

2020 Census

Initial Enumeration Underway but Readiness for Upcoming Operations Is Mixed

[Accessible Version](#)

In the coming months, the 2020 Decennial Census will begin its operations to count the population of the United States. The success of these operations relies on the Bureau's preparations, including recruiting and hiring a sufficient work force, developing and testing IT systems, and maintaining public trust to ensure participation by developing community partnerships, combating disinformation, and protecting the privacy of respondent data. The Bureau is actively managing these preparations, but faces significant risks that could adversely impact the cost, quality, schedule, and security of the count.

Over the past decade, GAO has made 112 recommendations specific to the 2020 Census to help address issues such as cost estimation, key innovations, and acquisition and development of IT systems. The Department of Commerce has generally agreed with the recommendations. As of February 2020, 28 of the recommendations had not been fully implemented.

GAO was asked to provide regular updates on the 2020 Census. This report examines the cost and progress of key 2020 census operations critical to a cost-effective enumeration, and early warnings, if any, that may require Census Bureau or congressional attention.

The Bureau provided technical

View [GAO-20-368R](#). For more information, contact J. Christopher Mihm at (202) 512-6806 or by email at mihmj@gao.gov and Nick Marinos at (202) 512-9342 or by email at marinosn@gao.gov.

This correspondence is the second in a series of updates meant to provide timely reporting on the Census Bureau's (Bureau) 2020 Census activities and operations. This update includes information from GAO's ongoing work on preparing for operations including recruiting and hiring, information technology (IT) systems development and testing, and cybersecurity.

In recent years, GAO has identified challenges that raise serious concerns about the Bureau's ability to conduct a cost-effective count of the nation, including new innovations, acquisition and development of IT systems, and other challenges. In 2017, these challenges led us to place the 2020 Census on GAO's High Risk list.

The Bureau Has Generally Executed Early Operations on Schedule, but Faces Challenges Going Forward

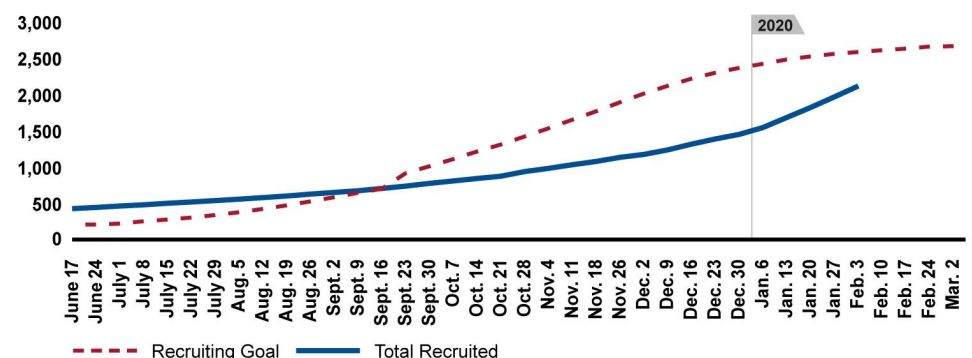
Preparation for Data Collection Operations

The Bureau continues to prepare for upcoming operations for the 2020 Census. These activities included launching media materials and opening area census offices and call centers. The Bureau's first self-response mailing is expected to arrive at households beginning March 12, 2020. Further, the Bureau has begun or is preparing to begin four operations that reach populations that do not receive mail at their residence, including (1) remote areas; (2) areas in which many housing units do not have mail delivered to their homes; (3) individuals living in transitory locations, such as hotels and campgrounds; and (4) individuals in group quarters, such as college resident halls and correctional facilities, as well those experiencing homelessness. The Bureau has also begun work on its Mobile Questionnaire Assistance Operation, which will provide staff to help people complete the questionnaire in locations with low self-response.

Recruiting

The Bureau is behind in its recruiting of applicants for upcoming operations. If the Bureau does not recruit sufficient individuals, it may have difficulty hiring enough staff to complete its upcoming operations within scheduled time frames. As shown by the graphic, despite efforts to increase recruiting through advertisements and increased recruiting staff, the Bureau continues to miss its interim recruiting goals as of February 3, 2020.

