2020 Census Update

Presentation to the Census Scientific Advisory Committee
September 12, 2019

Albert E. Fontenot, Jr., Associate Director
Decennial Census Programs
## 2020 Census Update

### Where Are We Now

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Begin 2020 Census Program</td>
<td>November 18, 2011</td>
</tr>
<tr>
<td>Begin Local Update of Census Addresses (LUCA)</td>
<td>Program January 2017</td>
</tr>
<tr>
<td>Deliver 2020 Census Topics to Congress</td>
<td>March 28, 2017</td>
</tr>
<tr>
<td>Deliver 2020 Census Questions to Congress</td>
<td>By March 31, 2018</td>
</tr>
<tr>
<td>Open Regional Census Centers</td>
<td>April 2018</td>
</tr>
<tr>
<td>Conduct 2018 End-to-End Census Test</td>
<td>August 28, 2017 – August 31, 2018*</td>
</tr>
<tr>
<td>Begin Opening Area Census Offices</td>
<td>January 7, 2019</td>
</tr>
<tr>
<td>Begin In-Field Address Canvassing</td>
<td>August 18, 2019 – October 11, 2019</td>
</tr>
<tr>
<td>Launch Advertising Campaign</td>
<td>January 2020</td>
</tr>
<tr>
<td>Begin Remote Alaska</td>
<td>January 21, 2020</td>
</tr>
<tr>
<td>Begin Group Quarters – Advance Contact</td>
<td>February 3, 2020</td>
</tr>
<tr>
<td>Begin Self-Response</td>
<td>March 12, 2020</td>
</tr>
<tr>
<td>Begin Update Leave</td>
<td>March 16, 2020</td>
</tr>
<tr>
<td>Begin Update Enumerate</td>
<td>March 16, 2020</td>
</tr>
<tr>
<td>Begin Group Quarters – Service Based Enumeration</td>
<td>March 30, 2020</td>
</tr>
<tr>
<td>2020 Census Day</td>
<td>April 1, 2020</td>
</tr>
<tr>
<td>Begin Group Quarters Enumeration</td>
<td>April 2, 2020</td>
</tr>
<tr>
<td>Begin Coverage Improvement</td>
<td>April 7, 2020</td>
</tr>
<tr>
<td>Begin Early Nonresponse Followup</td>
<td>April 9, 2020</td>
</tr>
<tr>
<td>Begin Enumeration at Transitory Locations</td>
<td>April 9, 2020</td>
</tr>
<tr>
<td>Begin Nonresponse Followup</td>
<td>May 13, 2020</td>
</tr>
<tr>
<td>Deliver Apportionment Counts to the President</td>
<td>By December 31, 2020</td>
</tr>
<tr>
<td>Complete Delivery of Redistricting Counts to the States</td>
<td>By March 31, 2021</td>
</tr>
<tr>
<td>Complete 2020 Census Program</td>
<td>September 29, 2023</td>
</tr>
</tbody>
</table>

*Duration represents the timeframe for data collection.*
2018 End-to-End Census Test

Preliminary Analysis

- Overall, 52.3% of response data came from one of the self-response modes.
  - Internet – 61.2%
  - Paper – 31.3%
  - Phone – 7.5%

- 33.2% of response data came from Nonresponse Followup.

- 14.5% of response data came from Other¹

¹Other includes enumeration by Administrative Records and Count Imputation

Note: Actual percentages may not sum to 100 due to rounding.
2018 End-to-End Census Test
Preliminary Analysis

- Of respondents who started the questionnaire, 85.0% submitted a response.

- Of the 15.0% of respondents who started the questionnaire but did not submit the questionnaire:
  - 22.6% broke off at the “Confirm” screen
  - 14.8% exited at “Other Complete” screen
  - 13.9% broke off at the “Residence” screen

- Overall, 96.9% of respondents who submitted a response used an ID.
  - PC – 98.1% with an ID
  - Tablet – 97.8% with an ID
  - Mobile – 96.1% with an ID

- Respondents using the ID path spent the most time on the screen where they are asked to provide the name of each person living or staying at the address on April 1, 2018.

