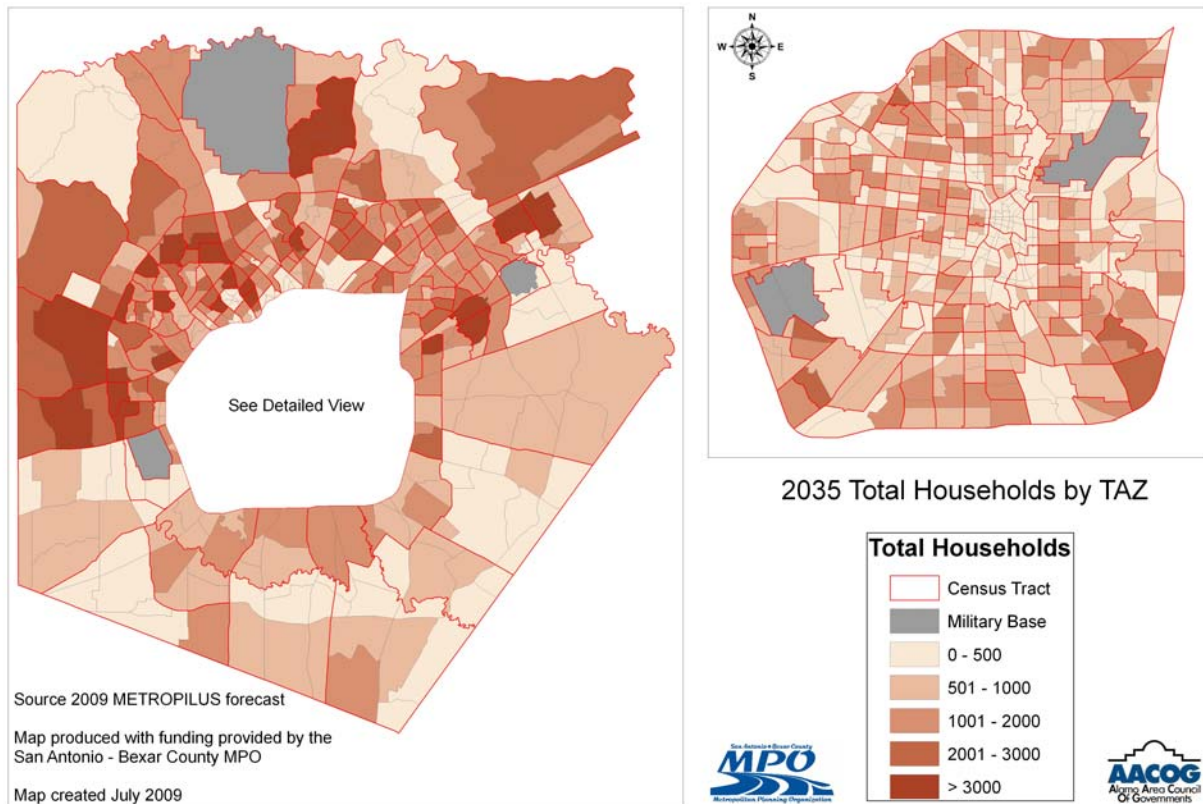
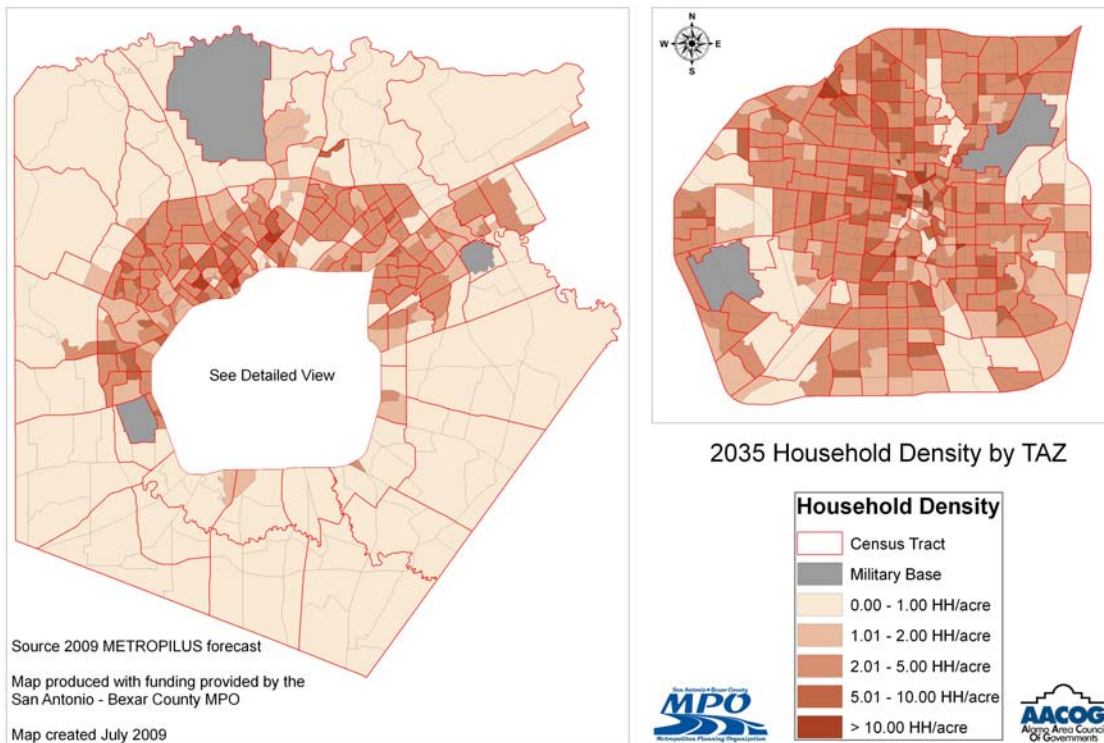


