

# Lessons Learned from the 2020 Decennial Census

FINAL REPORT NO. OIG-22-030

SEPTEMBER 14, 2022

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U.S. Department of Commerce  
Office of Inspector General  
Office of Audit and Evaluation



September 14, 2022

**MEMORANDUM FOR:** Robert Santos  
Director  
U.S. Census Bureau

A handwritten signature in black ink, appearing to read "Arthur L. Scott, Jr.".

**FROM:** Arthur L. Scott, Jr.  
Assistant Inspector General for Audit and Evaluation

**SUBJECT:** *Lessons Learned from the 2020 Decennial Census*  
Final Report No. OIG-22-030

We are issuing this report on the 2020 Decennial Census (2020 Census) to bring to your attention lessons learned during the nonresponse followup (NRFU) operations for the 2020 Census. The 2020 Census was significantly affected by the COVID-19 pandemic, necessitating late design changes to census operations and multiple adjustments to operational timeframes. During the U.S. Census Bureau's (the Bureau's) 2020 Census operations, we issued a series of alert memorandums that identified serious weaknesses in areas such as college and university student counts,<sup>1</sup> resolving system alerts,<sup>2</sup> employee awards,<sup>3</sup> and the reinterview process.<sup>4</sup>

These events, coupled with our prior work, raised concerns over the quality of the data collected by the Bureau during 2020 decennial operations. We assessed the adequacy of the Bureau's quality control processes to ensure the data collected during the 2020 Census was complete and accurate. While the 2020 Census operations have concluded, we suggest proposed actions for change from these lessons learned to inform the research and planning efforts for the 2030 Census.

Please find brief descriptions of the issues discussed in greater detail in the report.

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<sup>1</sup> U.S. Department of Commerce Office of Inspector General, August 27, 2020. *2020 Census Alert: The Census Bureau May Not Accurately Count College and University Students Living Off-Campus During the 2020 Census*, OIG-20-044-M. Washington, DC: DOC OIG.

<sup>2</sup> DOC OIG, September 17, 2020. *2020 Census Alert: Delays to Resolving Alerts Limit the Bureau's Ability to Maintain or Improve the Quality of 2020 Census Data*, OIG-20-048-M. Washington, DC: DOC OIG.

<sup>3</sup> DOC OIG, September 28, 2020. *2020 Census Alert: The Census Bureau's Program to Provide Awards to Nonresponse Followup Enumerators and Field Supervisors May Require Additional Quality Assurance of Cases to Ensure Data Accuracy*, OIG-20-052-M. Washington, DC: DOC OIG.

<sup>4</sup> DOC OIG, December 28, 2020. *2020 Census Alert: Inability to Finish Nonresponse Followup RIs Raises Concerns Over the Quality of More Than 500,000 Cases*, OIG-21-015-M. Washington, DC: DOC OIG.

**Lesson 1: Students were likely undercounted at off-campus addresses despite outreach efforts.**

- Most colleges and universities contacted did not provide off-campus student data in response to bureau outreach.
- Within the College Outreach Program, the Bureau imputed the population count for more than 10 percent of off-campus housing units identified in the data provided by colleges and universities.

**Lesson 2: A significant number of NRFU enumerations were completed using a proxy.**

- Reliable administrative records were not available to supplement proxy interviews with characteristic data.

**Lesson 3: The Bureau's improper execution of its 2020 Census Quality Assurance Plan may have adversely affected data quality.**

- Census field supervisors did not adequately research or resolve operational control system alerts.
- Data quality and stale alerts were not resolved timely.
- Some operational control system quality alerts were not functioning as designed or failed to trigger.
- Enumerators may have been circumventing alerts by turning off GPS capabilities.
- The Bureau did not conduct reinterviews as planned.
- The Bureau did not fully conduct reinterview quality assurance processes for cases completed by enumerators who falsified data or violated procedures.
- Enumerators who falsified data or violated procedures were not terminated in a timely manner, continued to work cases, and were reassigned to other operations.
- Enumerator falsifications or errors may have negatively impacted data quality.
- Enumerators who falsified data or violated procedures received production awards and bonuses.

This final report will be posted on the Office of Inspector General's website pursuant to sections 4 and 8M of the Inspector General Act of 1978, as amended (5 U.S.C. App., §§ 4 & 8M). If you have any questions or concerns about this report, please contact me at (202) 577-9547 or Terry Storms, Director for Audit and Evaluation, at (202) 570-6903.

Attachment

cc: Colleen Holzbach, Program Manager for Oversight Engagement, Census Bureau  
Corey J. Kane, Audit Liaison, Census Bureau  
Kemi A. Williams, Program Analyst for Oversight Engagement, Census Bureau

Ken White, Audit Liaison, OUS/EA  
MaryAnn Mausser, Audit Liaison, Office of the Secretary

## Contents

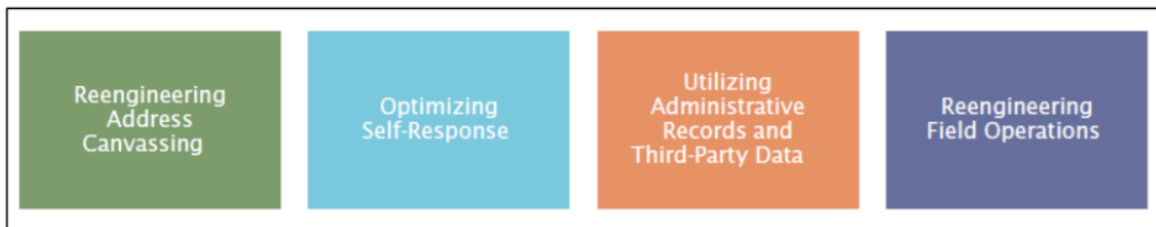
<b>Introduction</b> .....	<b>1</b>
<b>Why We Did This Review</b> .....	<b>2</b>
<b>Lesson 1: Students Were Likely Undercounted at Off-Campus Addresses Despite Outreach Efforts</b> .....	<b>4</b>
A. Most Colleges and Universities Contacted Did Not Provide Off-Campus Student Data in Response to Bureau Outreach.....	5
B. Within the College Outreach Program, the Bureau Imputed the Population Count for More Than 10 Percent of Off-Campus HUs Identified in the Data Provided by Colleges and Universities .....	7
<b>Proposed Actions</b> .....	<b>8</b>
<b>Lesson 2: A Significant Number of NRFU Enumerations Were Completed Using a Proxy</b> .....	<b>9</b>
Reliable Administrative Records Were Not Available to Supplement Proxy Interviews with Characteristic Data .....	10
<b>Proposed Actions</b> .....	<b>11</b>
<b>Lesson 3: The Bureau’s Improper Execution of Its QA Plan May Have Adversely Affected Data Quality</b> .....	<b>12</b>
A. CFSs Did Not Adequately Research or Resolve OCS Alerts .....	16
B. Data Quality and Stale Alerts Were Not Resolved Timely.....	18
C. Some OCS Quality Alerts Were Not Functioning as Designed or Failed to Trigger .....	19
D. Enumerators May Have Been Circumventing Alerts by Turning Off GPS Capabilities.....	20
E. The Bureau Did Not Conduct RIs as Planned .....	21
F. The Bureau Did Not Fully Conduct RI Quality Assurance Processes for Cases Completed by Enumerators Who Falsified Data or Violated Procedures.....	22
G. Enumerators Who Falsified Data or Violated Procedures Were Not Terminated in a Timely Manner, Continued to Work Cases, and Were Reassigned to Other Operations ...	24
H. Enumerator Falsifications or Errors May Have Negatively Impacted Data Quality .....	25
I. Enumerators Who Falsified Data or Violated Procedures Received Production Awards and Bonuses.....	26
<b>Proposed Actions</b> .....	<b>28</b>
<b>Conclusion</b> .....	<b>29</b>
<b>Summary of Agency Response and OIG Comments</b> .....	<b>30</b>
<b>Appendix: Agency Response</b> .....	<b>34</b>

*Cover: Herbert C. Hoover Building main entrance at 14th Street Northwest in Washington, DC. Completed in 1932, the building is named after the former Secretary of Commerce and 31st President of the United States.*

## Introduction

The U.S. Constitution mandates that a census of the population be conducted once every 10 years.<sup>1</sup> Data collected by the U.S. Census Bureau (Census Bureau or the Bureau) are used to determine the number of seats each state holds in Congress and how more than \$1.5 trillion in federal funds are distributed back to states and local communities every year for services and infrastructure, including health care, jobs, schools, roads, and businesses. The decennial census requires the largest nonmilitary mobilization of the American people and infrastructure conducted by the U.S. government. The majority of this work and the associated costs are related to three key areas of the census: determining where to count, providing an opportunity for the public to respond, and following up with those who do not return a census questionnaire. The Bureau implemented four innovations for the 2020 Census geared towards significant cost-saving opportunities by leveraging data and technology in new ways to increase efficiency (see figure 1).

**Figure 1. Census 2020 Key Innovation Areas**



Source: 2020 Census Detailed Operational Plan: 18. Nonresponse Followup Operation dated July 15, 2019

After nearly a decade of planning, the 2020 Census operation count began early operations in January 2020; self-response began in March 2020. Although nonresponse followup (NRFU) operations were scheduled to begin in May 2020, they were delayed until July 2020. Decennial census operations were originally planned for completion by July 2020, but the Bureau experienced significant delays due to the pandemic (see table 1).

**Table 1. 2020 Decennial Census Operational Timeline Adjustments During the Pandemic**

Operation Type	Schedule—Planned	Schedule—Revised
Remote Alaska	January 21–April 30	January 21–August 31
Island Areas	February 3–June 30	February 3–October 15
Self-Response Phase	March 12–July 31	March 12–October 15
Group Quarters	April 2–June 5	April 2–September 3
Field Offices at Peak Operations	March 1	Phased reopening occurred between May 4 and June 12
In-Person Group Quarters Enumeration	April 2–June 5	July 1–September 3

<sup>1</sup> U.S. Const. art 1, § 2, & amend. XIV, § 2.

Operation Type	Schedule—Planned	Schedule—Revised
NRFU	May 13 – July 31	July 16 – October 15
Service-Based Enumeration	March 30 – April 1	September 22–24
Targeted Non-sheltered Outdoor Locations	April 1	September 23–24
Enumeration of Transitory Locations	April 9–May 4	September 3–28

Source: Bureau data

As a result, NRFU operations were not completed until October 15, 2020, which delayed post-data collection processing and the release of apportionment and redistricting data. According to the original schedule, the apportionment count and the redistricting data were due for release on December 31, 2020, and March 31, 2021, respectively. However, because of delays related mainly to the pandemic, the actual dates of those releases were April 26, 2021, for the apportionment count and August 12, 2021, and September 16, 2021, for the redistricting data.<sup>2</sup>

As required of all federal agencies, the Bureau established a Continuity of Operations Planning (COOP) plan in July 2017 to provide procedures and capabilities to sustain the Bureau's mission-essential functions at an alternate site for up to 30 days before returning to normal operations. The COOP addressed high-level responses to an influenza pandemic. Early in 2020, the Bureau began tracking the COVID-19 outbreak and subsequently adjusted operations to protect the health and safety of the American public and Census employees.<sup>3</sup> In March 2020, the Bureau established its COVID-19 Internal Task Force, which was charged with continuously monitoring the COVID-19 situation and updating the COOP while implementing the mandated pandemic guidance from federal, state, and local authorities in multiple phases. On October 1, 2020, after a majority of the field data collection had been completed, the Bureau issued its *Pandemic Addendum* to address plans and procedures to continue the performance of identified essential functions and operations in the event of a pandemic crisis.

## Why We Did This Review

In response to the pandemic, the Bureau made a series of late changes to the design of the census. These changes affected the way the Bureau did its work as well as the time it took to do the work. The changes introduced risks to the quality of data that the Bureau provides for Congressional apportionment and redistricting purposes. Furthermore, the data shape communities across the country for the next 10 years because the data are key to the

<sup>2</sup> The Bureau released the *2020 Census Public Law 94.171 Redistricting Data File* on August 12, 2021, in the legacy format, which begins the official redistricting process at the state and local levels. On September 16, 2021, the Bureau released the redistricting data summary file to the public in easier-to-use formats. *Apportionment* refers to the process of dividing the 435 memberships, or seats, in the U.S. House of Representatives among the 50 states. The Bureau released apportionment data on August 26, 2021, which are used to calculate the number of seats to which each state is entitled.