- Respondents using the NONID path spent the most time on the screen where they are asked to provide the city style address (Street number, Street Name, Apt/Unit, City, State, Zip).
2020 Census Update
Impact of Hurricane Dorian

- No Field personnel have reported injury or property damage to any ACO/RCC as a result of Hurricane Dorian.
- Two Wave 1 ACOs closed (Orange County, FL and Savannah, GA), both have since reopened.
- Three Wave 2 ACOs closed (Charleston, SC, Seminole, FL, and Virginia Beach, VA) closed. All have since reopened.
2020 Census Update

Address Canvassing Overview

- The Address Canvassing operation delivers a complete and accurate address list and spatial database for enumeration.

- Address Canvassing has been reengineered to include both In-Office and In-Field Address Canvassing, increasing efficiency of the operation.

- In-Office review, using aerial imagery and validated sources, substituted field work in residentially stable areas.

- In-Field Address Canvassing is taking place in those areas In-Office could not resolve.

- Listers will attempt contact at every structure to determine the type and address characteristics for each living quarter.

- In-field operation began in August 2019 and concludes in October 2019.
2020 Census Update

In-Field Address Canvassing Update
As of September 9, 2019

- Production listing activities began on August 4, 2019 in the seven early ACOs with the balance of the Wave 1 ACOs beginning production listing on August 18, 2019.

![Progress for In-Field Address Canvassing Production](chart1)

- Current Workload: 1,115,142 Blocks
- Planned Completed Cases: 606,268 Blocks
- Actual Completed Cases: 634,910 Blocks

![Cost for In-Field Address Canvassing Production](chart2)

- Total Budget: $122.7 M
- Planned Cost: $66.4 M
- Actual Cost: $45.1 M

Source: Unified Tracking System
2020 Census Update
In-Field Address Production Metrics
As of September 9, 2019

- Quality Control (QC) listing activities began on August 11, 2019 in the seven early ACOs with the balance of the Wave 1 ACOs beginning production listing on August 25, 2019.

- The failure rate for 2020 is higher than 2010 due to three factors:
  - Listing BCUs that are more likely to have changes.
  - Selecting BCUs for QC that are more likely to have errors.
  - Standards for passing a BCU in QC are more stringent.

### Key Quality Control Metrics

<table>
<thead>
<tr>
<th>Total Production Workload</th>
<th>Production Blocks Complete</th>
<th>Selected for QC to Date</th>
<th>Completed QC</th>
<th>Proportion Failed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,115,142 Blocks</td>
<td>634,910 Blocks</td>
<td>81,298 Blocks</td>
<td>53,943 Blocks</td>
<td>32.7%</td>
</tr>
</tbody>
</table>

### Cost for In-Field Address Canvassing QC

- **Total Budget:** $25.6 M
- **Planned Cost:** $9.7 M
- **Actual Cost:** $3.6 M

Source: Unified Tracking System
2020 Census Update

Recruiting and Hiring
As of September 9, 2019

2020 Census Applicant Status

- Over 845,000 applicants have created a profile in our online hiring tool.
- Over 675,000 of those have completed an application and assessment – surpassing our goal for this time by over 25,000.

Peak Operations Staffing – Recruiting Assistants, Office Operation Supervisor, and Clerks

- Over 10,000 Recruiting Assistants, 1,900 Office Operations Supervisors, and 8,100 Clerks have been selected.
- Of those over 1,700 Recruiting Assistants, 320 Office Operations Supervisors, and 1,300 Clerks have been hired.
- Selection for Nonresponse Followup enumerators will begin in March 2020.
2020 Census Update

Field Infrastructure
As of September 9, 2019

All Wave 1 ACOs are fully operational in support of Address Canvassing.

Wave 2 ACOs

- All Wave 2 ACOs have a Notice to Proceed, completed Design Intent Drawings, and completed Construction Drawings.
- 150 Wave 2 ACOs are currently Ready for Business.
- All Wave 2 ACOs will be ready for business by November 29, 2019.

Source: Field Division Reports–Lease Management and ACO Forecast
2020 Census Update

State Complete Count Commissions (SCCC)
As of September 6, 2019

- Active – 45 (including DC and Puerto Rico)
- Committed/In Formation - 4
- Considering – 1
- No - 2

Source: Weekly Field Division Reports
2020 Census Update

Local Complete Count Committees within States without a State Complete Count Commission
As of September 6, 2019

Notes:
There are 4,523 Local Complete Count Committees nationwide:
◦ 3,314 Government
◦ 104 Tribal
◦ 1,105 Community

