The 2020 Census and
The 2020 Census Redistricting Data Program

James Whitehorne
Chief, Census Redistricting and Voting Rights Data Office
Agenda

• Current activities
• Progress monitoring tools
• Editing and imputation
• Redistricting Data Program
• Disclosure Avoidance
• Citizenship by Voting Age by Race and Ethnicity special tabulations
2020 Census

Status

The Census is happening now. You can respond online, by phone, or by mail.
• [https://my2020census.gov/](https://my2020census.gov/)
• Census takers are following up. Even if you’ve responded, a census taker may still visit to verify your address or response. We encourage cooperation as it helps ensure an accurate count.

The enumeration of transitory and temporary locations (ETL) is underway.
• August 31 to September 28
• ETL enumerates those living in housing such as RV parks, campgrounds, marinas, and temporary housing such as hotels and motels. The operation also counts people living at racetracks, carnivals and circuses.

The enumeration of service-based locations (SBE) begins next week
• September 22 to September 24
• SBE enumerates people without conventional housing and people who may be experiencing homelessness.
  • Emergency and transitional shelters; Soup kitchens; Regularly scheduled mobile food van stops; pre-identified non-sheltered outdoor locations
Completed Operations

**Remote Alaska** - Began on January 21, 2020. Completed on August 28, 2020, enumerating 33,749 housing units, 681 group quarters, and 131 transitory locations. It is conducted in the outlying areas of Alaska, including approximately 220 Alaska Native villages, with the following objectives:

- Verify and update the address list and feature data for tabulation of the 2020 Census.
- Determine the type and address characteristics for each living quarter.
- Enumerate respondents at housing units (HUs), group quarters (GQs), and transitory locations (TLs) in those areas.

**Update Enumerate** - Began on June 14, 2020. Completed on August 31, 2020. Enumerators updated the address list and enumerated the respondents at 7,587 housing units, using paper questionnaires. The work occurred in very remote areas like the northern parts of Maine and Southeast Alaska.

**Update Leave** - Began on May 6, 2020. Completed on August 13, 2020. Completed 6.8M housing units. Enumerators updated the address list and left a paper questionnaire. We do this in areas where the majority of households may not receive mail at their home's physical address (like households that use PO boxes or areas recently affected by natural disasters).

**Group Quarters Enumeration** - Group Quarters data collection began April 2, 2020 and closed out on August 26, 2020. Over 215,000 group quarter facilities were enumerated with a completion rate of close to 100-percent. GQE types include: college/university student housing, residential treatment centers, nursing facilities/skilled-nursing facilities, group homes, military barracks, correctional facilities, and workers‘ dormitories.
Enumeration at Transitory Locations (ETL)

The goal of the ETL operation is to enumerate individuals in occupied units at transitory locations who do not have a Usual Home Elsewhere (UHE). A transitory location is a location that is comprised of living quarters where people are unlikely to live year round, due to the transitory/temporary/impermanent nature of these living quarters. Enumerators will canvass a transitory location in one visit to enumerate all occupied transitory units. Data collection for the ETL operations began on August 31, 2020 and will be completed by September 28, 2020.

Transitory locations include: Recreational Vehicle Parks, Campgrounds, Racetracks, Circuses, Carnivals, Marinas, and Hotels.

Enumeration at Transitory Locations Progress – As of September 15, 2020

<table>
<thead>
<tr>
<th></th>
<th>Initial Workload</th>
<th>Cases Added</th>
<th>Total Workload</th>
<th>Completed &amp; Closed Cases</th>
<th>Current Workload</th>
<th>Percent Completed &amp; Closed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>61,853</td>
<td>627</td>
<td>62,480</td>
<td>47,947</td>
<td>14,533</td>
<td>76.7%</td>
</tr>
</tbody>
</table>

2020CENSUS.GOV
Background
The SBE operation is conducted at service-based locations and targeted non-sheltered outdoor locations (TNSOLs) to enumerate people experiencing homelessness. These service locations include: emergency and transitional shelters (with sleeping facilities) for people experiencing homelessness, soup kitchens, and regularly scheduled mobile food vans.
Prior to operational adjustments made in lieu of COVID-19, SBE was scheduled to be conducted March 30 – April 1.