<sup>3</sup> The Bureau suspended field operations in March 2020 for two successive 2-week periods and, in April 2020, extended this suspension to a total of 3 months for NRFU.

appropriation of hundreds of billions of dollars in federal funds every year to local communities, as well as to the decision making of local governments, businesses, and nonprofits who need accurate data to carry out their activities.

We raised several concerns regarding the adequacy of the Bureau's quality control processes to ensure the data collected during the 2020 Census count were complete and accurate. For example, our work has expressed concerns over the quality of data collected during the NRFU operation—including not fully testing NRFU reinterview (RI) procedures, accelerating the NRFU schedule, and instituting a monetary awards program for enumerators based on the quantity of cases completed per hour and number of hours spent working, regardless of whether the work was completed accurately. During our observation process, we reviewed and summarized prior report findings and updated information from our prior reports in each of the areas in data quality to determine what actions the Bureau took in addressing these areas. We also conducted additional work to review the adequacy of the Bureau's quality control processes to ensure the data collected during the 2020 Census count were complete and accurate.

This report (1) discusses challenges the Bureau faced related to the quality and accuracy of the data collected during its 2020 Census NRFU<sup>4</sup> operations; and (2) offers lessons learned to help the Bureau as it prepares for the 2030 Census.<sup>5</sup> Delays to census data collection operations as a result of COVID-19, the resulting compressed time frames, and public health concerns affected the quality of the data collected as part of the 2020 Census.

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<sup>4</sup> NRFU operation serves two primary purposes: to determine housing unit (HU) status for nonresponding addresses and enumerate HUs for which a 2020 Census response was not received. NRFU is the largest field operation of the 2020 Census. Because the focus of the operation is HUs that did not self-respond, including hard-to-count communities, NRFU can be at increased risk for data quality concerns. During the 2020 Census, 67 percent of HUs self-responded and 33 percent were included in the NRFU universe.

<sup>5</sup> We issued the draft version of this report to the Census Bureau on May 4, 2022, with the title *Data Quality Challenges Facing the U.S. Census Bureau as It Plans for the 2030 Decennial Census*.



## Lesson 1: Students Were Likely Undercounted at Off-Campus Addresses Despite Outreach Efforts

The Bureau's plans for enumerating college students were significantly affected by COVID-19, as many colleges and universities ceased in-person instruction in spring 2020. According to the Bureau's guidance, college students should have been counted where they lived and stayed most of the time—i.e., at their college or university—even if they were home on April 1, 2020. However, we reported<sup>6</sup> that the Bureau may not have accurately counted college and university students living off campus. Specifically, we found that (1) the Bureau had been undercounting off-campus student households, (2) the Bureau's efforts to collect data on off-campus students from college and university administrators would not mitigate the risk of an inaccurate count because the Bureau did not have a final plan in place to use these off-campus student data, and (3) any finalized plans will need to consider the completeness and usability of off-campus student data.

Because of the concerns raised in our management alert, we conducted a limited follow-up review to evaluate the Bureau's college outreach effort to enumerate off-campus students. Based on our follow-up work, we found the following issues:

- Most colleges and universities contacted did not provide off-campus student data in response to Bureau outreach.
- Within the college outreach program, the Bureau imputed the population count for more than 10 percent of off-campus housing units (HUs) identified in the data provided by colleges and universities.<sup>7</sup>

As a result, the Bureau's college outreach effort had limited impact on the final enumeration of off-campus college students. Although difficult to quantify, the fiscal implication of specifically undercounting off-campus students at the correct location for states and localities is potentially far-reaching. Census data are used to distribute federal funds in several ways, among which are (1) defining eligibility criteria to identify which organizations or individuals can receive funds and (2) using formulas that geographically allocate funds among eligible recipients across the nation. Several federal spending programs use per capita income data to allocate funds, including Medicaid and other Federal Medical Assistance Percentages programs. A population undercount potentially increases a state's per capita income, which in turn leads to lower federal reimbursement of expenses. Undercounting college and university students also potentially affects whether a city qualifies for Metropolitan Statistical Area designation (50,000 residents or

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<sup>6</sup> U.S. Department of Commerce Office of Inspector General, August 27, 2020. *2020 Census Alert: The Census Bureau May Not Accurately Count College and University Students Living Off-Campus During the 2020 Census*, OIG-20-044-M. Washington, DC: DOC OIG.

<sup>7</sup> As a last resort, the Bureau uses imputation to enumerate households when it cannot (1) get a direct response from a household, (2) use administrative records to count the household, or (3) obtain a proxy response for the household. *Count imputation* is a statistical method whereby the Bureau indicates whether an address is occupied and how many people live there. To fill in missing information, the Bureau groups every address based on information from the address list, data census takers have gathered in the field, and other sources. For addresses that are missing information, the Bureau copies data from its nearest neighbor in the same group.

more), which is related to federal funding levels. For example, college and university towns whose student populations are undercounted during the decennial census might fall below the 50,000 population threshold, leading to a loss of funding under the Community Development Block Grant program administered by the U.S. Department of Housing and Urban Development.

### A. Most Colleges and Universities Contacted Did Not Provide Off-Campus Student Data in Response to Bureau Outreach

Only 43 percent of colleges and universities that the Bureau identified as sources of off-campus student data provided records to the Bureau, and only half of the institutions that the Bureau identified as priority respondents based on the potential for undercounting students did so.<sup>8</sup> Of the 1,400 colleges and universities that the Bureau identified as sources of off-campus student data, the Bureau succeeded in contacting 1,300—and of these, 700 agreed to participate and 550 declined to participate (see table 2).<sup>9</sup> Of those 700 colleges and universities that agreed to participate, 100 did not provide off-campus student records.

**Table 2. Final Results of Census Solicitation of Off-Campus Student Records<sup>a</sup>**

Disposition of Off-Campus Universe	Number of Colleges and Universities	Percent of Total
Total Universe	1,400	100%
Not Contacted <sup>b</sup>	100	7%
Contacted	1,300	93%
Agreed to Participate	700	50%
Provided Off-Campus Records	600	43%
Declined to Participate	550	39%

Source: Census Bureau

<sup>a</sup> Disclosure avoidance techniques used to protect respondent confidentiality have been applied to these data per Bureau guidance. Totals may not sum due to rounding.

<sup>b</sup> *Not Contacted* means the Bureau exhausted all contact attempts to the college or university and was unable to speak with a knowledgeable person.

If a college or university declined to participate, Bureau representatives noted in the census control system the reason cited by the college or university by selecting a reason from a drop-down menu. See table 3 for the list of reasons provided by colleges and universities for declining to participate.

<sup>8</sup> The Bureau identified priority respondents as colleges or universities located in early NRFU areas that had more than 5,000 HUs and had the greatest difference between the NRFU area response rates and early NRFU area response rates at the beginning of May 2020. Of the 60 priority respondents identified, only 30 responded.

<sup>9</sup> Disclosure avoidance techniques used to protect respondent confidentiality have been applied to these data per Bureau guidance. Totals may not sum due to rounding.

**Table 3. Reasons Colleges and Universities Did Not Participate in Off-Campus Student Records Outreach<sup>a</sup>**

Reason for Not Participating	Number of Colleges and Universities	Percent of Total
Address List Not Available <sup>b</sup>	150	26.8%
Never Responded <sup>c</sup>	100	17.9%
No Students Live Off Campus	80	14.3%
Privacy Concerns <sup>d</sup>	50	8.9%
Commuter College	30	5.4%
Contact Person Too Busy/Doesn't Have Time	30	5.4%
Facility Contact Cannot Comply Due to Legal Restrictions/Company Policy	30	5.4%
Declined Without Providing a Reason	20	3.6%
Not Interested/Does Not Want to Be Bothered	20	3.6%
School Not Operating/Out of Business	10	1.8%
Other	10	1.8%
<b>Total</b>	<b>550</b>	<b>100.0%</b>

Source: Census Bureau

- <sup>a</sup> Disclosure avoidance techniques used to protect respondent confidentiality have been applied to these data per Bureau guidance. Totals and percentages may not sum due to rounding.
- <sup>b</sup> *Address List Not Available* means that the college or university did not maintain information about the local addresses for the off-campus students.
- <sup>c</sup> *Never Responded* means that while Bureau representatives reached a knowledgeable person, they were unable to get a response about participating.
- <sup>d</sup> The Family Educational Rights and Privacy Act (20 U.S.C. § 1232g; 34 C.F.R. Part 99) is a federal law that protects the privacy of student education records. The law applies to all colleges and universities that receive funds under an applicable program of the U.S. Department of Education. Generally, colleges and universities must have written permission from the parent or eligible student to release any information from a student's education record. However, unless a student opts out, colleges and universities may disclose "directory" information such as a student's name, address, telephone number, date and place of birth, honors and awards, and dates of attendance. Colleges and universities must tell parents and eligible students about directory information and allow parents and eligible students to request that the college or university not disclose directory information about them.

We found noteworthy omissions from the colleges and universities that submitted information and significant gaps in the data elements provided. For example, data provided by colleges and universities in 20 states did not contain records for the flagship state university, data provided by colleges and universities in 10 states did not contain records for the state university system, and colleges and universities in several states did not provide any data at all. Further, only 72 percent of the student records provided contained a local

address, and only 52 percent contained the date of birth necessary for the person-name matching that is required to identify duplicate responses for the alternative address.<sup>10</sup>

## B. Within the College Outreach Program, the Bureau Imputed the Population Count for More Than 10 Percent of Off-Campus HUs Identified in the Data Provided by Colleges and Universities

The Bureau developed a plan to integrate off-campus data with administrative records to enumerate nonresponding off-campus college and university households during the 2020 Census postprocessing operation. Under this plan, the Bureau developed four scenarios. It would use administrative records, data supplied by the colleges and universities, or a combination of both to enumerate the HU for which data were provided. If the Bureau could not enumerate an HU identified in the data based on these three scenarios, it would use count imputation to enumerate it.

The Bureau reviewed the 600 files submitted by colleges and universities and determined that 50 submissions could not be processed because of insufficient addresses or demographic data or the submissions were received after the processing deadline. As a result, the Bureau processed 600<sup>11</sup> files containing 2,891,000 student records. Because only 12 percent of student records contained both a local address and an alternative address, the Bureau determined that it could not use the data provided by colleges and universities to identify duplication between the local address and the alternative address and decided to use alternative methods. This is important because, given that students were sent home due to the pandemic, the Bureau used existing methods rather than the college outreach data to identify instances when students were counted at both the college or university address and the HU where the student resided once the college or university closed.

As noted in table 4, of the HUs for which (1) the Bureau received data from colleges and universities and (2) the data were sufficient for processing, 83 percent were enumerated by other means. However, 13.1 percent required imputation. According to the Bureau, the best information about a household comes from the household itself. When the Bureau cannot get a response directly from the address, it uses count imputation as a last resort. According to the Bureau, count imputation is less accurate than direct responses and thereby of lower quality. The Bureau recognizes that using information from imputation may not always match the reality of an address's occupancy status or the characteristics of the people who live there.

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<sup>10</sup> Duplication of student data can occur if the student is reported on the parent's census questionnaire or if the student self-responded using the parent's address. Person-name matching is performed with data from other completed census questionnaires. This process uses the student's name, date of birth, age, and sex to make a match (i.e., the same person at different addresses). If there is a match, the student will be removed from the parent's address and will be enumerated at the college or university address. If there is no match, then the Bureau will count the student at the parent's home.

<sup>11</sup> Disclosure avoidance techniques used to protect respondent confidentiality have been applied to these data per Bureau guidance. Totals may not sum due to rounding.

