

## Program Background

Since 1974, the North Central Texas Council of Governments has produced and published annual population estimates for cities and counties in the 16-county region. The estimates are generally released each April.

The estimates program includes all cities and counties. However, only cities with a population of at least 1,000 are included individually. Cities and towns with less than a 1,000 residents are included in the county totals. Each year, the list of cities to be included individually is updated.

The program has always used a symptomatic method based on housing unit counts. For each city, NCTCOG calculates population separately for different housing types including single family, multi-family, other units (such as mobile homes), and group quarters. The estimated populations in the various housing types are added to get a total estimated population for the city. This estimation of population by unit type takes into account that fact that household sizes and occupancy rates vary by type of housing. In addition, this approach results in updated inventories of housing units and population classified by type, which is useful for certain planning purposes. Permit data is used to estimate population in unincorporated areas.

## 2011 Population Estimates

The starting point of this year's estimates was the 2010 census, which provided total population by city as of April 1, 2010. The calculations for the January 1, 2011 estimates are as follows. (Please note that population change refers to changes in population from April 1, 2010 to December 31, 2010.)

NCTCOG Estimated Population January 1, 2011 = Census population count April 1, 2010 + Single family population change + multi-family population change + other population change + group quarters population change

**Single family population change** = change in SF housing stock \* SF occupancy rate \* SF average household size

**Multi-family population change** = change in MF housing stock \* MF occupancy rate \* MF average household size

**Other population change** = change in other housing stock \* OT occupancy rate \* OT average household size

**Change in housing stock** = completions + annexations + move-ins – demolitions – move-outs

Data regarding changes in housing stock is supplied each year by the cities. This year, the data was collected for just the last three quarters of 2010. Average household sizes (persons-per-household) were calculated for each city using the Census Bureau's American Community Survey (ACS) 2005-2009 data. ACS data was also used to calculate occupancy rates by city for single family and other units. Occupancy rates for multi-family units were derived based on data purchased from independent research firm M/PF Research. For cities in which there was no history of a particular development type (e.g. no previous multi-family development and therefore no Census ACS data), calculated values from a comparable community were applied.

### **Comparability with Previous NCTCOG Estimates**

The 2011 estimates were aligned to a Census 2010 base and used household sizes and occupancy rates derived from Census 2005-2009 ACS. Population estimates produced by NCTCOG from 2000 to 2010 were based on a Census 2000 base and used household sizes from the 2000 Census and occupancy rates from a variety of private sources. Because of the differences in data sources, variances in estimates between years might be due to factors other than actual changes in population. Care should be taken in comparing estimates for different years.

### **Comparability with Estimates from Other Sources**

While NCTCOG is perhaps the only local developer of annual population estimates, other organizations also produce annual population estimates for cities and counties in North Central Texas. These include the Texas State Data Center and the U.S. Census Bureau.

While NCTCOG uses the housing unit method, both the State Data Center and the Census Bureau use a combination of methods. These methods use a variety of administrative data such as number of births and deaths, migration data, and school enrollment data to arrive at an estimated population. Both also incorporate a form of the housing unit method. Documentation on the methodologies used by the State Data Center and the Census Bureau is available on their respective web sites.

There are three main factors to consider when comparing NCTCOG population estimates to estimates from other sources:

