2002 Methodology
2002 STATE AND COUNTY HOUSING UNIT ESTIMATES

BACKGROUND

The U.S. Census Bureau produces estimates of housing units for states and counties on an annual basis. These estimates are released to the public and are used as controls for many of the Census Bureau's surveys. We produce subcounty population estimates by a housing unit method that uses housing unit change to distribute county population to subcounty areas. The state and county housing unit estimates are aggregations of these housing unit estimates.

HOUSING UNIT ESTIMATES METHODOLOGY

Housing unit estimates are developed by using building permits, mobile home shipments, and estimates of housing unit loss to measure housing unit change since the last census. Census counts of housing units are updated each year through the Geographic Update System to Support Intercensal Estimates (GUSSIE).

We produce housing unit estimates for each area by the component model described below. The July 1, 2002 estimates are used here as an example.

$$HU_{02} = HU_{00} + (NC_{01} + NC_{02} + NM_{01} + NM_{02}) - HL_{01} - HL_{02}$$

Where:

HU_{02} = Estimated 2002 housing units

HU_{00} = GUSSIE updated Census 2000 housing units

NC_{01} = Estimated residential construction, July 1, 2000 to July 1, 2001

NC_{02} = Estimated residential construction, July 1, 2001 to July 1, 2002

NM_{01} = Estimated new residential mobile home placements, July 1, 2000 to July 1, 2001

NM_{02} = Estimated new residential mobile home placements, July 1, 2001 to July 1, 2002

HL_{01} = Estimated residential housing loss, July 1, 2000 to July 1, 2001

HL_{02} = Estimated residential housing loss, July 1, 2001 to July 1, 2002

Note: For the 3 month period from April 1, 2000 to July 1, 2000, a factor of 0.25 is applied to the year 2000 input data.

1. Census 2000 Housing Units (HU_{00}) -- Through GUSSIE, Census 2000 counts of housing units at the subcounty level are updated each year to reflect boundary updates, Count Question Resolution (CQR) actions, and Census Bureau initiated administrative revisions. The boundary updates reflect two cycles of the Boundary and Annexation Survey (BAS) and represent boundaries that are legally effective as of January 1, 2002. The CQR actions and administrative revisions include those benchmarked in the TIGER System and the Master Address File (MAF) through May of 2002.

2. Estimated Residential Construction (NC) -- New residential construction was calculated using the following formula:

   $$NC_{02} = ((BP_{01} * 0.98) + (BP_{02} * 0.98)) + NPC_{01} + NPC_{02}$$

   Where:

   NC_{02} = Estimate of new residential construction for the period: July 1, 2000 to July 1, 2002

   BP_{01} = Residential building permits issued in 2000 that would result in the construction of new units for the

period July 1, 2000 to July 1, 2001

BP_{02} = Residential building permits issued in 2001 that would result in the construction of new units for the period July 1, 2001 to July 1, 2002

NPC_{01} = Estimate of new residential construction in non-permit issuing areas for the period: July 1, 2000 to July 1, 2001

NPC_{02} = Estimate of new residential construction in non-permit issuing areas for the period: July 1, 2001 to July 1, 2002

Note: For the 3 month period from April 1, 2000 to July 1, 2000, a factor of 0.25 is applied to the year 2000 input data.

Building permit data are compiled from internal data files developed by Manufacturing and Construction Division (MCD). These files include imputed permits where a jurisdiction did not report permit issuance for the entire year. Housing growth calculated from building permits employs a six-month lag time between the issuance of permits and completion of construction. Therefore it is assumed that permits issued in calendar year 2001 represent new housing units for the estimates period of July 1, 2001 to July 1, 2002.

Two percent of all building permits never result in the actual construction of a housing unit (as derived from U.S. Census Bureau Current Construction Reports, Series C-20 and Series C-22). Therefore, a factor of 0.98 is used to estimate completed new units.

The annual Survey of Construction (SOC) produces regional estimates of housing units constructed in non-permit issuing jurisdictions. The regional SOC estimates are distributed to all subcounty areas that have no record of issuing permits for the estimates period. This distribution is based on the subcounty area's share of the regional total of Census 2000 units in non-permit issuing jurisdictions.

3. Estimated New Mobile Home Placements (NM) -- The Census Bureau does not collect updated data at the subcounty level on mobile home placements. We derive estimates for mobile homes by allocating state mobile home shipment data to subcounty areas based on the subcounty area's share of state mobile homes in Census 2000.

   We receive monthly reports on mobile home shipments from MCD. These monthly reports are then summed to calculate the annual total of state mobile home shipments.

   To allocate the state mobile home shipment data to subcounty areas, we apply the subcounty area's share of state mobile homes as of Census 2000 to the updated number of mobile home shipments. Because type of structure (the item indicating that a housing unit is a mobile home) was not a 100 percent item in Census 2000, sample data were used to produce the 2002 estimates of mobile homes at the subcounty level. The following steps describe the process of producing sample data that were consistent with the 100 percent housing unit data in current estimates geography.

   1. Match each unit in the Sample Edited Detail File (SEDF) to the geographically updated 100% Detail File (HDF) extract, by unit identification number.
   2. Apply the updated geographic codes from the HDF (higher level, tract, and census block) to the SEDF records.
   3. Re-tabulate the sample data with the sample weights for the primitive geographic areas into which they now are aggregated after the geographic update.
   4. Multiply the sample data tallies in each primitive geographic area by the ratio of housing units in the tabulation Census 2000 HDF to the housing units in the tabulation Census 2000 SEDF.
   5. Aggregate the results to all estimates universe summary levels.

4. Estimated Housing Loss -- Estimates of housing unit loss for the 2002 estimates were produced by applying loss rates developed from the 1993 Components of Inventory Change Survey (CINCH) and 1990 Census data to Census 2000 counts of housing units. The CINCH survey identified the following four types of housing units to be at a greater risk of loss:
   1. Mobile homes

2. Older units (constructed before 1939)
3. Vacant for Seasonal or Recreational Use
4. Boarded up

5. Final State and County Housing Unit Estimates -- The housing unit estimates at the subcounty level are summed to get county level housing unit estimates, which are then summed to get state level housing unit estimates.

   The county level estimates are compared to county level population estimates. This comparison may reveal problems with the housing unit data. In some cases these problems may be resolved by making changes to one of the housing unit components so that the housing unit estimates are consistent with the county population estimates.