**Table 4. Final Enumeration Based on Off-Campus Student Records<sup>a</sup>**

Final Enumeration Method	HUs (Percent)	Population (Percent)
Resolved by Other Means <sup>b</sup>	238,000 (83.1%)	745,000 (86.8%)
All Scenarios <sup>c</sup>	11,000 (3.8%)	26,000 (3.0%)
Imputed	37,500 (13.1%)	87,000 (10.1%)
<b>Total</b>	<b>286,500 (100.0%)</b>	<b>858,000 (100.0%)</b>

Source: Office of Inspector General (OIG) analysis of Bureau data

- <sup>a</sup> Disclosure avoidance techniques used to protect respondent confidentiality have been applied to these data per Bureau guidance. Totals and percentages may not sum due to rounding.
- <sup>b</sup> *Resolved by Other Means* includes late self-response, enumeration during NRFU, and enumeration through administrative records.
- <sup>c</sup> *All Scenarios* include the Bureau's four plans to use administrative records, data supplied by the colleges and universities, a combination of both, or count imputation.

## Proposed Actions

To improve the enumeration of off-campus students despite disruption or cancellation of the early NRFU operation, the Bureau should endeavor to ensure that legislation is passed, notwithstanding the Family Educational Rights and Privacy Act, to allow institutions of higher learning to provide information requested on the official 2030 census of population form as proposed in H.R. 6800, The Heroes Act. In the absence of such legislation, the Bureau cannot be assured that colleges and universities will provide the required data. This runs the risk of perpetuating the confusion of off-campus students being counted at their home addresses instead of their college or university addresses.

## Lesson 2: A Significant Number of NRFU Enumerations Were Completed Using a Proxy

The largest field operation of the 2020 Census in terms of staffing was NRFU, which lasted from July 16, 2020, to October 29, 2020.<sup>12</sup> In this operation, enumerators went door-to-door to residential addresses to enumerate households that did not self-respond via the Internet, postal mail, or telephone. Of the approximately 151 million possible households, approximately 46 million did not respond, thus constituting the initial NRFU universe. During NRFU operations, 21 million households—comprised of 7.4 million occupied and 13.3 million unoccupied—were enumerated by proxy.<sup>13</sup>

Regardless of the number of contact attempts the 2020 Census NRFU design permits, enumerators will confront the problem of not being able to contact the residents at some addresses. The Bureau's strategy to verify HUs that were vacant or did not exist as HUs at this point was to use enumerator observations or proxy responses.<sup>14</sup> The Bureau considers data collected by enumerators in interviews with households as higher quality on average than information gathered from a proxy for occupied HUs. Enumerators worked nationwide and were managed locally by 248 Area Census Offices (ACOs) and 6 Regional Census Centers (RCCs).<sup>15</sup> Although the average ACO proxy rate for occupied housing was 30 percent of NRFU interviews, we identified 6 ACOs within each of the 6 census regions with significantly higher than average proxy rates for occupied housing. Table 5 shows NRFU case data and proxy rates for all cases in these six ACOs.

Proxy data for occupied households help the Bureau create a more accurate count and are better than having no data at all. However, while proxy respondents can provide enough information to close a case, the obtained data may be less complete than the data collected from household respondents. For example, the 2010 Census Coverage Measurement results show that 23.1 percent of census person records enumerated by proxy respondents needed to have all of their demographic characteristics imputed, as compared to only 1.6 percent of person records when the respondent was a household member. Our work found 27 percent (153,000 of 574,000) of proxy interviews in these six ACOs were conducted with someone other than a neighbor, landlord, or relative of a household member. A neighbor or landlord may know more about the household demographics than other proxy respondents, such as a real estate agent or utility worker. Proxy information collected from a less knowledgeable

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<sup>12</sup> Area Census Offices opened in stages starting on July 16, 2020, and continued through August 9, 2020. Data collection ended on October 15, 2020, but the National Processing Center continued adjudicating RI cases in-office until October 29, 2020.

<sup>13</sup> NRFU operations in 2010 were comprised of 47.2 million households, 24.4 million of which were enumerated via proxy.

<sup>14</sup> The Bureau uses proxy responses—information from a neighbor or other knowledgeable person, like a landlord or building manager—to collect data on a household when a resident of the household is not available or cannot be found during the NRFU operation.

<sup>15</sup> The RCCs were located in Atlanta, Chicago, Dallas, Los Angeles, New York City, and Philadelphia.

source could result in partially completed, conflicting, or inaccurate household information that would require imputation.

**Table 5. NRFU Cases Data and Proxy Rates for Six ACOs<sup>a, b</sup>**

ACO Number and Name	Total NRFU Cases	Total Proxy Interviews	Total Proxy Percentage Rate	Proxy Cases Selected for RI	Proxy Cases RI Completed	Proxy RI Completed Percentage Rate <sup>c</sup>
2281 Manhattan 2	189,000	134,000	71%	12,500	8,400	6%
2377 Pittsburgh	148,000	74,500	50%	3,500	2,600	3%
2559 Chicago Central	180,000	107,000	59%	5,400	3,400	3%
2910 Atlanta	173,000	88,500	51%	6,100	4,300	5%
3171 Austin	189,000	101,000	53%	8,500	7,500	7%
3295 Seattle	138,000	70,000	51%	4,400	3,400	5%
<b>Total</b>	<b>1,017,000</b>	<b>574,000</b>	<b>56%</b>	<b>40,000</b>	<b>29,500</b>	<b>5%</b>

Source: OIG analysis of case-level data for six ACOs; Bureau data

<sup>a</sup> These data exclude 10,000 cases that did not have a corresponding enumerator identification number.

<sup>b</sup> Disclosure avoidance techniques used to protect respondent confidentiality have been applied to these data per Bureau guidance. Totals and percentages may not sum due to rounding.

<sup>c</sup> The NRFU RI program was designed to select approximately 5 percent of NRFU RI-eligible cases.

### Reliable Administrative Records Were Not Available to Supplement Proxy Interviews with Characteristic Data

The Bureau used administrative records from sources such as Medicare enrollment data, individual tax return data, and prior census responses to provide count and/or demographic characteristic information for nonresponsive households. However, preliminary Bureau data showed that less than 10 percent of persons associated with cases enumerated via proxy interviews in the six ACOs that we reviewed could be linked to administrative records. The lack of corroborating source information introduces a data quality risk because the cases would then require imputation with data that is not as accurate as data from household and proxy responses.

According to the Bureau, NRFU cases underwent separate count and characteristic imputation during post-response processing if needed. Count imputation<sup>16</sup>—which was carried out in February and March 2021—assigned (1) final status for households (i.e., occupied, vacant, or nonexistent) that were unresolved in the field and (2) population counts to records that were deemed occupied, but did not have a specified number of occupants. It was used in the process that resulted in the apportionment counts that determined the total U.S. population, the results of which were released on April 26, 2021. Administrative records were also used for NRFU responses to impute missing, inconsistent, or nonvalid characteristic data, such as race, ethnicity, and birthdate. Characteristic imputation occurred between April and June 2021 and was used in the process to develop the redistricting data that were released on August 12 and September 16, 2021.

Relatively few persons enumerated via proxy interviews in these six ACOs had missing characteristics that were imputed using administrative records. Instead, the vast majority had those data imputed from donor households<sup>17</sup> with similar characteristics, such as neighbors from the surrounding areas. According to a senior Bureau official, the best information for a household comes from a household member. Therefore, characteristic data imputed for persons are not as accurate as data from household interviews but are more accurate than having no data at all. After the 2010 Census, the Bureau reported in its coverage measurement estimation report that out of 16.3 million persons enumerated via proxy, 70.1 percent of cases were correctly enumerated compared to the 93.4 percent accuracy rate for household member self-responses.

## Proposed Actions

The quality of proxy response may vary depending upon the respondent, so it is important for the Bureau to conduct research to identify further means to validate proxy information. Additionally, the Bureau should explore the viability of expanding the use of administrative records after validating their reliability. Improving the quality of administrative records may help improve the accuracy of the count—especially in areas that are typically hard to count—and support the efficiency and cost effectiveness of the census data collection efforts.

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<sup>16</sup> The least desirable information comes when the Bureau has no information or only partial information about a household and fills in the remaining details using count and characteristic imputation (statistical techniques by which the Bureau estimates the number and characteristics of people living at the address in question).

<sup>17</sup> If all of the characteristics are missing for every person in a household, the Bureau would look to prior survey or census responses and other existing records. If those are unusable, the Bureau would then impute the information by copying data from similar nearby or ‘donor’ households.



## Lesson 3: The Bureau's Improper Execution of Its QA Plan May Have Adversely Affected Data Quality

The 2020 Census streamlined the NRFU field operation and management structure by using automation for increased efficiency.<sup>18</sup> To ensure NRFU data quality, the Bureau developed the *2020 Census Quality Assurance Plan (QA Plan)*. The objective of the *QA Plan* was to ensure NRFU enumerators<sup>19</sup> understood and followed operational procedures. Enumerators who do not understand or follow procedures—whether intentionally or not—can have a direct and negative impact on HU data accuracy. According to the Bureau's *NRFU QA Plan*,<sup>20</sup> quality assurance was composed of three different areas:

- enumerator post-training assessments and observations,
- Operational Control System (OCS)<sup>21</sup> performance alerts to detect anomalous enumerator behavior, and
- quality control of an enumerator's work through a case RI program for production, manager visit, and field verification cases.<sup>22</sup>

### OCS Alerts

OCS alerts allow census field supervisors (CFSs) to monitor enumerator behavior based on individual actions or in comparison to other enumerators. The following nine alerts are related to quality assurance:

- **High POP I rate** – the employee has a high rate of cases with a population count of I compared to their peers.
- **High attempts per hour** – the employee has made a high number of attempts per hour over the last 7 days compared to their peers.
- **High completed case rate** – the employee has a high rate of completed cases compared to their peers.

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<sup>18</sup> Enumerators used mobile devices to receive assignments and collect census data, allowing for near real-time case status updates and transmission of response data.

<sup>19</sup> The enumerator's key responsibilities include making contact attempts at nonresponding HUs and, if contacts are successful, collecting interviews using an automated data collection instrument.

<sup>20</sup> U.S. Census Bureau, November 6, 2019. *2020 Census: Revised Quality Assurance Plan for the Nonresponse Followup Operation*. Suitland, MD: Census Bureau. Available online at [https://www2.census.gov/programs-surveys/decennial/2020/program-management/planning-docs/NRFU-detailed-operational-plan\\_v20.pdf](https://www2.census.gov/programs-surveys/decennial/2020/program-management/planning-docs/NRFU-detailed-operational-plan_v20.pdf) (accessed February 14, 2022).

<sup>21</sup> A system used by field staff to navigate to and between assigned field work locations (i.e., case locations for enumeration and block locations for listing). The system uses computational models and standard deviations for providing certain alerts.

<sup>22</sup> For the purpose of this lessons-learned report, we focused on the NRFU RI program for production cases.

- **High refusal rate** – the employee has a high rate of attempts resulting in refusals compared to their peers.
- **Long distance** – work was completed too far away (approximately 5,000 feet or more) from the assignment location.
- **No proxy attempt** – the employee has worked two or more proxy-eligible cases in a day where no proxy attempts were made after receiving a prompt from OCS.
- **Short interview** – the employee conducted a complete or partial interview in less than 2 minutes.
- **Unconfirmed delete** – the employee indicated a deletion of an address from the census address list by observation that was not confirmed within the next two attempts.
- **Unconfirmed vacancy** – the employee indicated a vacancy by observation that was not confirmed within the next two attempts.

## RI

One of the most important parts of quality assurance is conducting RIs of completed enumerator interviews. The RI program is conducted concurrently with the NRFU production operation.<sup>23</sup> A sample of NRFU cases is selected to verify that the enumerator conducted the interview and followed procedures. The NRFU RI program was designed to select approximately 5 percent of NRFU RI-eligible cases<sup>24</sup> through the following sampling methods:

- **Random** – cases selected through a random sample for each enumerator to ensure all enumerators have at least one of their cases processed through RI.
- **Analytic** – cases selected based on statistical calculations and case paradata;<sup>25</sup> enumerators whose work differs from others are flagged.
- **Supplemental** – cases selected by the National Processing Center (NPC) and RCC clerical staff if the enumerator was suspected of not following procedures.
- **Rework** – all of an enumerator's eligible cases were reworked if the RCC clerical staff determined the enumerator falsified information or intentionally violated procedures.

