METHODOLOGY FOR STATE AND COUNTY TOTAL HOUSING UNIT ESTIMATES (VINTAGE 2025): APRIL 1, 2020 TO JULY 1, 2025[1]

OVERVIEW

The U.S. Census Bureau produces annual estimates of the number of housing units in the nation. For each annual release of housing unit estimates, the entire series of estimates beginning with the most recent decennial census—in this case, April 1, 2020—is revised and updated. The estimates use building permits, estimates of non-permitted construction, mobile home shipments, and estimates of housing loss to estimate change in the housing stock. These component data come from various Census Bureau surveys.

We produce housing unit estimates for the nation, states, and counties annually. These estimates are released to the public, and they are used as controls for several Census Bureau surveys, including the American Community Survey (ACS), the American Housing Survey (AHS), and the Housing Vacancy Survey (HVS). We also produce subcounty housing unit estimates, which are central to the production of population estimates for cities and towns across the nation but are not released to the public.

METHOD

We produce housing unit estimates using the components of housing change. In this model, we add together the 2020 Census count of housing units, estimated new residential construction, and estimated new mobile homes. From this sum, we subtract the estimated housing units lost. Lost units also include a component for units lost due to natural disasters. The computation of annual July 1 housing unit estimates is expressed by the following formula:

After these data are combined to produce a preliminary set of housing estimates, they are reviewed by members of the Federal-State Cooperative for Population Estimates (FSCPE). The final housing estimates may reflect updates from their review of the estimates. Each component of the housing unit change model is described below.

2020 Census Housing Units

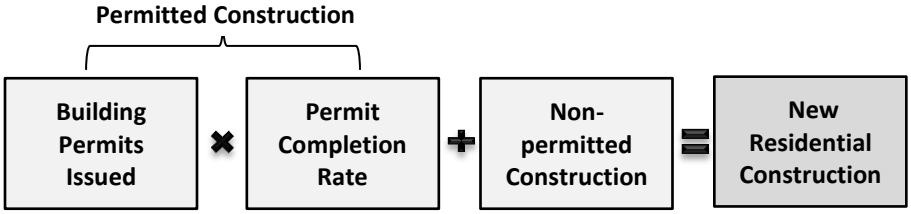
Every year, we re-tabulate the 2020 Census counts of housing units in current legal geographic boundaries to form the base for the annual housing unit estimates. The base for the housing estimates reflects annual geographic boundary updates from the Boundary and Annexation Survey (BAS) that are legally effective as of January 1 of the vintage year. The base also includes the results of completed Count Question Resolution (CQR) actions and geographic program revisions incorporated into the

[1] The Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product (Data Management System (DMS) number: P-6000042 and P-7501659. Disclosure Review Board (DRB) approval number: CBDRB-FY25-0466).

Master Address File/Topologically Integrated Geographic Encoding and Referencing (MAF/TIGER) Database through May of each estimates year.

New Residential Construction

Residential construction is the largest component of housing change. We estimate new residential construction in two parts: permitted construction and non-permitted construction. The calculation of new residential construction is represented by the following formula:



Permitted Construction

Annual estimates of new permitted construction are computed by multiplying the number of residential building permits issued by a permit completion rate. Data on issued permits come from the Building Permits Survey (BPS), which covers approximately 20,100 jurisdictions.[2] The BPS sample includes all places issuing building permits for privately-owned residential structures. Over 99 percent of privately-owned residential construction occurs in those permit-issuing places.[3] These data are reported to the BPS by calendar year for cities and towns across the United States. Implicit in the method of using calendar year permits is an assumption of a six-month lag time from permit issuance to completion of the housing unit. Thus, permits that are issued in the first six months of a particular calendar year are not processed in the housing unit estimates until the following year. For example, the July 1, 2021 housing unit estimates are based on permits issued between January 1, 2020 and December 31, 2020. Permits issued between January 1, 2021 and December 31, 2021 are included in the July 1, 2022 housing unit estimates and so on.

The annual permit completion rates used to calculate new permitted construction are based on national estimates of permits that are either abandoned or deemed "out of scope" by the Survey of Construction (SOC).[4,5] We update the completion rates every year as new survey data become available. The 2025 permit completion rate reflects the percent of building permits issued in calendar year 2024 that resulted in completed housing units.

[2] The Census Bureau conducts the BPS. For more information about this survey, see https://www.census.gov/construction/bps/.

[3] See "Coverage" section for the BPS at https://www.census.gov/construction/bps/methodology.html.

[4] Abandoned permits are permits where the survey respondent or building permit office has indicated that construction of the housing unit(s) authorized by that permit will not be completed using that permit. Out-of-scope permits are those that were reported as permits for new, privately-owned housing units by the building permit office, but it was later determined that the units did not meet the definition of new, privately-owned housing units (e.g., the units were intended as group quarters, for commercial use, etc.).

[5] The Census Bureau conducts the SOC. For more information about this survey, see https://www.census.gov/construction/soc/index.html.