<table>
<thead>
<tr>
<th>State</th>
<th>Government</th>
<th>Community</th>
<th>Tribal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida</td>
<td>147</td>
<td>45</td>
<td>0</td>
<td>192</td>
</tr>
<tr>
<td>Nebraska</td>
<td>14</td>
<td>10</td>
<td>0</td>
<td>24</td>
</tr>
<tr>
<td>South Dakota</td>
<td>9</td>
<td>0</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Tennessee</td>
<td>97</td>
<td>7</td>
<td>0</td>
<td>104</td>
</tr>
<tr>
<td>Texas</td>
<td>283</td>
<td>96</td>
<td>0</td>
<td>379</td>
</tr>
<tr>
<td>Vermont</td>
<td>7</td>
<td>5</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>West Virginia</td>
<td>31</td>
<td>0</td>
<td>0</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td>588</td>
<td>163</td>
<td>2</td>
<td>753</td>
</tr>
</tbody>
</table>

Source: Weekly Field Division Reports
Partnering With Census

• Partners are trusted voices in their community and educate their community and members on the importance of the Census
• Together with Census, partners develop solutions to effectively reach everyone and encourage them to respond to the 2020 Census.
• Partnerships help ensure that communities and members are accurately counted and represented in the 2020 Census.

Media and Advertising

• Using traditional media (print, TV, radio), as well as digital and social media to tailor messages to specific geographic and demographic groups.
• Real-time response information will allow for rapid adjustments to areas with low response rates.

How can I learn more?

• Visit <www.census.gov/partners>.
• For the latest updates on the 2020 Census, visit <www.2020census.gov>.
2020 Census Systems Readiness Update

Presentation to the Census Scientific Advisory Committee
September 12, 2019

Michael T. Thieme, Assistant Director for Decennial Census Programs, Systems and Contracts
## 2020 CENSUS OPERATIONAL DELIVERY

Operational deliveries reflect a logical grouping of functionality to support Census business operations. The 2020 Census is broken down into 16 operational deliveries.

<table>
<thead>
<tr>
<th>2020 CENSUS OPERATIONAL DELIVERY</th>
<th>Test Readiness Review</th>
<th>Production Readiness Review</th>
<th>Conduct Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1 2020 Census Early Ops Preparation</td>
<td>07/23/2018</td>
<td>10/19/2018</td>
<td>10/23/2018</td>
</tr>
<tr>
<td>D2 Address Canvassing</td>
<td>01/04/2019</td>
<td>05/17/2019</td>
<td>08/19/2019</td>
</tr>
<tr>
<td>D3 Peak Recruiting &amp; Hiring</td>
<td>01/18/2019</td>
<td>06/07/2019</td>
<td>09/03/2019</td>
</tr>
<tr>
<td>D4 Self-Response</td>
<td>06/28/2019</td>
<td>12/13/2019</td>
<td>03/09/2020</td>
</tr>
<tr>
<td>D5 Integrated Partnership and Communications (IPC)</td>
<td>05/17/2019</td>
<td>11/01/2019</td>
<td>01/15/2020</td>
</tr>
<tr>
<td>D6 Count Review (CR) &amp; Remote Alaska (RA)</td>
<td>05/10/2019</td>
<td>10/25/2019</td>
<td>01/21/2020</td>
</tr>
<tr>
<td>D7 Group Quarters Advance Contact (GQAC) &amp; ETL Advance Contact (ETLAC) &amp; Federally Affiliated Count Overseas (FACO)</td>
<td>05/24/2019</td>
<td>11/08/2019</td>
<td>02/03/2020</td>
</tr>
<tr>
<td>D8 GQ Enumeration (GQE) &amp; Service Based Enumeration (SBE) &amp; Enumeration at Transitory Locations (ETL)</td>
<td>06/17/2019</td>
<td>01/24/2020</td>
<td>03/30/2020</td>
</tr>
<tr>
<td>D9 Update Enumerate (UE) &amp; Update Leave (UL)</td>
<td>07/12/2019</td>
<td>01/03/2020</td>
<td>03/16/2020</td>
</tr>
<tr>
<td>D10 Nonresponse Followup (NRFU)</td>
<td>07/19/2019</td>
<td>01/17/2020</td>
<td>04/09/2020</td>
</tr>
<tr>
<td>D11 Archiving &amp; Count Question Resolution (CQR)</td>
<td>09/18/2020</td>
<td>03/05/2021</td>
<td>06/01/2021</td>
</tr>
<tr>
<td>D12 Response Processing</td>
<td>04/27/2020</td>
<td>06/17/2020</td>
<td>09/15/2020</td>
</tr>
<tr>
<td>D13 Data Products / Dissemination</td>
<td>06/15/2020</td>
<td>10/05/2020</td>
<td>11/25/2020</td>
</tr>
<tr>
<td>D14 Redistricting</td>
<td>08/28/2020</td>
<td>12/18/2020</td>
<td>02/17/2021</td>
</tr>
<tr>
<td>D15 Post Enumeration Survey (PES)</td>
<td>03/05/2021</td>
<td>05/28/2021</td>
<td>07/23/2021</td>
</tr>
<tr>
<td>D16 Island Areas</td>
<td>10/16/2020</td>
<td>04/02/2021</td>
<td>06/30/2021</td>
</tr>
</tbody>
</table>
Address Canvassing Operational Readiness

