

Methodology for the Subcounty Total Resident Population Estimates (Vintage 2012):  
April 1, 2010 to July 1, 2012

## BACKGROUND

The U.S. Census Bureau produces estimates of total resident population for all areas of general-purpose government on an annual basis. The subcounty areas consist of both incorporated places, such as cities, boroughs, and villages; and minor civil divisions such as towns and townships. We use updated housing unit estimates to distribute county population to subcounty areas based on housing unit change. We produce county-level population estimates with a component of population change method, which updates the latest census population using data on births, deaths, and domestic and international migration. A more detailed description of the county estimates and housing unit methodology is available at: <http://www.census.gov/popest/methodology/index.html>.

## METHOD

The 2010 Census base counts of housing units and associated population of each governmental unit are geographically updated each year to reflect legal boundary changes reported in the Boundary and Annexation Survey (BAS), from other geographic program revisions, and from 2010 Census corrections.

The Census Bureau develops the subcounty population estimates for the household and group quarters population and adds them together. We estimate the household population by applying the “Distributive Housing Unit Method” to the county-level household population to distribute it to each subcounty area.

### Step 1- Producing an Uncontrolled Subcounty Household Population Estimate

The uncontrolled subcounty household population estimate begins with the July 1, 2012 housing unit estimate. We multiply this estimate by the 2010 Census occupancy rate and then by the 2010 Census persons per household to produce the uncontrolled population estimate.<sup>1</sup>

### Step 2 - Producing a Controlled Subcounty Household Population Estimate

The next step in producing a household population estimate is to control the uncontrolled subcounty estimates to the published county totals. To do this, we divide the 2012 county-level household population estimate by the sum of all of the uncontrolled subcounty household population estimates within the county. We multiply this quotient by the uncontrolled subcounty household population estimate calculated in Step 1. This calculation produces the controlled subcounty household population estimate.

### Step 3 - Group Quarters Population Estimate

The group quarters component of the total estimate is a combination of institutional and non-institutional facilities. The institutional facilities include four types:

- persons living in juvenile facilities
- persons living in nursing homes
- inmates of correctional facilities
- persons in other institutional group quarters

The non-institutional facilities include three types:

- military personnel living in barracks
- college students living in dormitories
- persons in other non-institutional group quarters

We use group-quarters population data from two sources to estimate subcounty populations:

- 2010 Census counts of group-quarters population by facility type for each subcounty area, and
- A time series of individual group-quarters records from the Group Quarters Report (GQR) that the Population Estimates Program prepares based upon annual updates from State representatives of the Federal-State Cooperative for Population Estimates (FSCPE).

We use these two sets of group-quarters population data to derive a time series of group-quarters population through the following process:

**Part 1**- We sum the facility-level group quarters populations from the GQR to the subcounty level by the seven facility types for each estimate date in the time series. Then, we calculate the year-to-year change indicated by the aggregated GQR time series of population.

**Part 2** - We aggregate the group quarters population from the 2010 census to the subcounty level by the seven facility types. Then, we apply the time series of numeric year-to-year change to the 2010 census data to create a census-based time series of group quarters population at the subcounty level for each of the seven facility types.

### Step 4 - Final Subcounty Population Estimate

To produce the final subcounty population estimate, we add the controlled household population estimate and the group quarters population estimate together.

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<sup>i</sup> Note: We apply national persons per household and occupancy rates to new housing estimates in areas with zero values for population or housing as of the 2010 Census.