Consulted With Major Stakeholders
• In late May/early June we consulted with 67 national and local organizations to assist the Census Bureau in determining the best date to conduct SBE/TNSOL.
• Based on the feedback from our stakeholders, input from Census experts, and consultation with operational team leads, we have selected September 22 – 24 as the dates to conduct SBE and TNSOL.

Current Status
• Updating TNSOLs locations and making appointments with service providers.
• Current SBE workload: 49,045 (as of September 15, 2020)
  • TNSOLs: 33,604
  • Emergency and Transitional Shelters: 9,726
  • Soup Kitchens: 5,081
  • Regularly Scheduled Mobile Food Vans: 634
Nonresponse Followup Field Operations - Current Status

Workload (as of September 15, 2020):
National Workload: 62,962,757 Cases
Completed Workload: 51,645,019 Cases
• 82.0% Percent Complete
• 77.8% Percent Goal

Productivity:
Average Hours worked per Week: 19.3*
Average Cases Completed per Hour: 2.13
Planned Cases Completed per Hour: 1.55

*September 3, 2020 – September 9, 2020
2020 Census
Status – Tools for monitoring Census progress

Total Response Rates by State
• The Top Five States

<table>
<thead>
<tr>
<th>Rank</th>
<th>State</th>
<th>Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Idaho</td>
<td>99.2%</td>
</tr>
<tr>
<td>2</td>
<td>West Virginia</td>
<td>99.0%</td>
</tr>
<tr>
<td>3</td>
<td>Hawaii</td>
<td>97.8%</td>
</tr>
<tr>
<td>4</td>
<td>Washington</td>
<td>97.3%</td>
</tr>
<tr>
<td>5</td>
<td>Maine</td>
<td>96.8%</td>
</tr>
</tbody>
</table>

2020 Census Housing Unit Enumeration progress by State

Note: Percentages may not sum due to rounding. A limited number of areas were part of the NRFU “soft launch” beginning July 16, 2020, and could have higher completion rates due to more time in the field. Percentages for the U.S. Total do not include housing units in Puerto Rico.
Source: U.S. Census Bureau.
2020 Census Nonresponse Followup Operation Completion by ACO

2020 Census

Generalized Flow Of Response Data

Decennial Response File (DRF)
- Raw data captured digitally or keyed from paper responses

Census Unedited File (CUF)
- Final Census count of people and living quarters
- Counts used for apportionment

Census Edited File (CEF)
- Ensures each record has valid values for major characteristics
- Counts used for redistricting

Disclosure Avoidance System (DAS)

Tabulation (TAB)
2020 Census
Imputation and Editing

• Count Imputation
  • The process used to estimate missing or misreported data.
  • Conducted during the construction of the Census Unedited File
  • Uses other data to replace missing count information from housing units identified as occupied

• Characteristic Imputation and Editing
  • Conducted during the construction of the Census Edited File
  • The process used to ensure valid responses to a subset of required fields
  • Characteristic imputation and Editing begins post-data collection after the household population is established and does not add people to the Census.
  • Edits are used to ensure certain consistencies among characteristics.
  • Characteristic imputation is used to ensure that each person and housing unit on the final census file has valid values in the person and housing items.
  • Administrative records are used to improve data quality in characteristic imputation.
Types of Characteristic Imputation:

• **Assignment:** Assignment occurs when responses are either missing or inconsistent with other responses AND missing item values can be determined based on other information provided for that same person or household.

• **Allocation:** Allocation occurs when responses are either missing or inconsistent with other responses AND the missing item value cannot be determined based on information provided for that same person. A response from another person within the housing unit or from a person in a nearby housing unit is used.