- Mobile solutions are successfully supporting Address Canvassing Operations
- Reporting and Dashboard systems are functioning as designed
- Operations Support processes and personnel are 100% functional
  - Network Operations Center (NOC)
  - Security Operations Center (SOC)
  - Decennial Service Center (DSC)
Phase 1
- Priorities Identification
- Architecture & Design Reviews
- Scalability Approach & System Sizing
- Performance Test Tools Selection & Environment Plan

Phase 2
- System Level Baseline Performance Tests
- Performance Eng / Arch / Infra support: monitor, troubleshoot, & validate performance test results
- Iterative design

Phase 3
- Integrated Performance Tests
- Operational Thread End-to-End Performance Tests
- Scalability Test
- Full production infrastructure tests
- Regression Testing

Phase 4
- Multi-operational testing
- Scalability Tests
- Soak Tests
- Failover Tests
- Regression Testing

Staging Environment

For Official Use Only. Controlled Unclassified Information Pre-decisional
# Performance and Scalability Testing
**Address Canvassing Phase 3 Results**

<table>
<thead>
<tr>
<th>Business Thread</th>
<th>Overall Status*</th>
<th>Steps</th>
<th>Key Targets</th>
<th>Results</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-factor Authentification</td>
<td>Complete</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>• 6.24 peak concurrent • 154k cases</td>
</tr>
<tr>
<td>Initialize</td>
<td>Complete</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>• 1.2M BCUs</td>
</tr>
<tr>
<td>Assign</td>
<td>Complete</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>• 90K BCUs</td>
</tr>
<tr>
<td>Lister Ops</td>
<td>Complete</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>• 11K cases uploaded</td>
</tr>
<tr>
<td>QC Ops</td>
<td>Complete</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>• Transfer 10% of workload</td>
</tr>
</tbody>
</table>
Performance and Scalability Testing
Address Canvassing Phase 4 Results

<table>
<thead>
<tr>
<th>Business Thread</th>
<th>Overall Status</th>
<th>Steps</th>
<th>Key Targets</th>
<th>Results</th>
<th>Key Results / Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Plan</td>
<td>Exec</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>Stress Tests</td>
<td>Complete</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>• 70% CPU</td>
</tr>
<tr>
<td>Soak Tests</td>
<td>Complete</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>• 12 hours</td>
</tr>
<tr>
<td>Failover Test</td>
<td>Complete</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>• Successful degraded operation</td>
</tr>
</tbody>
</table>
2020 Census Systems Readiness
Performance and Scalability Testing

Modeled Peak Day AdCan Demand (Hourly)

KPIs | Target Threshold
--- | ---
Average Response Time (user interactions) | Standard transactions measured as:
- 50% response within 2 seconds
- 90% response within 4 seconds
- 99% response within 6 seconds
- 99.999% response within 20 seconds.
Heap% Usage | <80%
CPU% Used | <70%
Disk I/O % | <70%
Memory Usage % | <80%
Errors | <3% of transactions

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Pre-decisional
2020 Census Systems Readiness

Actual BCU’s Downloaded

Address Canvassing Hourly Workload Transmissions

TIME OF DAY

BLOCK COLLECTION UNITS (BCU)
2020 Census Systems Readiness
Actual Network Traffic for Address Canvassing

Peak Traffic on Wednesday, midday:
70Mb/s (download to client devices)

Current Network Capacity: 10Gb/s

Address Canvassing production is using less than 1% of current network capacity
Thank You

Albert E. Fontenot, Jr.
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Michael T. Thieme
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