Census Bureau Progress on Recruiting as of February 2020



Source: GAO analysis of Census Bureau Unified Tracking System Data. | GAO-20-368R

Accessible Data for Census Bureau Progress on Recruiting as of February 2020

Date	Recruit Goal	Total Recruited
June 17	205,467	425877
June 24	207,231	442837
July 1	220,341	462336
July 8	252,258	478886
July 15	275,896	500028
July 22	303,126	517728
July 29	337,695	536757
August 5		
August 12	376,033	556494
August 19	421,641	578017
August 26	471,070	599939
September 2	525,982	626085
September 9	582,796	649501
September 16	644,684	672478
September 23	699,249	703913
September 30	914,306	736381
October 7	1,010,376	773900
October 14	1,108,849	807377
October 21	1,213,699	841255
October 28	1,309,361	872758
November 4	1,419,976	936697
November 11	1,532,543	980763
November 18	1,651,679	1030923
November 25	1,766,978	1076085
December 2	1,891,072	1132623
December 9	2,010,513	1172602
December 16	2,117,030	1235023
December 23	2,216,190	1314170
December 30	2,297,320	1385691
January 6	2,363,751	1448256
January 13	2,420,255	1543158
January 20	2,479,923	1681598
January 27	2,521,708	1819090
February 3	2,557,370	1965622
February 10	2,583,008	2114402
February 17	2,607,566	
February 24	2,629,342	
March 2	2,657,780	-

Partnerships

The Bureau continues to form both national and community partners, which are crucial in educating the public and maximizing survey response rates, particularly among hard-to-count populations. As of early February 2020, the Bureau had

almost 240,000 community partners, such as businesses and nonprofits, in place. However, the Bureau has missed interim goals building towards its overall goal of 300,000 community partners by March 2020.

IT Systems Implementation

The Bureau has made progress in executing work against its development and testing schedule for the 52 IT systems expected to be used during the 2020 Census, but continues to face risks in implementing the systems in time for key operations. For example, as of January 2020, the Bureau was at risk of not meeting key near-term IT system testing schedule milestones for five upcoming 2020 Census operational deliveries, such as self-response and non-response follow-up (i.e., when the Bureau follows up with households that do not initially respond to the Census).

The Bureau also needs to quickly address concerns related to the readiness of its internet response system. In January 2020, the Bureau identified a scalability issue that was preventing it from meeting its goal of enabling up to 600,000 users to access the primary internet response system at the same time without experiencing performance problems. As a result, in February 2020, the Bureau decided to use its backup system to manage internet responses for the 2020 Census. Late design changes, such as the shift from one system to another, can introduce new risks, in part, because the backup system was not used extensively in earlier operational testing. The internet response system is scheduled to be available in March 2020 and will enable the public to respond to the 2020 Census online. Therefore, it is critical that the Bureau quickly ensures the readiness of the system it has decided to use, including fully testing the system before it is deployed.

Cybersecurity

The Bureau also continues to face significant cybersecurity challenges, including those related to addressing cybersecurity weaknesses in a timely manner, resolving cybersecurity recommendations from the Department of Homeland Security (DHS), and addressing numerous other cybersecurity concerns (such as protecting the privacy of respondent data). For example, in April 2019, GAO recommended that the Bureau (1) take steps to ensure that identified corrective actions for cybersecurity weaknesses were implemented within prescribed time frames, and (2) implement a process for tracking and executing appropriate corrective actions to remediate cybersecurity findings identified by DHS for the 2020 Census.

The Bureau has made progress toward addressing these recommendations, but more work remains. For example, the Bureau has not always addressed cybersecurity weaknesses in accordance with established deadlines. Because the 2020 Census involves collecting personal information from more than 300 hundred million people across the country, it will be important that the Bureau continue to address these challenges. GAO has ongoing work monitoring the Bureau's progress in addressing these and other cybersecurity challenges.

February 12, 2020

Congressional Requestors

2020 Census: Initial Enumeration Underway but Readiness for Upcoming Operations Is Mixed

In the coming months, the U.S. Census Bureau (Bureau) will begin the major operations to count the population of the United States. Census Day for the 2020 Census, the reference date for where and if a person should be counted, is April 1. The success of these operations, in part, relies on the Bureau's preparations, including recruiting and hiring a sufficient workforce; the development and testing of information technology (IT) systems; and maintaining public trust to ensure participation by developing community partnerships, combating disinformation, and protecting the privacy of respondent data. The Bureau is actively managing these preparations, but continues to face significant risks that could adversely impact the cost, quality, schedule, and security of the count.