Non-permitted Construction

Estimates of new, non-permitted construction are calculated using data on new residential housing units constructed in places that do not issue building permits. These data also come from the SOC. The estimates of non-permitted construction are regional-level data that we distribute to all places that do not receive building permits, based on each place's share of the region's total housing units enumerated in the 2020 Census. For example, if a place contained 5 percent of the region's housing units as of the 2020 Census and does not issue building permits, we distribute 5 percent of the region's non-permitted units in the SOC to that place. The sampling frame for the SOC does not include any non-permitting areas in the West; therefore, we do not distribute non-permitted housing units to places in that region.

New Mobile Homes

The data we use to create estimates of new mobile homes come from the Manufactured Homes Survey (MHS).[6] We calculate annual mobile home estimates by compiling monthly state shipment data from July of the previous year through June of the current year. For example, the July 1, 2025 new mobile home estimates are based on mobile home shipment data from July 1, 2024 through June 30, 2025. We distribute the state-level mobile home estimates to each place within the state based on each place's share of the state's total mobile homes. To do so, we use information from the most recent ACS 5-year file on "type of structure" for housing units.

Housing Unit Loss

We estimate annual housing unit loss in two components: loss that occurs across the nation each year via demolitions and loss in specific areas due to natural disasters.

Estimates of typical housing unit loss are calculated by applying regional rates to the housing stock for each primitive area. These regional loss rates are derived from consecutive years of American Housing Survey (AHS) data for the following types of structures:[7]

- **Houses** (including apartments, flats, condos, etc.) – These loss rates are calculated by five age groups: 1) 10 years or newer (assumed to have loss rates of zero), 2) 11 to 30 years, 3) 31 to 55 years, 4) 56 to 80 years, and 5) 81 years or older.
- **Mobile homes** – Loss rates are estimated regardless of age.
- **Other units** (e.g., tents, boats, recreational vehicles, etc.) – The number of these units is very small, and they are assumed to be constantly functional. Thus, they are assigned a loss rate of zero.

From the AHS, we identify "lost" units as those that completed the first survey but did not complete the following survey because they had been "demolished." Because of the complexity introduced by the nature and weighting process of the AHS national and metro samples beginning in 2015, we now utilize four-year periods so that the number of units identified as "lost" match up to the denominators in our rate calculation. For the Vintage 2025 estimates, we calculated annual rates for three time periods: 2015

[6] The Census Bureau conducts the MHS. For more information about this survey, see https://www.census.gov/programs-surveys/mhs.html.
[7] The Census Bureau conducts the AHS. For more information about this survey, see https://www.census.gov/programs-surveys/ahs.html.

to 2019, 2017 to 2021, and 2019 to 2023. Those rates are then averaged to produce a single set of rates representing annual housing unit loss by region, type, and age of structure.

The decennial census does not gather information on the type and age of structure for each housing unit. Instead, type and age of structure are assigned to the April 1, 2020 estimates base housing units for each primitive area using distributions calculated from the 2022 ACS five-year file. Then, we estimate the loss for the April 1 to June 30, 2020 period by multiplying the calculated loss rates by the housing units at risk of demolition. After aging the estimates base housing units from April 1 to July 1, 2020, the loss estimation process continues annually, with each iteration increasing the age of the units by one year.

Natural disaster loss estimates are calculated using the Federal Emergency Management Agency's (FEMA) records on requests for disaster assistance. These data are gathered as individuals affected by a natural disaster apply for assistance from the federal government. FEMA includes information on the severity of the damage a housing structure endured and its location, listing both street address and coordinates.

Housing units identified as complete losses are tallied as units lost to a natural disaster. Their associated coordinates (longitude/latitude) are used to geocode them to the appropriate geography. The geocoding is updated each year to reflect annual changes to the geographic base.

July 1, 2020 Housing Unit Estimates

We use one quarter of the 2020 permitted and non-permitted construction, new mobile homes, and housing loss to produce the July 1, 2020 estimates. This represents the change in housing stock during the three-month period from April 1, 2020 to July 1, 2020.

REVIEW OF PRELIMINARY ESTIMATES

The preliminary housing unit estimates are distributed to the FSCPE for their review, allowing members to submit alternative housing component data based on information gathered from the jurisdictions within their respective states. These alternative housing component data may include local building permits, mobile home placements, demolitions, and housing completions derived from non-permitted construction, certificates of occupancy, housing conversions, and/or rebuilds classified as reconstructions. We review these submissions from FSCPE members, and if accepted, the revised data for each jurisdiction either replace the original housing component data or are incorporated alongside them (as is the case for conversions and reconstructions).

ESTIMATES CHALLENGE AND SPECIAL CENSUS REVISIONS

Localities that challenge the Census Bureau's subcounty population estimates have the option of revising the housing component data specific to their area.[8] These revisions are included in the final housing unit estimates. The final estimates may also include other changes resulting from special censuses for full jurisdictions.[9] Revisions due to special censuses are reflected in the estimates from July 1, 2020 to July 1 of the vintage year.

[8] For a list of accepted subcounty population challenges, see https://www.census.gov/programs-surveys/popest/about/challenge-program/results.html.
[9] Special Census Program results are available at https://www.census.gov/programs-surveys/specialcensus/data_products/official_counts.html. For a list of accepted special census results incorporated into previous series of population estimates, see https://www.census.gov/programs-surveys/popest/about/special-census.html.