  • **Substitution:** Substitution is a special type of allocation when all of the person characteristics - relationship, sex, age, date of birth, race and ethnicity - for every person record in a housing unit are missing and must be imputed.
## 2020 Census
### Imputation and Editing

**Overview – 2010 Census Imputation Rates**

### Overall Imputation Rates

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Person-Level Items</th>
<th>Household Level Item</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Imputed</td>
<td>2.1</td>
<td>4.5</td>
</tr>
<tr>
<td>Assigned</td>
<td>0.5</td>
<td>1.7</td>
</tr>
<tr>
<td>Allocated</td>
<td>1.7</td>
<td>2.8</td>
</tr>
</tbody>
</table>

- **Substituted**: 1.9 percent of all persons

- **Sex**: 1.6, 1.3, 0.3
- **Age/Date of Birth**: 5.1, 1.5, 3.6
- **Hispanic Origin**: 4.5, 1.7, 2.8
- **Race**: 4.1, 1.2, 2.9
- **Tenure**: 3.5, n/a, 3.5
2020 Census

**Imputation and Editing**

**2010 Census Age and Date of Birth Imputation Method**

**Age Only Reported**
If age was reported but not date of birth, we keep the age value and assign a date of birth using a random number of possible dates for that age.

**Date of Birth Only Reported**
If date of birth was reported but not age, we calculate age based on the reported date of birth.

**Inconsistent Age and DOB, 2+ Years**
If both age and date of birth are reported, but the age calculated from the reported date of birth is inconsistent with reported age by two or more years, edits will determine which of the two is more consistent (using relationship, for example). The less consistent reported value will be edited.

**Age Adjusted for Household Consistency**
It may be necessary to adjust the age for householder/spouse to account for the number of children in the household.

**Allocated from Hot Deck**
In 2010, allocation came from 11 matrices. All spouses (including parents and parents-in-law) were considered opposite sex relationships. In all but the last two matrices, an age difference is allocated rather than an exact age.
2020 Census

Disclosure Avoidance

• All 2020 Census data products released after apportionment will have formal privacy protections applied through the use of differential privacy.
  • For the P.L. 94-171 Redistricting Data this will be through the use of the Top Down Algorithm (TDA)
    • The TDA is being streamlined to focus solely on the P.L. 94-171 Redistricting Data and the characteristics reported in that file. (Race, Age of 18+, Ethnicity, etc.)

• The Census Bureau, using the 2010 Census as the data source, has been releasing interim output from the TDA as demonstration products

2020 Census

Disclosure Avoidance

• October 29, 2019 – 2010 Demonstration Data Product Baseline
  • Test running system at scale and progress to date
• July 14, 2020 – Release interim output showing improvements (metrics released earlier on 5/27/2020)
  • Released as Privacy Protected Microdata File (PPMF)
  • Tables created by IPUMS/NHGIS
    • [https://www.nhgis.org/privacy-protected-demonstration-data#v20200527](https://www.nhgis.org/privacy-protected-demonstration-data#v20200527)
  • Series of metrics added for review and comparison
• September 17, 2020 – Release interim output showing improvements
  • Released as Privacy Protected Microdata File (PPMF)
  • Tables expected to be created by IPUMS/NHGIS
  • Tailored specifically and only to the P.L. 94-171 Redistricting Data characteristics
  • Revised series of metrics coming soon for review and comparison
• TBD – a final PPMF is expected prior to publishing the official data
## Redistricting Data Program

### Phase 3 – P.L. 94-171 Redistricting Data Geographic Products

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Census Web Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block Assignment Files</td>
<td><a href="https://www.census.gov/geographies/reference-files.html">https://www.census.gov/geographies/reference-files.html</a></td>
</tr>
<tr>
<td>Block to Block Relationship Files</td>
<td><a href="https://www.census.gov/geographies/reference-files/time-series/geo/relationship-files.html">https://www.census.gov/geographies/reference-files/time-series/geo/relationship-files.html</a></td>
</tr>
</tbody>
</table>

- Shapefiles – geographic information system geometry files
- Maps (PDF only) – County Block; State Legislative with Voting District; Tract; School District
- Block Assignment Files – tables identifying the blocks used to build different geographic entities
- Block to Block Relationship Files – Crosswalk of 2010 blocks to 2020 blocks
2020 Census P.L. 94-171 Redistricting Data Tabulations

<table>
<thead>
<tr>
<th>Table P1 – Race</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table P2 – Race for the Population 18 Years and Over</td>
</tr>
<tr>
<td>Table P3 – Hispanic or Latino, and not Hispanic or Latino by Race</td>
</tr>
<tr>
<td>Table P4 – Hispanic or Latino, and not Hispanic or Latino by Race for the Population 18 and Over</td>
</tr>
<tr>
<td>Table H1 – Occupancy Status (Housing)</td>
</tr>
</tbody>
</table>