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<sup>23</sup> According to the *QA Plan*, RI was scheduled to begin April 10, 2020, (1 day after the start of early NRFU) and end July 31, 2020 (7 days after the end of NRFU). However, due to the delays caused by the pandemic, NRFU operations were conducted from July 16, 2020, through October 15, 2020. RI fieldwork did not continue 7 days after the end of NRFU, so some RI cases were selected but never validated in the field.

<sup>24</sup> Cases that are eligible for RI are cases that are complete and have not been verified by any other means. Rework of eligible cases ended at the conclusion of NRFU on October 15, 2020, while the clerical matching continued through October 29, 2020, and final hard fail determinations concluded on October 29, 2020.

<sup>25</sup> Paradata is a term used to describe data generated as a by-product of the data collection process—for example, contact attempt history records during NRFU operations. See Census Bureau, "Paradata," November 22, 2021 [online]. <https://www.census.gov/topics/research/paradata.html> (accessed March 14, 2022).

Once a case is selected for RI, it is assigned to an enumerator who did not complete the original interview. The Sampling, Matching, Review, and Coding System (SMaRCS)<sup>26</sup> compares the data collected during the RI to the data collected during the original interview and assigns one of the following computer matching (CM) outcome codes:

- **PASS** – RI case passes the CM criteria and original data are verified with no suspicion of falsification; the case is flagged as “Finished.”
- **DEFER** – original data cannot be verified by CM; the case proceeds to clerical matching at NPC.
- **RI Noninterview (RINI)** – the RI is a noninterview; the case is flagged as “Finished” and not deferred to clerical matching.

The goal of NPC clerks during the clerical review stage is to review the deferred cases based on predetermined guidelines and to assign an outcome code to each case. During this phase, the following clerical review outcome codes can be assigned:

- **PASS** – the case passes the clerical review; original data are verified with no suspicion of falsification.
- **Hard Fail Recommendation (HFR)** – the NPC clerk’s supervisor determines that the case shows deliberate falsification or intentional violation of procedures by the enumerator.
- **FAIL** – review of the interview indicates a problem with the data where original data cannot be verified or unintentional violation of procedures by the enumerator occurred; there is no sign of deliberate falsification.
- **RELIEF** – the SMaRCS will automatically set this outcome to close out cases when there is not enough time to complete the investigation process.

If an enumerator receives more than two fail codes, the RCC staff is notified and coordinates with the enumerator’s CFS and Census Field Manager (CFM) to ensure that appropriate procedures take place to correct the enumerator’s actions. Should the enumerator’s fail count continue to increase after the CFS has followed up with them, the RCC will conduct an investigation and review the enumerator’s entire body of work. Using SMaRCS, the RCC can decide to assign a Performance Fail (PFAIL) code to enumerators who received six or more fails, which will place a “stop work” flag preventing further cases from being assigned to that enumerator. The enumerator’s entire eligible workload that has not already been selected for RI will be placed in Rework RI.

If the NPC clerk determines a case has been falsified, the case receives an HFR. SMaRCS forwards all HFRs to the RCC for further review and adjudication. This is the last review stage

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<sup>26</sup> SMaRCS supports quality control activities designed to determine whether enumerators are using validated procedures and collecting accurate data by providing a mechanism for selecting quality control samples and validating production interview data against administrative records sources. SMaRCS provides a tool for clerical matching to compare the production interview data against RI data and track the progress of the RI work through the matching, field, and resolution processes.

for the case, and all outcome codes assigned are considered final. RCC review outcome codes are as follows:

- **PASS** – the case passes the RCC’s review.
- **HARD FAIL** – the RCC determines that the case shows deliberate falsification or intentional violation of procedures by the enumerator.
- **FAIL** – the RCC determines a problem with the data where original data cannot be verified or unintentional violation of procedures by the enumerator occurred; there is no sign of deliberate falsification.

In addition to setting RI case outcomes, the RCC manager may assign a “Non-RI Fail” code to an enumerator suspected of falsification for reasons other than RI results. For example, the production staff may determine falsification outside of the RI process if the CFS observes an enumerator repeatedly using proxies incorrectly to complete cases. The assignment of the “Non-RI Fail” code mandates the same hard fail procedures be followed for removal of case assignments and Rework RI selections.

### *Bureau Data Quality Assessment*

Each decade, the Bureau conducts extensive evaluations and assessments<sup>27</sup> to gauge the quality of the census and releases a variety of data quality metrics. Given the unique challenges of the pandemic, the Bureau released a number of data quality indicators along with the results of the 2020 Census for the first time.<sup>28</sup> The Bureau’s other efforts to assess the quality of the census are (1) comparing census results to other population totals such as Demographic Analysis (DA)<sup>29</sup> and *Post-Enumeration Survey (PES)*<sup>30</sup> and engaging external experts to evaluate data quality.<sup>31</sup> The *PES* was originally scheduled to end in June 2021, but first results were delayed

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<sup>27</sup> The operational assessments will document how well the 2020 Census was conducted, examining and providing metrics about each operation. The evaluations will analyze, interpret, and synthesize the effectiveness of census components and their impact on data quality, coverage, or both.

<sup>28</sup> On April 26, 2021, the Bureau released operational metrics that compared the census results to the 2020 Demographic Analysis, prior censuses, and population estimates from the Bureau’s Population Estimates Program. These metrics included information on self-response, NRFU (including household interviews, proxy interviews, and administrative records enumerations), count imputations, and metrics on addresses that are resolved as occupied, vacant, or delete.

<sup>29</sup> The 2020 DA was released on December 15, 2020, and provides a range of estimates for the nation’s population as of April 1, 2020. Instead of collecting responses from households like the 2020 Census, DA uses current and historical vital statistics records and other data to estimate the size of the U.S. population. By releasing these estimates ahead of the first results from the 2020 Census, DA offers an independent measure of the population for comparison with the official census counts.

<sup>30</sup> The *PES* measures the accuracy of the census by independently surveying a sample of the population. The survey estimates how many people and HUs were missed or counted erroneously in the census. As a result of the pandemic, the Bureau adjusted the start date and length of operations. The *PES* began on November 29, 2021, and continued through March 2022 as part of the final in-person collection operations. The first results from the *PES* were released on March 10, 2022, and additional results were released on May 19, 2022.

<sup>31</sup> The Bureau engaged the National Academy of Sciences Committee on National Statistics, American Statistical Association Quality Indicators Task Force, and JASON (an independent scientific advisory group supported by The MITRE Corporation) to conduct independent assessments of the 2020 Census.

and released on March 10, 2022. The further away from census day an actual *PES* interview takes place, the higher the risk for nonsampling errors. This is because recall error increases and changes such as moves, deaths, and births may not be accurately captured, which impact the quality of data collected.

Our office issued alert memorandums related to the resolution of OCS alerts<sup>32</sup> and the RI operation.<sup>33</sup> At the time the alerts were issued, we determined that OCS alerts were not being properly resolved and the NRFU RI operation was incomplete. Since OCS alerts and RI are components of the *QA Plan*, we conducted additional work in these areas. Results of this additional testing concluded that OCS alerts were not properly resolved and—due to RI not being properly conducted—work conducted by enumerators who falsified data was not reworked to ensure data accuracy. We observed anomalies with certain quality alerts potentially not triggering correctly or failing to trigger altogether during NRFU operations. We also identified instances when enumerators who were assigned a “fail” for one or more of their completed cases continued to receive additional cases to work and, in some instances, were not properly terminated and were reassigned to other operations, such as the *PES*.

### A. CFSs Did Not Adequately Research or Resolve OCS Alerts

OCS alerts are designed to detect and deter enumerator errors and data falsification during data collection. To achieve the goal of the *QA Plan*, alerts that are triggered by enumerators must be researched and resolved by CFSs within 3 days<sup>34</sup> to identify enumerators who may not be following enumeration procedures or may be falsifying data—both of which can negatively impact the quality of data collected. During the NRFU operation, more than 6 million alerts were sent to CFSs. Each alert requires the CFS to take action and then record how the alert was resolved as prescribed by the *2020 NRFU CFS Training Plan*.

We reviewed the case notes for a statistically selected sample of 68 NRFU cases<sup>35</sup> from a universe of 6,542,000 NRFU OCS alerts related to data quality to determine if alerts were resolved in accordance with the OCS alert resolution process as prescribed in the *2020 NRFU CFS Training Plan*. Results of alert resolution testing revealed CFSs did not adequately research or resolve alerts, thereby allowing enumerators to continue making errors or falsifying data. At least 96 percent<sup>36</sup> of alerts (65 of 68 cases) tested did not include the enumerator’s explanation for the reason the alert was triggered or the CFS’

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<sup>32</sup> DOC OIG, September 17, 2020. *2020 Census Alert: Delays to Resolving Alerts Limit the Bureau’s Ability to Maintain or Improve the Quality of 2020 Census Data*, OIG-20-048-M. Washington, DC: DOC OIG.

<sup>33</sup> DOC OIG, December 28, 2020. *2020 Census Alert: Inability to Finish Nonresponse Followup RIs Raises Concerns Over the Quality of More Than 500,000 Cases*, OIG-21-015-M. Washington, DC: DOC OIG.

<sup>34</sup> Alerts not resolved within 3 calendar days by a CFS are escalated to the CFM as a stale alert. The stale alert will always be linked to an original CFS alert that is unresolved.

<sup>35</sup> We selected a statistical sample of 68 data quality alerts to produce estimates at a 90 percent confidence level and a margin of error no greater than + or – 10 percentage points.

<sup>36</sup> Based on a 90 percent confidence level, we estimate that between 91.4 percent and 99.8 percent of OCS data quality alerts did not include required information. When applied to the NRFU alert population universe, this indicates that between 5,980,000 and 6,529,000 cases that triggered alerts may not have been properly resolved in accordance with the OCS alert resolution process as prescribed in the *2020 NRFU CFS Training Plan*.

actions taken to resolve the alert. The CFS' statements in the OCS case notes are a critical quality control measure, as they allow the Bureau to assess whether the CFSs took the appropriate actions in adjudicating and resolving alerts.

According to available information included in OCS case notes, CFSs did not provide any further justification or details on how an alert was resolved. Examples of case notes used by CFSs to resolve an alert include single statements such as “resolved,” “error,” “fixed,” and also the use of special characters or emojis. In one case tested, the CFS noted “done from car” to resolve a long-distance alert. One of the functions of the long-distance alert is to prevent enumerators from *curbstoning*.<sup>37</sup> According to Bureau officials, the application was developed to capture response data even in a disconnected state. If enumerators had issues, they could conduct interviews while the mobile device was in airplane mode. Given that functionality, enumerators were not provided guidance on collecting interviews without a connected device, nor were they trained to write down personally identifiable information instead of capturing information on the device to be updated later at another location. See table 6 for an analysis of the OCS case notes that contained three words or fewer.

**Table 6. OCS Alerts Case Notes Word Count Analysis<sup>a</sup>**

OCS Case Note Word Count	OCS Alerts (All Categories)		Data Quality Alerts	
	Count	Percent <sup>b</sup>	Count	Percent <sup>b</sup>
Universe of Alerts	10,240,000	100%	6,542,000	100%
Zero Words	1,200	< 1%	< 15	< 1%
One to Three Words	3,202,000	31%	1,836,000	28%
One Word	1,110,000	11%	573,000	9%
Two Words	1,070,000	10%	677,000	10%
Three Words	1,022,000	10%	586,000	9%

Source: OIG analysis of Bureau data

<sup>a</sup> Disclosure avoidance techniques used to protect respondent confidentiality have been applied to these data per Bureau guidance.

<sup>b</sup> Percentage of count over total universe of alerts.