You asked us to provide regular updates on the implementation of the 2020 Census. For these updates, we will review the cost and progress of key 2020 Census operations critical to a cost-effective enumeration and early warnings, if any, that may require Census Bureau or congressional attention. For this correspondence—the second in a series of products meant to provide timely reporting on activities and operations while they are being implemented—we focused on recruiting, preparations for upcoming operations, IT systems development and testing, and cybersecurity.¹

To describe the status of the Bureau's execution of key operations for the 2020 Census, we reviewed Bureau-provided data on cost and progress of key operations and compared those data with Bureau-determined target dates and metrics. We determined those data were sufficiently reliable for the purposes of our reporting objectives by interviewing Bureau staff about the IT systems used. We interviewed Bureau officials to gather additional information on the status and progress of these key operations.

To describe major trends and early warning signs, we compared Bureau-provided data against goals outlined in Bureau plans. We assessed Bureau-provided performance data on individual operations and efforts to make determinations of Bureau performance and progress. We also included information from our ongoing work on the readiness of the Bureau's IT systems for the 2020 Census. We collected and reviewed documentation on the status of systems development and testing and for addressing cybersecurity risks, such as executive-level system status reports and dashboards. We also interviewed relevant agency officials.

We conducted this performance audit from November 2019 to February 2020 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

In 2017, we designated the 2020 Census as a high-risk area and added it to our High-Risk list. The 2020 Census remains high risk, as new innovations, and acquisition and development of IT

¹For the first report in this series, see GAO, *2020 Census: Status Update on Early Operations*, [GAO-20-111R](#) (Washington, D.C.: Oct. 31, 2019).

systems for the 2020 Census, along with other challenges we have identified in recent years, such as the reliability of the cost estimate, raise serious concerns about the Bureau's ability to conduct a cost-effective enumeration. Over the past decade, we have made 112 recommendations specific to the 2020 Census to help address these risks and other concerns. The Department of Commerce has generally agreed with these recommendations and has taken action and made progress to address them. To date, the Bureau has implemented 83 and GAO has closed 1 recommendation as not implemented. However, as of February 2020, 28 of the recommendations have not been fully implemented, of which six are designated priority recommendations.²

The Bureau has Generally Executed Early Operations on Schedule, but Faces Challenges Going Forward

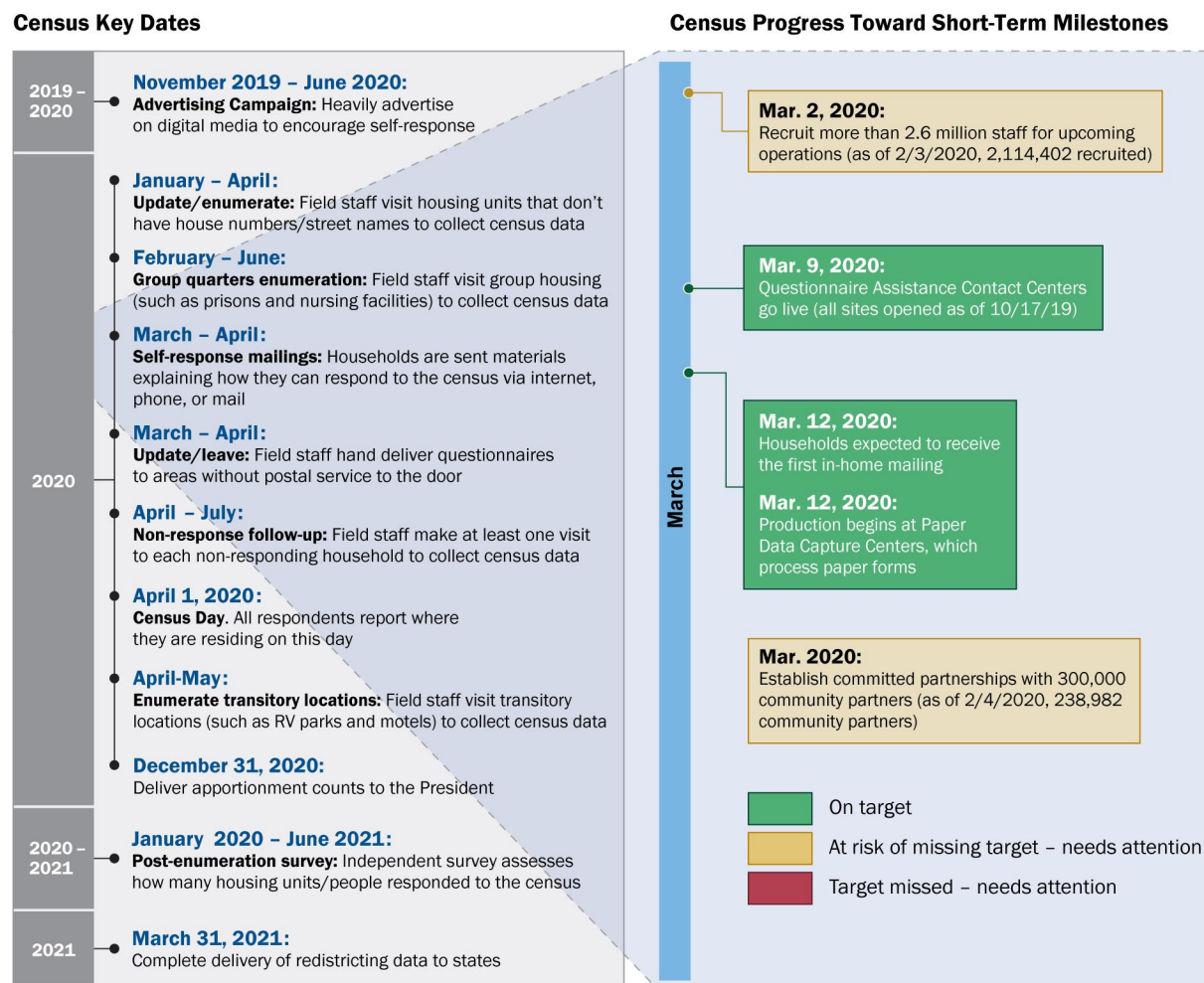
The Bureau Is Preparing for Its Data Collection Operations