New Table

| Table P5 – Group Quarters Population by Group Quarters Type |

- All tables produced at multiple geographies including census block
- Group Quarter types: Correctional Institutions for Adults, Juvenile Facilities, Nursing Facilities/Skilled Nursing, Other Institutional, College/University Student Housing, Military quarters, and other non-institutional
- Group quarters is total population only, no demographic breakdown
Redistricting Data Program

Phase 3 – P.L. 94-171 Redistricting Data Products Delivery Timing

Phase 3 – Prototype Data

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prototype geographic support products</td>
<td>February 2019 (Complete)</td>
</tr>
<tr>
<td>Prototype P.L. 94-171 Redistricting Data</td>
<td>March 2019 (Complete)</td>
</tr>
</tbody>
</table>

Phase 3 – Official Data

<table>
<thead>
<tr>
<th>Activity</th>
<th>Original Planned Dates</th>
<th>New Planned Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographic support products</td>
<td>Nov. 20, 2020 – Feb. 1, 2021</td>
<td>No later than April 1, 2021*</td>
</tr>
<tr>
<td>P.L. 94-171 Redistricting Data</td>
<td>Feb. 18, 2021 – March 31, 2021</td>
<td>No later than April 1, 2021*</td>
</tr>
</tbody>
</table>

* Statutory deadline, planned date still TBD
Redistricting Data Program

Citizen Voting Age Population by Race and Ethnicity (CVAP)

- Annual Tabulation using the American Community Survey 5-year estimates for 2011 through 2020 publications
  - Typically released in the 1st week of February each year
- 2020 Census CVAP Special Tabulation
  - Calculated using administrative records and released by the P.L. 94-171 deadline

<table>
<thead>
<tr>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total:</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
</tr>
<tr>
<td>Not Hispanic or Latino:</td>
</tr>
<tr>
<td>White alone</td>
</tr>
<tr>
<td>Black or African American alone</td>
</tr>
<tr>
<td>American Indian and Alaska Native alone</td>
</tr>
<tr>
<td>Asian alone</td>
</tr>
<tr>
<td>Native Hawaiian and Other Pacific Islander alone</td>
</tr>
<tr>
<td><strong>Some Other Race alone</strong>*</td>
</tr>
<tr>
<td>Black or African American and White</td>
</tr>
<tr>
<td>American Indian and Alaska Native and White</td>
</tr>
<tr>
<td>Asian and White</td>
</tr>
<tr>
<td>American Indian and Alaska Native and Black or African American</td>
</tr>
<tr>
<td>Remainder of Two or More Race Responses</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Geography</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nation</td>
</tr>
<tr>
<td>State</td>
</tr>
<tr>
<td>Congressional District</td>
</tr>
<tr>
<td>State Legislative District, Upper Chamber</td>
</tr>
<tr>
<td>State Legislative District, Lower Chamber</td>
</tr>
<tr>
<td>County</td>
</tr>
<tr>
<td>Minor Civil Division (for CT, MA, ME, MI, MN, NH, NJ, NY, PA, RI, VT, and WI)</td>
</tr>
<tr>
<td>Tract</td>
</tr>
<tr>
<td>Block Group</td>
</tr>
<tr>
<td><strong>Block</strong>*</td>
</tr>
</tbody>
</table>

* only for the 2020 Census Special Tabulation
Internal Expert Panel is developing the methodology and is expected to publish their final methodology report by October 31, 2020.

The current status of this project is being presented at the Census Scientific Advisory Committee (CSAC) meeting today, 9/18/2020, at 1:25pm. This meeting is being recorded and will be made available here:
- CSAC main page: [https://www.census.gov/about/cac/sac.html](https://www.census.gov/about/cac/sac.html)
- CSAC specific meetings page: [https://www.census.gov/about/cac/sac/meetings.html](https://www.census.gov/about/cac/sac/meetings.html)

There are essentially four different techniques being considered:
- 3 techniques rely on a combination of business rules and modeling
- 1 technique relies on a latent class model for the full population
Thank You

James Whitehorne
Chief, Census Redistricting & Voting Rights Data Office
Email: rdo@census.gov
Phone: 1-301-763-4039
Web: www.census.gov/rdo