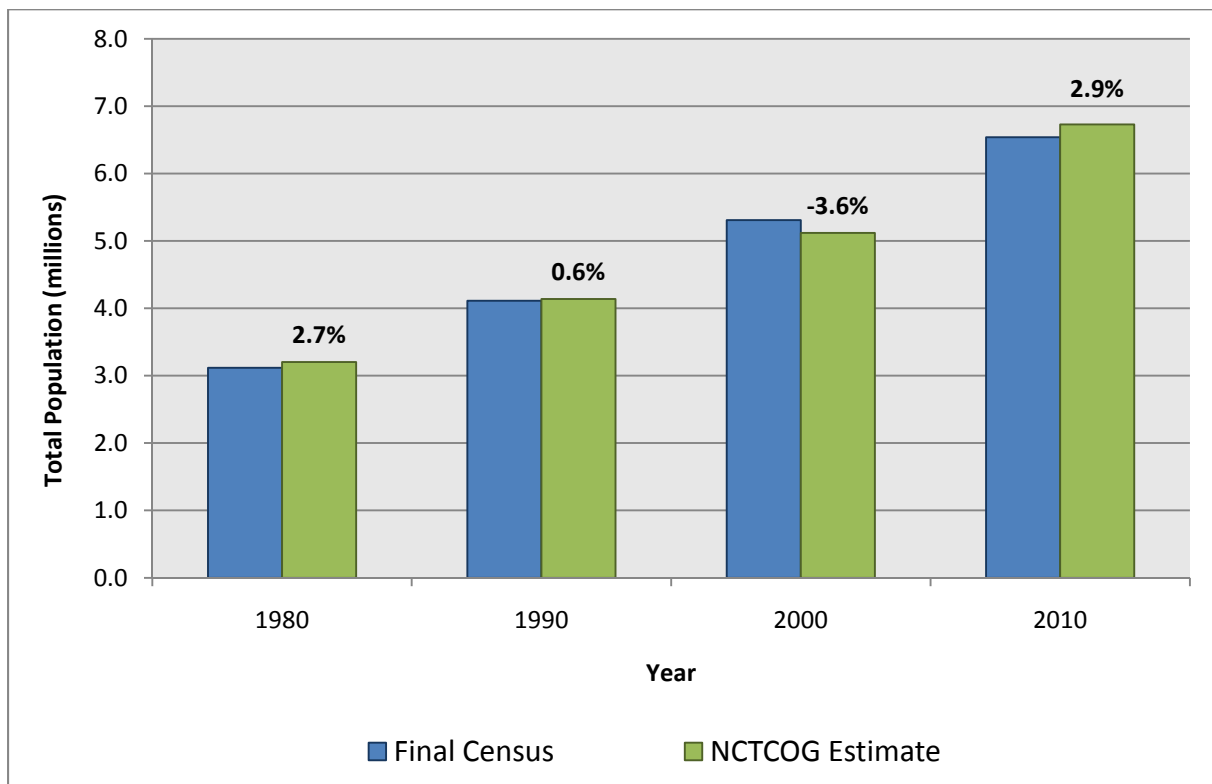
- **Data:** NCTCOG's method relies on housing stock data provided by local cities as well as data derived from Census ACS. Other organizations use a variety of different data, much of which is gathered from administrative records.
- **Timing:** NCTCOG estimates population as of January 1<sup>st</sup> of the current year. The State Data Center and the Census Bureau both provide a July 1<sup>st</sup> estimates for the

previous year. The State Data Center also releases a January 1<sup>st</sup> estimate, which depending on release date might be for the current or the previous year.

- **Methodology:** NCTCOG using a straightforward calculation that applies occupancy rates and average household sizes to housing units. Both the State Data Center and the Census Bureau use multiple methods and steps to develop their estimates.

### Performance of the Annual Estimates Program

The chart below provides a comparison between final census counts for the last four decennial censuses and the NCTCOG estimated population for the corresponding year. Decennial census figures are generally released about a year after collection, so the NCTCOG estimates for each of these years were released about a year before the final census figures were known.



The NCTCOG calculations resulted in slightly optimistic figures for three of the four years. The only underestimate so far was in 2000, when the NCTCOG figure was 3.6% below the final census count. Please note that the chart ignores the differences in dates since the final census figure is for April 1<sup>st</sup> and the NCTCOG figure is for January 1<sup>st</sup> of the given year. In addition, there is an important distinction between the official Census Bureau counts performed each decade and any population estimates, including those prepared by NCTCOG. The decennial census endeavors to count every person through direct contact. Population estimation use indirect methods to approximate the number of people.