In October 2019 the Bureau completed its In-Field Address Canvassing Operation, where temporary field staff known as listers verify and update selected addresses across the country in its address list. The Bureau also met its target dates for opening its Questionnaire Assistance Contact Centers, where respondents can call to ask questions or provide their census data by phone and it has launched its advertising campaign, that is designed to use print, social media, and television to, among other initiatives, spread the word about the 2020 Census. Further, despite initial delays, it has opened all 248 Area Census Offices that will be used to manage the decennial at the local level.

In January 2020, enumeration activities began in certain areas of Alaska. The Bureau's first self-response mailing is expected to arrive in mailboxes beginning on March 12, 2020. (see figure 1) This is the first of five self-response mailings, which will cover 95 percent of households. These mailings will consist of a letter inviting recipients to complete the census online, or via several other response options. Households in areas with low internet connectivity will also receive a paper questionnaire they can mail back.

²Priority recommendations are those that GAO believes warrant priority attention from heads of key departments or agencies. They are highlighted because, upon implementation, they may significantly improve government operations, for example, by realizing large dollar savings; eliminating mismanagement, fraud, and abuse; or making progress toward addressing a high-risk or fragmentation, overlap, or duplication issue.

Figure 1: Key Dates for 2020 Census Operations



Source: GAO analysis of Census Bureau timelines and management reports. | GAO-20-368R

Further, the Bureau has four upcoming operations that enumerate populations unlikely to be reached with mailed self-response enumeration.

- The Update Enumerate (UE) operation counts populations in remote areas that have challenges associated with accessibility including remote Alaska, parts of northern Maine and certain tribal areas. (January – April 2020)
- The Update Leave (UL) operation hand delivers questionnaires in areas where the majority of housing units do not have mail delivered to the location of the housing unit or do not have verified mail delivery information. (March – April 2020)
- The Enumeration at Transitory Locations (ETL) operation enumerates respondents living in transitory locations such as recreational vehicle (RV) parks, campgrounds, hotels, motels, marinas, racetracks, circuses and carnivals, and who do not have a usual home elsewhere. (April – May 2020)
- The Group Quarters (GQ) operation enumerates individuals living or staying in group quarters, such as college residence halls, residential treatment centers, skilled nursing facilities, group homes, correctional facilities, and workers' dormitories, as well as those

experiencing homelessness or receiving services at service-based locations such as soup kitchens and shelters. This service based enumeration occurs over the course of 3 days. We previously reported that the Bureau experienced issues managing staffing levels during the 2018 Census Test. Facilities were either overstaffed or understaffed during enumeration due to GQ facilities changing their preferred enumeration method from the preferences they identified when Bureau officials initially reached out to facilities, such as changing from a paper submission of census data for residents to an in-person enumeration.³ (February – June 2020)