The Bureau developed the *QA Plan* to ensure that enumerators understand and follow appropriate procedures. Enumerators failing to understand and follow procedures—whether by accident or intentionally—can negatively impact the quality of household data collected. It is the CFS' responsibility to provide oversight to ensure enumerator compliance with these procedures, but because CFSs did not follow established protocols when resolving alerts, the Bureau cannot assess whether alerts functioned as a deterrent to enumerator errors and falsification.

Further compounding the problem of CFSs not properly resolving alerts, the CFMs, who supervise CFSs, were not monitoring the notes to ensure alerts were properly resolved.

<sup>37</sup> *Curbstoning* is a census euphemism for fabrication. Enumerators could conceivably sit at the curb and fabricate data instead of properly conducting a personal household interview.

With no oversight of this process, improperly resolved alerts can result in continued unfavorable enumerator behavior.

## B. Data Quality and Stale Alerts Were Not Resolved Timely

The Bureau provided data-driven tools to assist CFSs with the management of enumerators during the NRFU operation. One of these tools is the system of OCS-generated alerts that notify CFSs and CFMs in real time of situations or performance issues that require immediate attention. With the use of mobile devices, CFSs are able to work remotely and easily communicate with their staff. Once an alert is triggered by the system, it is sent to the CFS to resolve with the enumerator. CFSs and CFMs use these alerts to monitor, track, and report on enumerator progress and performance during NRFU. Alerts are important because they notify supervisors of enumerators not following procedures. According to the Bureau's policy, CFSs should resolve alerts immediately. If unresolved by a CFS within 3 days, some alerts that indicate data quality or enumerator efficiency<sup>38</sup> issues would generate a secondary alert, called a "stale" alert, which would be sent to the CFM. To resolve a stale alert, the CFM is required to follow up with the CFS to make sure that the original alert is resolved.

We previously reported<sup>39</sup> that CFSs were not resolving alerts within the 3-day timeframe established to minimize the number of enumerator actions that do not follow procedures. The results of this review revealed that 6 percent (379,550 of 6,537,900) of nonsystem<sup>40</sup> resolved data quality alerts and 36 percent (179,000 of 492,000) of nonsystem resolved stale alerts were not resolved within 3 days (see figure 2).<sup>41</sup>

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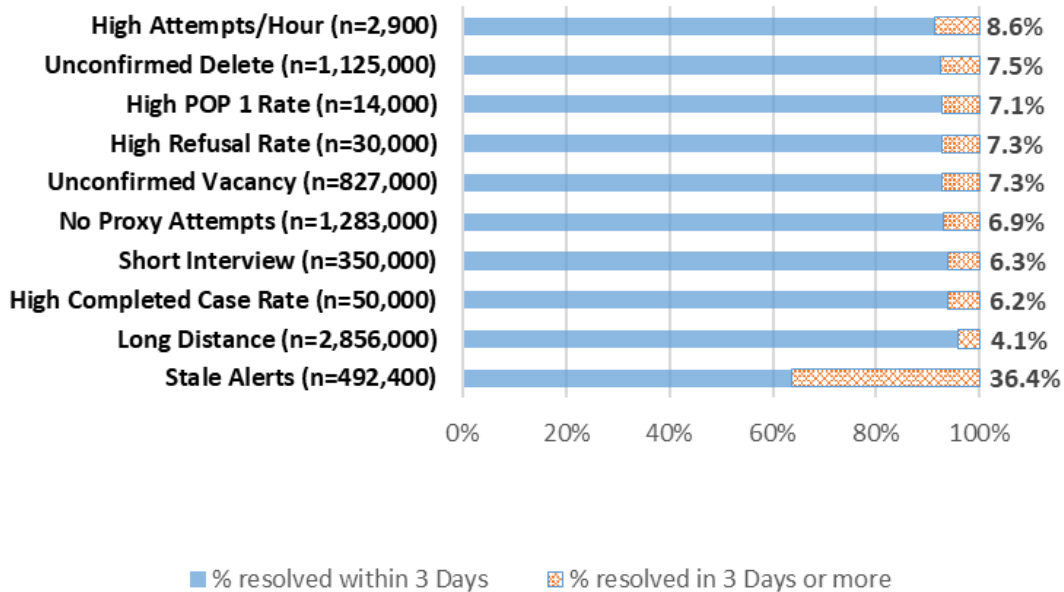
<sup>38</sup> Alerts regarding potential enumerator efficiency problems note issues such as low productivity, missed deadlines for payroll submissions, enumerators not showing up to work on time or at all, or overtime claims.

<sup>39</sup> OIG-20-048-M.

<sup>40</sup> *Nonsystem* resolved alerts are alerts that are manually resolved by a supervisor, as opposed to *system resolved* alerts, which occurred during production in situations where an alert was generated in error due to a defect. For example, with the payroll not approved alert, an error within the system was causing alerts to be routed to the CFM by the wrong CFS. While this error was being resolved, the system automatically resolved any outstanding payroll not approved alerts and prevented the alert from being generated until the error was corrected.

<sup>41</sup> Due to the application of disclosure avoidance techniques, the totals presented in this paragraph for unresolved quality alerts may not equal the sum of the calculations used for unresolved alerts that are presented in Figure 2.

**Figure 2. NRFU Quality Alert Resolution Rates (Nonsystem)<sup>a</sup>**



Source: OIG analysis of Bureau data

<sup>a</sup> Disclosure avoidance techniques used to protect respondent confidentiality have been applied to these data per Bureau guidance.

OCS alerts are a significant tool for supervisory monitoring of enumerator performance. If CFSs fail to resolve alerts and correct enumerator behavior, then the enumerator can continue to make mistakes or purposely falsify data. Likewise, CFMs play a critical role in ensuring that CFSs are addressing alerts in a timely manner. If the Bureau does not take timely corrective action to resolve the issues that underlie these alerts, then it cannot ensure the quality of census data.

**C. Some OCS Quality Alerts Were Not Functioning as Designed or Failed to Trigger**

OCS alerts were designed by the Bureau as part of its quality assurance program, in which performance alerts assist CFSs in detecting anomalous enumerator behavior. These alerts need to be reliable and properly used to aid CFSs with effective management. The Bureau engaged an external contractor to conduct program-level testing for the NRFU operations. The contractor validated that all available features supporting the NRFU operations—to include alerts—were in accordance with the defined workflow. However, not all alerts functioned as designed during the NRFU operation. Specifically, the “No Proxy Attempt” and “Long Distance” alerts did not trigger properly.

The “No Proxy Attempt” alert is triggered when the OCS prompts an enumerator to obtain household information for two or more proxy-eligible cases in a day and the enumerator does not attempt to conduct a proxy interview. The “No Proxy Attempt” alert failed to trigger at 57 ACOs nationwide outside the Eastern Time zone due to programming issues. During NRFU operations, households with high-quality administrative data are visited



at least once by an enumerator. If contact is not successful after one or more visits, the Bureau attempts to resolve that address with administrative records. This is new to the 2020 Census and accounted for approximately 5.6 percent of addresses enumerated. For households that do not have high-quality administrative data, the enumerator will be prompted by the system to resort to a proxy after repeated unsuccessful visits. When the “No Proxy Attempt” fails to trigger for those enumerators who do not attempt a proxy interview for eligible cases, there could be no information or only partial information about a household at the conclusion of field operations. This results in imputation, the least desirable form of enumeration, in which missing details are populated using a statistical technique that estimates the number and characteristics of people living at an address.

In our review of the six ACOs with the highest use of proxies (see challenge 2), we found that long-distance alerts constituted a significant proportion of the nine quality alerts. A long-distance alert is triggered when an enumerator completes work more than 5,000 feet from the assignment’s location (i.e., location of the address). Out of the 152,000 quality alerts triggered by the 7,600 enumerators who worked in the six ACOs, 54,000 (36 percent) were long-distance alerts. For the 3,300 enumerators who worked at least 100 cases, the proportion was similar—39,000 long-distance alerts out of a possible 109,000 total quality alerts (36 percent). We noted that these alerts were triggered where more than 93 percent of the population in each ACO lived in highly populated areas (based on 2010 Census data). The Bureau stated that some long-distance alerts appeared to trigger in error. However, it is also possible that some functioned as intended to indicate curbstoning by enumerators. A review of the case notes associated with these alerts was not possible given their lack of reliability (see challenge 3.A). Erroneous alerts could have led to CFSs spending time addressing them and enumerators being penalized for them. Also, there is no assurance that falsification related to assignment locations did not occur.

#### D. Enumerators May Have Been Circumventing Alerts by Turning Off GPS Capabilities

Enumerators used mobile devices to receive assignments and collect census data, allowing for near real-time case status updates and transmission of response data. These mobile devices were equipped with GPS capabilities that provide the exact geographic location of each HU. This is critical to ensuring that the various geographic areas—states, counties, cities, and census blocks—are accurately represented during the count. GPS capabilities also reduce the risk that enumerators will falsify data via curbstoning instead of traveling to HUs to conduct interviews. Prior census counts conducted using paper forms have experienced this type of falsification. However, despite the benefits provided by enabling GPS capabilities, Bureau management made the decision not to prevent enumerators from disabling GPS capabilities on Bureau-issued cell phones because, in limited circumstances, enumerators were required to disable GPS capabilities (e.g., when conducting interviews in military areas). Although enumerators were given the ability to turn off GPS capabilities, the Bureau did not develop an OCS alert to inform CFSs when GPS was turned off.

At the conclusion of the 2020 NRFU operations, there were approximately 6 million cases with no GPS data across the 248 ACOs nationwide. We found that the cases with no GPS

data were attributed to 239,000 enumerators (see table 7). About 95 percent of enumerators each had fewer than 100 cases without GPS data. The remaining 5 percent of enumerators had 101 or more cases without GPS data, including several enumerators who were each responsible for more than 5,000 cases with no GPS data associated with their household interviews. The enumerator who had the most cases with no GPS data had 6,700 of 6,800 cases—or 98.5 percent—with no GPS data. The enumerator received a hard fail on September 24, 2020, and 6,300 of their cases were eligible for rework. However, only 62 percent (3,900 of 6,300) of eligible cases for rework were completed (see challenge 3.E), leaving the remaining 38 percent (2,400 of 6,300) of cases eligible for rework not complete.

**Table 7. NRFU Cases with No GPS Data by Enumerator<sup>a</sup>**

No GPS Case Range	No GPS Case Count	Number of Enumerators	Percentage of Total Cases
0–50	2,351,000	214,000	39.8%
51–100	956,000	14,000	16.2%
101–200	880,000	6,300	14.9%
201–300	497,000	2,000	8.4%
301–400	385,000	1,100	6.5%
401–500	251,000	550	4.2%
501–1,000	497,000	750	8.4%
1,001–5,000	82,000	70	1.4%
>5,001	12,500	<15	0.2%
<b>Total</b>	<b>5,912,000</b>	<b>239,000</b>	<b>100.0%</b>

Source: OIG analysis of Bureau data

<sup>a</sup> Disclosure avoidance techniques used to protect respondent confidentiality have been applied to these data per Bureau guidance. Totals may not sum due to rounding.

According to the Bureau’s operational plan, GPS technology reduces the amount of time spent by enumerators in locating addresses by incorporating GPS-fed maps into the mobile devices to show real-time location of the enumerator and the address. This is a helpful tool if used as intended. When enumerators have the ability to turn the GPS technology on or off without proper justification or oversight by the CFSs, it raises concerns of whether an enumerator was truly at the case location or potentially fabricating count information to complete their caseloads.

## E. The Bureau Did Not Conduct RIs as Planned

The Bureau planned to conduct 1.94 million RIs during the 2020 NRFU operations. At the conclusion of NRFU field operations on October 15, 2020, approximately 18 percent of cases selected for RI (355,000 of 1.94 million) were not completed. We reported that this occurred in large part because the Bureau closed cases without (1) making any RI attempts

or (2) reaching its maximum number of attempts.<sup>42</sup> Despite not completing these cases, the Bureau accepted the initial enumerators' interview data without any further verification—thus raising concerns about the effectiveness of a critical process designed to ensure data quality.