Figure 1.3 2035 Household Density by Traffic Serial Zone



Income: 2005-2035

Income is also used in generating ratios of households by income and employment type. The income forecasted by METROPILUS however, is not used by the travel demand model as input since it generates its own from an estimate of median income at the TSZ level. For the 2005 base year, the median household income figure was adjusted for inflation since 2000. For the 2035 forecast, a median household income figure was derived from an analysis of 25 year trends in Bexar County. Household income estimates from the 1980-2000 decennial census were adjusted for inflation to 2005 dollars using the Consumer Price Index data from the federal government. A trend line was established and a growth percentage calculated and applied to the incomes for 2035.

Employment: 2005-2035

A primary source of base year employment information was the Texas Workforce Commission's (TWC) files (3rd Quarter 2005). The information was geo-coded based on the addresses provided. Where street addresses were not available, telephone books, business listings, and telephone surveys were made to collect information from those employers' locations. The forecasted employment control totals, in five-year increments

to year 2035, are derived from Dr. Ray Perryman's (a respected authority on the Texas economy) forecast. The employment forecast totals for Bexar County were approved by the MPO Transportation Policy Board in February 2007. The employment forecast for Comal, Guadalupe, Kendall and Wilson counties was approved by the Alamo Area Council of Governments Area Judges Committee in April 2007.

The METROPILUS model requires that employment be delineated into at least four and not more than eight different employment categories. The employment categories are shown in Table 1.4.

Table 1.4 Employment Categories

Category	Type of Employment
1	Basic
2	Retail
3	Service
4	Education

The year 2035 total employment by traffic serial zone map is shown in Figure 1.4 and the total employment density by traffic serial zone map is shown in Figure 1.5. Because the selected growth scenario is a combination of Infill and Transit Oriented Development, zones inside Loop 1604 are proposed to become more dense than development under a trended scenario.

Figure 1.4 2035 Total Employment by Traffic Serial Zone

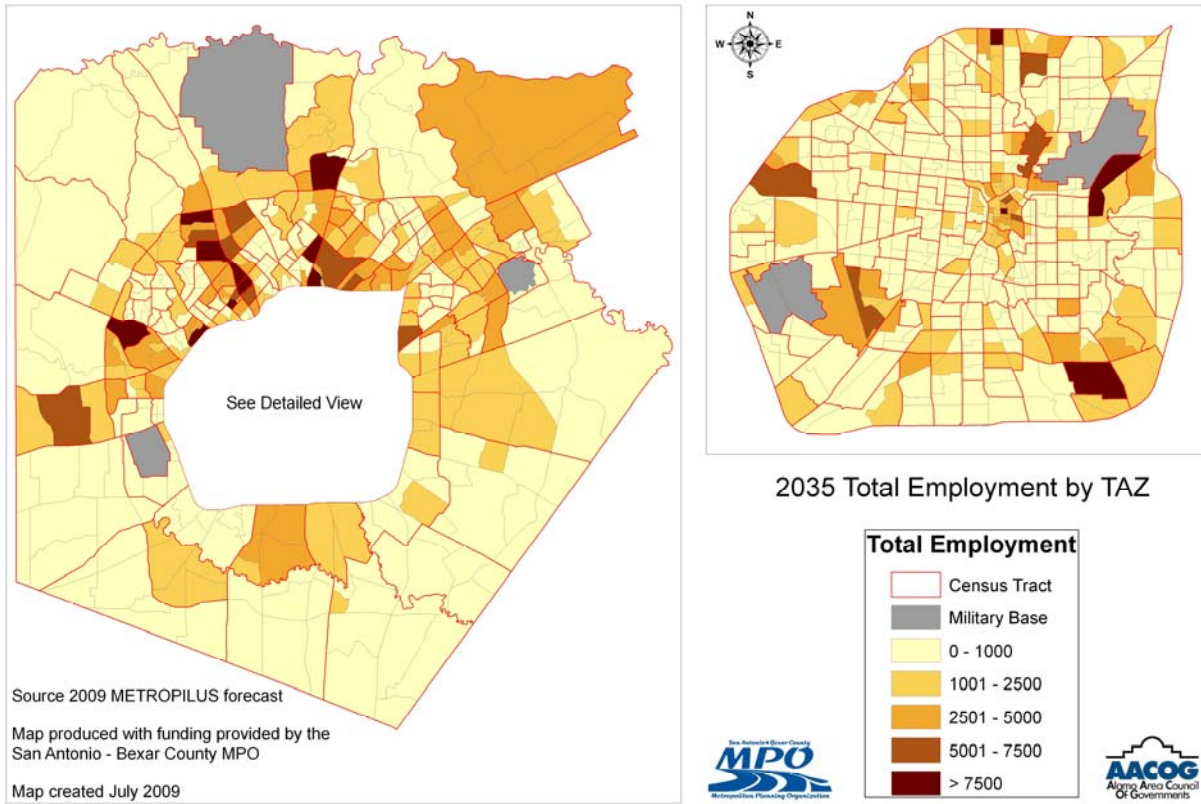


Figure 1.5 2035 Total Employment Density by Traffic Serial Zone