The Bureau has also begun work on its Mobile Questionnaire Assistance (MQA) initiative as directed in the Further Continuing Appropriations Act, 2020 in November 2019.⁴ According to its *December 2019 MQA Operation Project Plan*, the Bureau plans to provide staff at community events to help people complete the questionnaire and answer questions in locations with low self-response. Respondents are to directly access the questionnaire on mobile devices in English, or one of the 12 non-English languages, or call for assistance. Staff will also have language assistance guides available for 59 non-English languages.

MQAs will be in prominent locations to include grocery stores, houses of worship, community festivals, public transit hubs and other locations.⁵ The Bureau plans to convert up to 4,500 Recruiting Assistants to Census Response Representatives after recruiting efforts end. Further, the Bureau plans to hire a small number of new staff starting in March 2020 to continue throughout the nonresponse follow-up period.

According to the Bureau, the MQA plan improves on the model of the 2010 Questionnaire Assistance Centers (QACs) that were static locations. We previously found that the QACs experienced problems, including low visibility of the sites, trouble locating sites among the public, and difficulty in monitoring them.⁶ Instead of being tied solely to static locations, MQAs can deploy to low response locations where they are likely to have a greater impact. The Bureau Is Behind in Meeting Recruiting Goals for Upcoming Operations

The Bureau is behind in its goal to recruit more than 2.6 million applicants nationwide for upcoming operations and 202 of 248 Area Census Offices fell short of their individual recruiting targets as of early February 2020. As depicted in figure 2, the Bureau fell behind its recruiting targets in late September 2019 and while it experienced an uptick in January and February 2020, has not yet been able to close the gap. As of February 3, 2020, the Bureau has recruited more than 2.1 million applicants. This falls short of its interim target to reach more than 2.5 million applicants by the same date.

Figure 2: Census Bureau Progress on Recruiting as of February 2020

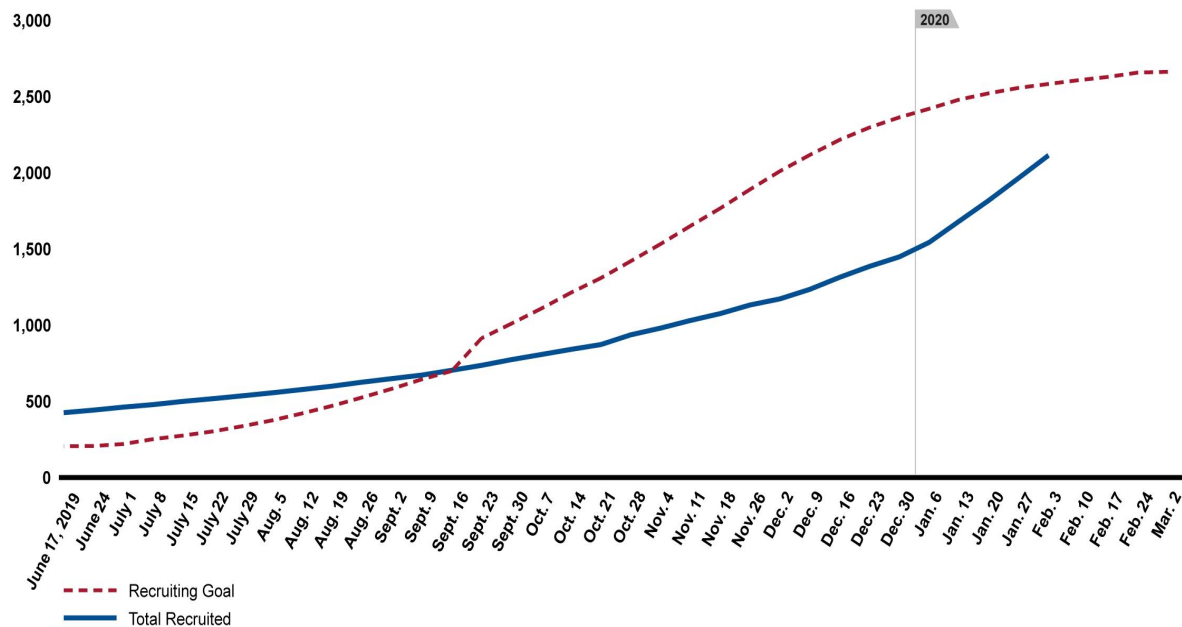
³GAO, *2020 Census: Additional Steps Needed to Finalize Readiness for Peak Operations*, [GAO-19-140](#) (Washington, D.C.: Dec. 10, 2018). The Bureau faced similar challenges in managing staffing levels while enumerating service-based locations during the 2010 Census. See *2010 Census: Key Efforts to Include Hard-to-Count Populations Went Generally as Planned; Improvements Could Make the Efforts More Effective for Next Census*, [GAO-11-45](#) (Washington, D.C.: Dec. 14, 2010). We recommended that the Bureau determine the factors that led to the staffing issues we observed during service-based enumeration and take corrective actions to ensure more efficient staffing levels in 2020. As of December 2019, the Bureau had not taken action on this recommendation.