## F. The Bureau Did Not Fully Conduct RI Quality Assurance Processes for Cases Completed by Enumerators Who Falsified Data or Violated Procedures

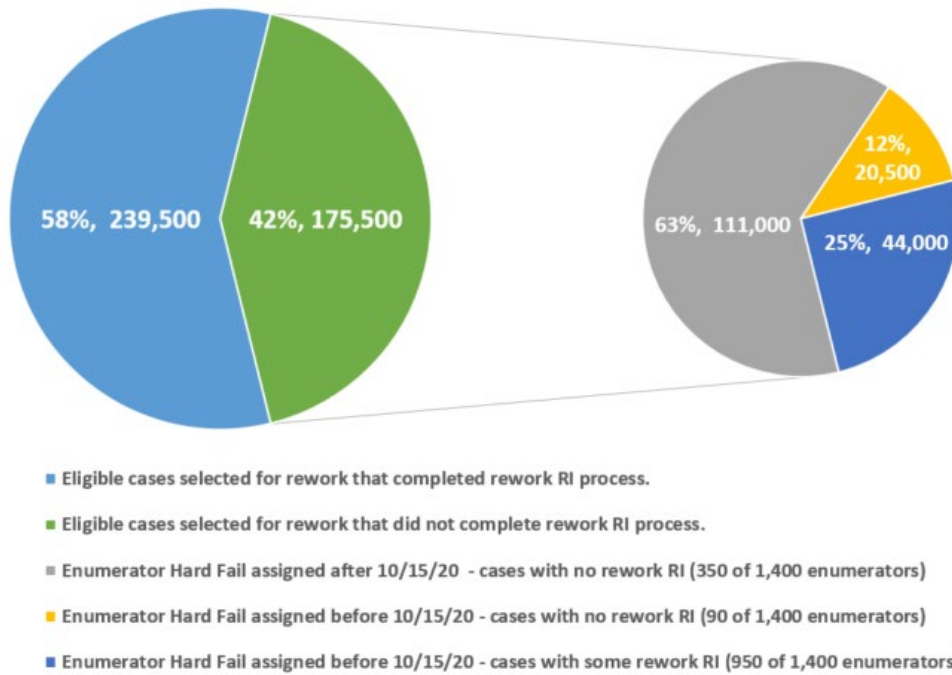
RIs are a critical part of the Bureau's quality control process to validate whether enumerators conducted interviews in accordance with established procedures and obtained complete and accurate results. After an enumerator completes a household interview, cases are selected for RIs based on one of the following four methods: analytic, random, supplemental, or rework. During NRFU operations, the random selection method was eliminated. The number of contact attempts for conducting an RI was reduced from six to three during the period of August 3, 2020, through September 5, 2020, and then reinstated to six attempts until the end of operations. According to Bureau officials, these steps were taken to reduce the RI workload in order to meet adjusted deadlines for completing NRFU. In line with the Bureau's procedures, enumerators found to have falsified data should have been terminated, and their previously submitted cases sent back to the field to be reworked by another enumerator to ensure data accuracy.

During the course of the 2020 NRFU operation, NPC clerks assigned hard fails to 1,400 enumerators (responsible for 415,000 completed cases) for deliberate falsification, intentional violation of procedures, or repeated performance issues. Despite having a quality assurance process in place, 42 percent (175,000 of 415,000) of cases selected for rework did not complete the Rework RI process. Of these cases, 63 percent (111,000 of 175,000) were attributed to enumerators that were assigned hard fails after NRFU field operations ended on October 15, 2020 (see figure 3). Because the hard fails were assigned after the end of field operations, none of the 111,000 eligible cases completed the Rework RI process. During the 2010 Census, Rework RI continued 7 days after the end of NRFU, but for the 2020 NRFU operations, Rework RI ended at the conclusion of field operations on October 15, 2020. According to Bureau officials, RI clerical matching continued after the end of field operations until October 28, 2020—even though rework was not possible—to clear a backlog and gain insights to the RI operations for the Bureau's information and research purposes.

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<sup>42</sup> OIG-21-015-M.

**Figure 3. Rework RI Completion Rates of Eligible Cases for Enumerators with Hard Fails<sup>a</sup>**



Source: OIG analysis of Bureau data

<sup>a</sup> Disclosure avoidance techniques used to protect respondent confidentiality have been applied to these data per Bureau guidance. Totals and percentages may not sum due to rounding.

We observed similar findings in our review of the six ACOs with the highest use of proxies (see challenge 2). In the six ACOs reviewed, we found that 80 of 7,600 enumerators (1 percent) received six or more fails for NRFU RI cases. Of those 80 enumerators, 50 received PFAILS (a type of hard fail) in September and October 2020 when NRFU was nearing an end. Twenty of those enumerators received PFAILS after NRFU field operations had concluded on October 15, 2020, resulting in 4,600 eligible cases for which the Rework RI process was not completed. This raises questions as to whether a review of those cases would have resulted in enumerators being terminated for unsatisfactory performance. On the other hand, the remaining 40 enumerators received PFAILS before October 15, which did allow time to rework cases. Of the 17,000 eligible cases for these enumerators, 2,500 (15 percent) were not reworked before NRFU field operations had concluded.

When the Bureau accepts cases belonging to enumerators who have falsified data or violated procedures without completing the rework process, this raises concerns about the quality of the original data that were collected.

## G. Enumerators Who Falsified Data or Violated Procedures Were Not Terminated in a Timely Manner, Continued to Work Cases, and Were Reassigned to Other Operations

The Bureau's quality assurance process is designed so that the SMarCS system will place a "stop work" flag when an enumerator receives a hard fail<sup>43</sup> to prevent assignment of any new cases to the enumerator. The RCC then communicates with the respective ACOs and takes appropriate steps to terminate the enumerator from their position. During the 2020 NRFU operations, only 300 out of 1,400 (21 percent) enumerators who were assigned hard fails by NPC clerks were terminated for misconduct or unsatisfactory performance. More than half of these enumerators (55 percent) were eventually terminated due to lack of work (see figure 4). Enumerators terminated due to lack of work or something other than misconduct or unsatisfactory performance remain eligible for rehire by the Bureau. We noted that 77 percent of enumerators who were assigned a fail were terminated for something other than misconduct or unsatisfactory performance. Our review identified some enumerators who should have been terminated for misconduct or unsatisfactory performance that went on to work in other operations, such as the PES. For example, an enumerator assigned PFAIL on October 8, 2020—after 29 failed RIs and continued violation of procedures—was reassigned to the PES operation before being terminated 334 days later for "lack of work." As noted earlier, the PES is the Bureau's survey for establishing the accuracy of the 2020 Census. Hiring enumerators with known performance issues may erode stakeholder confidence in PES results.

Although a "stop work" flag was issued, 17 percent of enumerators (240 of 1,400) continued to work cases after being assigned hard fails. One of these enumerators continued to work cases for 55 days. According to Bureau officials, ACO staff have the ability to reactivate an enumerator in OCS by overriding the system's automatic "stop work" flag. This results in enumerators with known violations continuing to work cases when they should have been removed from data collection activities.

We observed that the average time lapse between the enumerator being assigned a hard fail to when they were terminated from the Decennial Applicant Personnel and Payroll System<sup>44</sup> was 27 days (with a maximum of 376 days). Bureau officials attribute the low rates of timely enumerator terminations to inadequate training of CFMs and their reluctance to complete required termination paperwork. Failure to adhere to proper termination procedures, specifically the correct justification for termination, resulted in the rehiring or reassignment to other operations of enumerators who falsified or violated procedures. Failure to prevent ACO staff from overriding "stop work" flags allowed enumerators who violated procedures

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<sup>43</sup> When an RCC finds evidence of falsification or other evidence that the enumerator should have their employment terminated, one of three hard fail codes is assigned: Hard Fail, Non-RI Fail, and PFAIL. These three codes mandate that hard fail procedures be followed for removal of the enumerator from case assignments and Rework RI selections.

<sup>44</sup> This is a fully integrated human resources and payroll system for temporary decennial field staff. This web-based enterprise system supports the processes of recruiting and application, creating electronic certificates, hiring or rehiring staff, processing personnel actions, entering daily time and expense, running weekly payrolls, creating reports, and maintaining historical information.

or falsified data to continue conducting interviews. Both problems may result in data quality concerns for areas in which these enumerators are assigned.

**Figure 4. Employee Actions and Continued Data Collection Activities Despite Fails<sup>a</sup>**

Termination Reason	Enumerator Fail Category					Enumerators Continued To Work			
	Hard Fail	PFAIL	Non-RI Fail	Category Total	Percentage of Total	Hard Fail	PFAIL	Non-RI Fail	Total
End of Temporary Work	-	20	< 15	20	1.4%	-	< 15	-	< 15
Lack of Work	< 15	750	30	750	53.6%	< 15	150	< 15	160
Misconduct	< 15	100	< 15	150	10.7%	< 15	20	< 15	20
Incomplete Training	< 15	< 15	-	< 15	< 1%	-	0	-	-
Resignation	< 15	250	< 15	300	21.4%	-	40	< 15	40
Unsatisfactory Performance	< 15	150	< 15	150	10.7%	< 15	< 15	< 15	20
<b>Total Failed Enumerators</b>	<b>30</b>	<b>1,300</b>	<b>50</b>	<b>1,400</b>	<b>100.0%</b>	<b>&lt; 15</b>	<b>220</b>	<b>&lt; 15</b>	<b>240</b>



Source: OIG analysis of Bureau data

<sup>a</sup> Disclosure avoidance techniques used to protect respondent confidentiality have been applied to these data per Bureau guidance. Totals and percentages may not sum due to rounding.

## H. Enumerator Falsifications or Errors May Have Negatively Impacted Data Quality

When an RI is conducted, original interview data and RI data are first compared at the CM stage, where they are coded as “RINI,” “pass,” or “defer.” Deferred cases undergo additional clerical matching conducted by NPC clerks and CFSs. NPC clerks may choose from four outcome codes, each with one or more associated reason codes that offer a general explanation for the chosen outcome code. NPC clerks assigned the reason code “inconclusive” when a clerk was unable to make a determination on a case after a thorough investigation. Clerks were encouraged to code cases as “pass/inconclusive” after all investigative methods had been exhausted so cases did not sit for long periods of time at the NPC. When NPC clerks selected the pass outcome and inconclusive reason code, NPC supervisory review was not required and the case was accepted as “pass.”

During NRFU operations, a total of 68,500 RI cases were assigned a final determination code of “Pass/Inconclusive.” We reviewed case notes for 68 statistically selected samples<sup>45</sup> to determine whether NPC clerks coded cases appropriately and assess the impact on data quality. Specifically, we tested the case notes to (1) identify any misuse of the code and (2) determine to what extent NPC clerks followed procedures in assigning the code. Results of our testing showed that nearly 65 percent<sup>46</sup> (44 of 68) of cases tested failed to meet note-writing guidelines. For example, some case notes did not show that an initial

<sup>45</sup> We statistically selected a sample using a confidence level of 90 percent, a precision level of + or – 10 percent, and an expected error rate of 10 percent to determine the sample size. A statistical sample was selected to enable projection of the sample results across the entire population or universe.

<sup>46</sup> Based on a 90 percent confidence level, the projected error rate is between 54.9 percent and 74.4 percent. When applied to the “inconclusive” case universe, this indicates that between 38,000 and 51,000 cases may not have been sufficiently documented in accordance with the note-writing guidelines prescribed in the Bureau’s current policies.

comparison of the original interview and the RI data was ever conducted. Others stated that the clerk was unable to determine if the original interview or the RI was correct.

On average, clerks used the inconclusive code for approximately 9 percent of their total NPC case load. Our analysis of NPC clerk usage rates for 360 clerks that coded at least one case inconclusive identified 130 clerks that had usage rates above the average and whose coding generated a combined total of 45,000 inconclusive cases. In other words, 36 percent of clerks that selected the code at least once were responsible for 65 percent of the total number of inconclusive cases. However, without sufficient case notes and supervisory review of case notes, the Bureau may have missed opportunities to detect misuse or abuse of the code. In cases where the “inconclusive” code was used, clerk case notes provide the only written record of how clerks arrived at the selected code and, subsequently, whether clerks followed procedures and coded cases correctly. Each time a case is coded incorrectly or a clerk deviates from procedures, the RI process does not function as intended and the quality of data is placed at risk of enumerator error and falsification.

During the course of the NRFU operations, we received hotline complaints from the field with concerns regarding the adequacy of training provided. In response to the pandemic, the Bureau made a number of changes to enumerator training content, logistics, and timing to correspond with the updated operational timeline. To minimize contact, in-person training was reduced from 2 days to a 2-hour appointment.<sup>47</sup> Proper training is important to ensure supervisors and enumerators understand and retain critical information to be carried out during NRFU operations. Inadequate training can lead to confusion during field operations, which will negatively impact the quality of data collected.

## I. Enumerators Who Falsified Data or Violated Procedures Received Production Awards and Bonuses

The Bureau instituted an awards program to incentivize both enumerators and CFSs with production awards and bonuses.<sup>48</sup> In March 2021, the Bureau reported \$98.4 million in expenses for enumerator awards. These were intended to accelerate the completion of NRFU cases during field operations within a shortened timeframe. Enumerator awards were based on the number of completed cases per hour and hours worked in a week, while CFSs received awards based solely on hours worked in a week. On September 28, 2020, we issued an alert on the enumerator performance awards program, noting that the Bureau

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<sup>47</sup> The orientation classroom training day was reduced from a full day to a 2-hour appointment. The remainder of the orientation day and the capstone training day were conducted through self-study reading, a podcast, and conference calls. In between the orientation and capstone days, staff took online training at home as originally planned.

<sup>48</sup> The Bureau’s award program was administered under the Agency Award Authority of 5 U.S.C. § 4503 whose implementing regulations (5 C.F.R. § 451.102) state that awards include employee incentives based on predetermined criteria such as productivity standards, performance goals, and other measurements.

risked giving awards to enumerators even though their cases might have been completed with errors—whether accidental or intentional.<sup>49</sup>

According to the Bureau’s operational procedures, hard fails were assigned to enumerators when there was sufficient evidence that enumerators either deliberately falsified data or intentionally violated procedures and their employment was terminated. The Bureau’s quality assurance process identified 1,400 enumerators with hard fails. We noted 93 percent (1,300 of 1,400) of enumerators assigned hard fails received production awards totaling \$793,200 with individual payments ranging from \$50 to \$1,600. Further analysis revealed that 25 percent (350 of 1,400) of enumerators with hard fails received the fails after field operations had ended on October 15, 2020. As a result, 111,000 cases attributed to these 350 enumerators receiving hard fails after operations had ended could not be reworked.

We noted in our review of the six ACOs with the highest use of proxies (see challenge 2) that 80 of 7,600 enumerators who received six or more fails had also collected production awards. These enumerators received a combined total of \$54,900 in awards, out of a possible \$1.8 million in production and bonus awards to enumerators who worked in the six ACOs (see table 8 for employee actions and awards received). Of those 80 enumerators, 50 who received PFAILS also received a total of \$34,000 in awards. PFAILS are a type of hard fail, and these 50 enumerators are part of the 1,300 enumerators who were assigned hard fails, as previously identified.

**Table 8. Employee Awards Received by Enumerators with Six or More Fails<sup>a</sup>**

Description	Amount of Award Received
All 80 enumerators with 6 or more fails	\$54,900
< 15 enumerators terminated due to unsatisfactory performance <sup>b</sup>	\$2,200
< 15 enumerators whose temporary employment ended	\$950
20 enumerators who resigned	\$10,000
60 enumerators terminated for lack of work	\$41,750

Source: OIG analysis of Bureau data

<sup>a</sup> Disclosure avoidance techniques used to protect respondent confidentiality have been applied to these data per Bureau guidance. The total number of enumerators with 6 or more fails in the first row may not equal the sum of the subsequent rows due to rounding.

<sup>b</sup> All enumerators terminated for unsatisfactory performance received PFAILS and worked for a single ACO.

<sup>49</sup> DOC OIG, September 28, 2020. *2020 Census Alert: The Census Bureau’s Program to Provide Awards to Nonresponse Followup Enumerators and Field Supervisors May Require Additional Quality Assurance of Cases to Ensure Data Accuracy*, OIG-20-052-M. Washington, DC: DOC OIG.



The goals of the Bureau's incentive program were to speed up NRFU operations, retain staff, and increase the number of hours worked. According to Bureau officials, these awards were based solely on production output and the Bureau would not request that awards be returned or forfeited in the event an employee was terminated for falsification or violating procedures. Awards on this basis reward employees even when they have been found to have falsified data or deliberately violated procedures while completing their cases. This requires rework of their eligible caseloads, which leads to an increased number of cases having to be reworked by other enumerators. This impacts the overall efficiency of field operations; when eligible cases are not fully reworked, the Bureau is faced with the risk of including lesser-quality data in the count.

## Proposed Actions

The *QA Plan* was developed to ensure that enumerators understood and followed appropriate procedures during NRFU operations. The processes outlined in the plan provide a means to ensure operational consistency and promote quality outcomes in terms of production, timeliness, and accuracy of data collection.

### *OCS Alerts*

The development and use of alerts during the 2020 Census enabled the Bureau to monitor enumerator behavior in real time—something that has not been possible during prior decennial censuses. However, the use of alerts during the 2020 Census also highlighted that alerts cannot achieve their goal as part of the quality assurance process unless they are resolved as intended. To fully use the monitoring tools available during the 2030 Census, the Bureau will need to implement additional monitoring of alert resolution to ensure the tool is implemented and functioning as designed. Additionally, the Bureau should assess whether quality alerts are being triggered erroneously or failing to trigger to ensure supervisors are equipped to address enumerator behavior accurately and timely.

### *RIs*

The Bureau relies on its RI process as a key quality assurance mechanism to evaluate fieldwork and monitor the work of enumerators. To fully benefit from the RI process, the Bureau will need to assess the effectiveness of the RI program and its ability to provide sufficient coverage over the quality control process. With the current production-based incentives structure, the RI process allows CFSs to verify the collection and transmission of accurate information, identify enumerator falsification, and implement appropriate changes. While RI encourages data quality, it does not improve quality if sampling for RI is insufficient and planned RIs or cases eligible for rework resulting from RIs are not fully conducted in a timely manner.

## Conclusion

The 2020 Census faced unprecedented challenges that required the Bureau to delay operations and conduct fieldwork in less than optimal circumstances, both of which may have negatively impacted the quality of data collected. More than a year after the 2020 Census ended, some local governments continue to report their concerns about undercounts. For the Bureau to maintain high quality standards and public trust in its data products, it must objectively evaluate the new processes and systems implemented during the 2020 Census. Operations and systems that did not perform as intended—whether due to programming or human error—must be modified or replaced to ensure innovations, especially in the technology area, are used to the fullest extent possible. Proper training is a crucial element of collecting high-quality data, as it ensures census field staff fully understand the mission, are familiar with the data collection instruments, and are performing their duties accurately and consistently to ensure a complete count. In addition, the Bureau must objectively evaluate areas of increased risk that are highlighted in this report to prepare for the 2030 Census and anticipate future challenges faced by the Bureau when conducting such a large-scale operation.

# Summary of Agency Response and OIG Comments

In its July 19, 2022, response to our draft report, the Bureau concurred with the concerns we raised and intends to address them in its planning efforts for the 2030 Census. We made changes to the final report where appropriate for clarification, based on technical comments we received on May 25, 2022. This final report accurately represents the facts and evidence obtained during fieldwork, but was revised to add additional context and better reflect the Bureau's position when needed. The Bureau's formal response is included in this final report as an appendix.

The Bureau disagreed with our conclusions regarding the overall quality of the 2020 Census results and provided responses addressing its disagreement. The Bureau also provided general comments about our sampling methodology and sample size used to evaluate the overall quality of the 2020 Census results. To provide clarity and perspective, we are commenting on the Bureau's general comments and reaction to the lessons learned described in this report. In its comments, the Bureau stated that we did not provide the proper context for the conditions and the associated effect on data quality. We have provided responses to some of the Bureau's comments in this section of the report.

## I. General Comments

### A. *Sampling Methodology*

**Bureau Response.** “We stressed at multiple points during the audit cycle, and specifically at the formal audit exit conference, that the problems observed and documented were based on a very small number of cases out of the overall workload, or based on a small non-statistical, and non-representative sample of work.”

**OIG Response.** Regarding this concern, we do not agree that the report is misleading. As for the judgmentally selected items, we selected these cases based on risk factors that we identified during the course of our work. Our work highlighted specific situations of data quality concerns that the Bureau should consider as lessons learned, including U.S. Government Accountability Office reports and the Bureau's *Post-Enumeration Survey*, as it prepares for 2030 decennial operations. Selecting samples based on risk does not compromise OIG objectivity and complies with the Council of the Inspectors General on Integrity and Efficiency's *Quality Standards for Inspection and Evaluation*.

### B. *Proxy Sample*

**Bureau Response.** “Several of the OIG findings are based on their analysis of data from six Area Census Offices (ACOs) (out of the total 248 ACOs) that the OIG states that it selected because these ACOs had the highest proxy rates. The report

draws general conclusions about the entire Nonresponse Followup (NRFU) operation based only on this sample.”

**OIG Response.** We disagree that the report draws general conclusions about the entire NRFU operation based on the six ACOs. The report highlights examples of challenges the Bureau faced when ACOs experienced a high rate of proxies. Regardless of the number of NRFU proxy cases in an ACO, proxy data collected from a less knowledgeable source could result in partially completed, conflicting, or inaccurate household information that would require imputation. For ACOs with higher proxy rates, the level of imputation would be greater as outlined in this report.

## II. Lesson 1: Students were likely undercounted at off-campus addresses despite outreach efforts

### *Imputation Rates*

**Bureau Response.** “The reference in the report to the imputation rate for off-campus housing units (i.e., “more than 10 percent”) is misleading and falsely alarming. That measure requires context to fully understand the imputation rate applies only to those represented in our highly specific off-campus effort. That is to say, this imputation rate represents 87,000 people of the small universe of 858,000 people. For context, the overall imputation rate for the census was less than 1 percent for the total 331 million people across the nation.”

**OIG Response.** We disagree that the imputation rate for off-campus HUs is misleading. The report accurately identifies the scope of the population-off-campus HUs, as noted in table 4. Although the universe is relatively small when compared to the total imputation rate, the amount of imputation may be significant to small college or university towns. As the Bureau states on page 5 of its response, it is still analyzing the results of the 2020 census college outreach efforts. We look forward to reviewing the Bureau’s results.

## III. Lesson 2: A significant number of NRFU enumerations were completed using a proxy

### A. *Vacant and Deletes*

**Bureau Response.** “Given almost every vacant and delete case is completed by proxy, we do not consider the approach to the metric, as OIG calculated it, a true indicator of quality. When we remove vacants and deletes, the proxy rates are 36% for the OIG’s six ACOs and 24% for all ACOs, a 33% difference versus a 19% difference if we include vacants and deletes.”

**OIG Response.** We disagree with the Bureau’s comment that it does not consider the approach to the metric, as we calculated it, a true indicator of quality. Our review of proxies looked at the proxy cases as a whole because proxies are a less

reliable method of enumeration. Just because an enumerator records a household as vacant or delete, there is no assurance the vacant or delete designation is accurate—especially if the unconfirmed delete alerts are not resolved (see figure 2). Further, occupied HUs enumerated by proxy have a higher rate of characteristic imputation—which, based on the Bureau’s own study after the 2010 census, has an accuracy of only 70.1 percent as compared to a 93.4 percent accuracy rate for household member self-responses. For these reasons, we are highlighting the number of proxy responses in specific areas and the challenges to data quality in accurately determining the status of an HU or the characteristics of the household members.

#### B. *Administrative Records*

**Bureau Response.** “The report concludes that reliable administrative records were not available to supplement proxy interviews. The administrative records were available and provided reliable data. The lack of identification data (e.g., name and date of birth) provided in proxy interviews limits the ability to link the interview to the corresponding administrative record. As noted in the report, this limitation is directly linked to respondent cooperation. We do not anticipate a change in the future to the nature of response. So, this limitation likely will remain. However, any cases that we supplemented with administrative record data were an improvement over taking no action.”

**OIG Response.** We disagree with the Bureau’s comment that administrative records were available and provided reliable data relating to proxy responses. Our report states that, within the six ACOs with the highest proxy rate per region, less than 10 percent of persons associated with cases enumerated via proxy interviews could be linked to administrative records, not that reliable records were not available to supplement proxy interviews as a whole. The reason for the lack of administrative records is correctly cited in the Bureau’s response as the lack of identification data associated with proxy responses. This is a problem with proxy responses in general, in that specific household information cannot always be obtained. We provided this information as an example of the data quality challenges that can occur with proxy responses, specifically that the information is not as accurate as information from a household member and—to further compound the challenge of enumeration—the proxy data cannot be consistently tied to administrative data because the information does not match. We understand the challenge of proxy responses and that proxy data are better than no data; however, stakeholders need to have a clear understanding of the potential data quality issues, both by count and characteristic, that may occur when proxy responses are used to enumerate households.

### IV. **Lesson 3: The Bureau’s improper execution of its QA Plan may have adversely affected data quality**

#### A. *Vacant and Deletes*

**Bureau Response.** “The primary evidence presented for concluding that Census Field Supervisors (CFSs) improperly researched or resolved alerts was the absence and the incomplete nature of their comments in documenting alert resolutions. The alerts were in fact resolved. Only 0.12% of alerts were unresolved at the end of data collection. Notably, out of all alerts, only 8.8% were unresolved after three days.”

**OIG Response.** While the Bureau has accurately stated the evidence we used to draw our conclusion, we disagree with the statement that alerts were in fact resolved. Our testing included determining whether an alert was resolved based on the guidance the Bureau gave to CFSs. An alert can be marked as “resolved” in the system without having, in fact, been researched, by simply marking the alert as “resolved.” The percentage of completion the Bureau cites in its response only means that a CFS clicked the alert as “resolved” in the system. The true test of whether alerts were functioning as designed is if the information provided in the notes indicates the CFS followed Bureau-specified steps when documenting how it resolved alerts. Specifically, we looked at the quality of the resolution based on the information CFS provided in the notes. According to Bureau guidance, the CFS is required to document in the system the employee’s explanation for the alert and the action taken by the CFS to resolve the alert. Without this information, the Bureau cannot be assured that CFSs are (1) actually researching and resolving alerts, rather than just clicking “resolved,” and (2) identifying enumerators who are not following procedures or are falsifying data—both of which negatively impact data quality.

*B. Adjusted Timeline*

**Bureau Response.** “The report accurately stated that the NRFU and reinterview (RI) processes concluded at the same time. However, the report did not include context about the U.S. Census Bureau’s change of timeline to account for the COVID-19 pandemic. Rather than an additional week for the completion of RI cases, as originally planned, the decision to change the timeline led to production and RI needing to end on the same date.”

**OIG Response.** We agree with the Bureau’s statement that the change of timeline was needed to account for the COVID-19 pandemic. However, the main point in including RI in our testing was to determine whether the *QA Plan*, specifically RI, functioned as designed. During the 2020 census, RI was not conducted as originally designed and, as a result, this may have impacted data quality, regardless of the reason for not having an additional week for the processing of RI cases.

We are pleased that the Bureau has identified steps it will be taking in response to our proposed actions for change to address lessons learned noted during the 2020 census. While we recognize that some lessons learned were a result of the pandemic, we believe a thorough evaluation of the 2020 census operations will enable the Bureau to strengthen data quality processes as it plans for the 2030 census.


# Appendix: Agency Response



UNITED STATES DEPARTMENT OF COMMERCE  
U.S. Census Bureau  
Office of the Director  
Washington, DC 20233-0001

July 19, 2022

MEMORANDUM FOR: Arthur L. Scott Jr.  
Assistant Inspector General  
for Audit and Evaluation  
Office of Inspector General

From: Robert L. Santos   
Director  
U.S. Census Bureau

Subject: *"Data Quality Challenges Facing the U.S. Census Bureau as it Plans for the 2030 Decennial Census" Draft Report dated May 4, 2022*

The U.S. Census Bureau appreciates the opportunity to review and provide the attached comments and context on the Office of Inspector General (OIG) draft report titled, *"Data Quality Challenges Facing the U.S. Census Bureau as it Plans for the 2030 Decennial Census"*. The U.S. Census Bureau will objectively evaluate areas highlighted in this report to prepare for the 2030 Census. If formal recommendations are included in the final report, the U.S. Census Bureau will prepare responses highlighting the actions we plan to take to address the recommendations.

Attachment

cc: MaryAnn Mausser, GAO/OIG Audit Liaison, Office of the CFO/ASA, OAM, Office of the Secretary



The Census Bureau's Disclosure Review Board and Disclosure Avoidance Officers have reviewed this information product for unauthorized disclosure of confidential information and have approved the disclosure avoidance practices applied to this release. (CBDRB-FY22-379)

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**U.S. Census Bureau Comments on OIG Draft Report:**

*"Data Quality Challenges Facing the U.S. Census Bureau  
as it Plans for the 2030 Decennial Census"*

May 4, 2022

**General Comments:**

The U.S. Census Bureau appreciates the opportunity to comment on this draft report.

While we agree the problems and errors noted in this Office of Inspector General (OIG) draft report occurred, we are disappointed that the report does not provide appropriate context as to any impact of these problems on the overall quality of the 2020 Census. We stressed at multiple points during the audit cycle, and specifically at the formal audit exit conference, that the problems observed and documented were based on a very small number of cases out of the overall workload, or based on a small non-statistical, and non-representative sample of work. As a result, we asserted that the findings could not and should not be presented as a conclusive assessment of overall census quality.

For example, several of the OIG findings are based on their analysis of data from six Area Census Offices (ACOs) (out of the total 248 ACOs) that the OIG states that it selected because these ACOs had the highest proxy rates. The report draws general conclusions about the entire Nonresponse Followup (NRFU) operation based only on this sample.

We agree that OIG identified and described some specific problems and errors that we should aim to avoid in 2030. We will work diligently to address these challenges (as the OIG labels them) in our planning efforts for the 2030 Census. However, we continue to disagree with any conclusions and findings in this report regarding the overall quality of the 2020 Census results.

Our specific comments and reaction to each of the three challenges described by OIG are as follows.

**OIG's Challenge 1: "Students were likely undercounted at off-campus addresses despite outreach efforts"**

- The college outreach effort to gather student data directly from colleges and universities was not a planned 2020 Census activity, but rather a supplemental activity developed swiftly in direct response to the timing of the pandemic. This outreach was only one of several efforts that the U.S. Census Bureau made to improve the count of students at their off-campus locations, and shows that the Census Bureau acted nimbly to adapt to the unprecedented challenges posed during the 2020 Census.



- Any responses from colleges and universities to this outreach effort served only to confirm or improve information about off-campus college students, not to replace standard procedures for enumerating households in the college towns where many of these students lived.
- In the report, this outreach effort is characterized as proof of an undercount of off-campus college students. College students were enumerated in several ways, such as self-response, NRFU, proxy interview, and administrative records. The absence of a response from the school does not mean that students were missed in the decennial count.
- The reference in the report to the imputation rate for off-campus housing units (i.e., “more than 10 percent”) is misleading and falsely alarming. That measure requires context to fully understand the imputation rate applies only to those represented in our highly specific off-campus effort. That is to say, this imputation rate represents 87,000 people of the small universe of 858,000 people. For context, the overall imputation rate for the census was less than 1 percent for the total 331 million people across the nation.

**OIG’s Challenge 2: “A significant number of NRFU enumerations were completed using a proxy”**

- The report suggests that proxy interviews are problematic. While direct response from the household being enumerated is preferred, proxy completions are an effective way to identify unoccupied housing units (which, by definition, require a proxy response) and to gather information about householders that are not home or choose not to respond.
- The six ACOs from which many of the conclusions were drawn were not representative of the overall NRFU universe. In fact, the report explains that these ACOs were selected specifically because they seemed to have more of the problems of interest to the OIG than the other 242 ACOs. As a result, these ACOs cannot be considered nationally representative. For example, the average proxy rate for OIG’s six ACOs was about 56% and it’s 45% for all ACOs when the vacants and deletes are included, as OIG did in their calculation.
- Given almost every vacant and delete case is completed by proxy, we do not consider the approach to the metric, as OIG calculated it, a true indicator of quality. When we remove vacants and deletes, the proxy rates are 36% for the OIG’s six ACOs and 24% for all ACOs, a 33% difference versus a 19% difference if we include vacants and deletes.

- The proxy completion rates for the 2020 Census closely match the rates for the 2010 Census. For more information on the 2010 proxy completion rates, see the 2010 Census Nonresponse Followup Operations Assessment Report, which can be found at [https://www.census.gov/content/dam/Census/library/publications/2012/dec/2010\\_cpe\\_x\\_190.pdf](https://www.census.gov/content/dam/Census/library/publications/2012/dec/2010_cpe_x_190.pdf)
- The 2020 Census was the first decennial census to supplement proxy interviews with administrative records. Where available, the additional information gathered from administrative records was an improvement over past proxy responses.
- The report concludes that reliable administrative records were not available to supplement proxy interviews. The administrative records were available and provided reliable data. The lack of identification data (e.g., name and date of birth) provided in proxy interviews limits the ability to link the interview to the corresponding administrative record. As noted in the report, this limitation is directly linked to respondent cooperation. We do not anticipate a change in the future to the nature of response. So, this limitation likely will remain. However, any cases that we supplemented with administrative record data were an improvement over taking no action.

**OIG's Challenge 3: "The Bureau's improper execution of its 2020 Census Quality Assurance Plan may have adversely affected data quality"**

- The primary evidence presented for concluding that Census Field Supervisors (CFSs) improperly researched or resolved alerts was the absence and the incomplete nature of their comments in documenting alert resolutions. The alerts were in fact resolved. Only 0.12% of alerts were unresolved at the end of data collection. Notably, out of all alerts, only 8.8% were unresolved after three days.
- The report accurately stated that the NRFU and reinterview (RI) processes concluded at the same time. However, the report did not include context about the U.S. Census Bureau's change of timeline to account for the COVID-19 pandemic. Rather than an additional week for the completion of RI cases, as originally planned, the decision to change the timeline led to production and RI needing to end on the same date.

**Comments on Proposed Actions:**

Rather than providing formal recommendations, the draft report contains proposed actions for the U.S. Census Bureau to consider in planning the 2030 Census. At this early stage of 2030 Census planning, we have several comments related to these proposed actions.

**Regarding OIG's Proposed Actions to Address Challenge 1:**

- We are still analyzing the results of the college outreach effort in the 2020 Census.
- If legislation is required, the Census Bureau has and would support legislation to permit access to student records, notwithstanding FERPA restrictions; however, the Department of Education and other stakeholders also would need to support the passage of such legislation.

**Regarding OIG's Proposed Actions to Address Challenge 2:**

- We believe that the use of administrative records to validate and supplement proxy information added value for the 2020 Census. Moving forward, we will explore new sources of information, efforts to link data between sources, and other ways to expand the use of administrative records.

**Regarding OIG's Proposed Actions to Address Challenge 3:**

- The ability to collect and monitor data in real time greatly increased quality during the 2020 Census. For example, real-time data quality checks enabled us to edit data and follow-up on potential issues during enumeration. Furthermore, we could alert enumerators of possible issues with their work so data could be corrected or checked before NRFU ended. Expanding upon these real-time data quality programs remains a high priority.
- As pointed out in the draft report, the documentation of alert resolution was not in line with the Quality Assurance Plan. We will investigate the procedures, training, and feedback loop surrounding the alert program.
- The types and triggers for alerts used in the 2020 Census will provide valuable information for informing the alert program planned for the 2030 Census.
- The effectiveness of the reinterview program along with lessons learned from the 2020 Census are being analyzed to design the reinterview program for the 2030 Census.

**Conclusion:**

If formal recommendations are included in the final report, the U.S. Census Bureau will prepare responses highlighting the actions we plan to take to address the recommendations.