⁴Pub. L. No. 116-69, div. A, § 101, 133 Stat. 1134 (Nov. 21, 2019).

⁵In November 2019, the Bureau estimated that this effort will reach over 23 million housing units if they target the 20% of tracts with the lowest projected self-response.

⁶[GAO-11-45](#).

Recruiting Goals (in thousands)



Source: GAO analysis of Census Bureau Unified Tracking System Data. | GAO-20-368R

Accessible Data for Figure 2: Census Bureau Progress on Recruiting as of February 2020

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February 10	2,583,008	2114402
February 17	2,607,566	
February 24	2,629,342	
March 2	2,657,780	-

Notes: In September 2019, the Census Bureau increased its total recruiting goal from approximately 2.2 million to more than 2.6 million and increased its interim goals accordingly. The Census Bureau began tracking recruiting progress in June 2019.

To increase recruiting, in early October 2019 Bureau officials told us that they were increasing advertising for census jobs, hiring more staff that focus on recruiting, and holding a National Recruiting Event later in the month. Bureau officials also told us they can focus recruiting advertising in geographic locations where they are falling behind. Additionally, in late December 2019 Bureau officials told us they had completed a review of pay rates for upcoming operations and planned to increase hourly rates in 73 percent of counties nationwide by an average of \$1.50 per hour for enumerators to address recruiting shortfalls.⁷ In December 2019, Bureau officials told us that the recruiting numbers had plateaued but that they expected the number of applicants to increase in response to recruitment activities in January 2020. If the Bureau does not recruit sufficient applicants, it may have difficulty hiring enough staff to complete its upcoming operations within its scheduled time frames, which could delay subsequent operations, add to costs, and adversely impact data quality. We will continue to monitor the Bureau’s recruiting efforts.

The Bureau has met its hiring goals for some area census office positions, but not all. The Bureau has exceeded its goal for hiring recruiting assistants and office operations supervisors, but has not yet met its goals for hiring clerks as shown in Table 1. Hiring sufficient clerks is particularly important since clerks assist with on-boarding the 320,000 to 500,000 enumerators needed for upcoming data collection operations.⁸

⁷Enumerators are Census Bureau employees who travel from door-to-door throughout the country to try to obtain census data from individuals who do not respond through other means, including the internet, on paper, or by phone.

⁸To conduct data operations on schedule, the Bureau’s conservative estimate for the optimal number of enumerators is 500,000. The Bureau’s estimate for the most likely number of enumerators needed is 320,000.

The Bureau’s total goal for hiring clerks is 9,874 by March 1, 2020. According to Bureau officials, it has hired 6,537 clerks and the interim hiring goal for early February was approximately 7,500 clerks. In November 2019, the Census received approval from the Department of Commerce and notified the Office of Personnel Management (OPM) that to more efficiently onboard staff, it would conduct a more limited background investigation for Area Census Office clerks, recruiting assistants, and office operation supervisors. According to Bureau officials this has sped up the hiring process for office staff.

Table 1: Hiring Goals for Select Area Census Office Positions

Position	Goal	Hired (as of Feb. 4, 2020)
Recruiting Assistant	4,741	4,758
Office Operations Supervisor	2,601	2,641
Clerk	9,874 ^a	6,537

Source: Census Bureau hiring data | GAO-20-368R

Note: “Hired” refers to the number of individuals who are sworn-in to the position and could charge time.

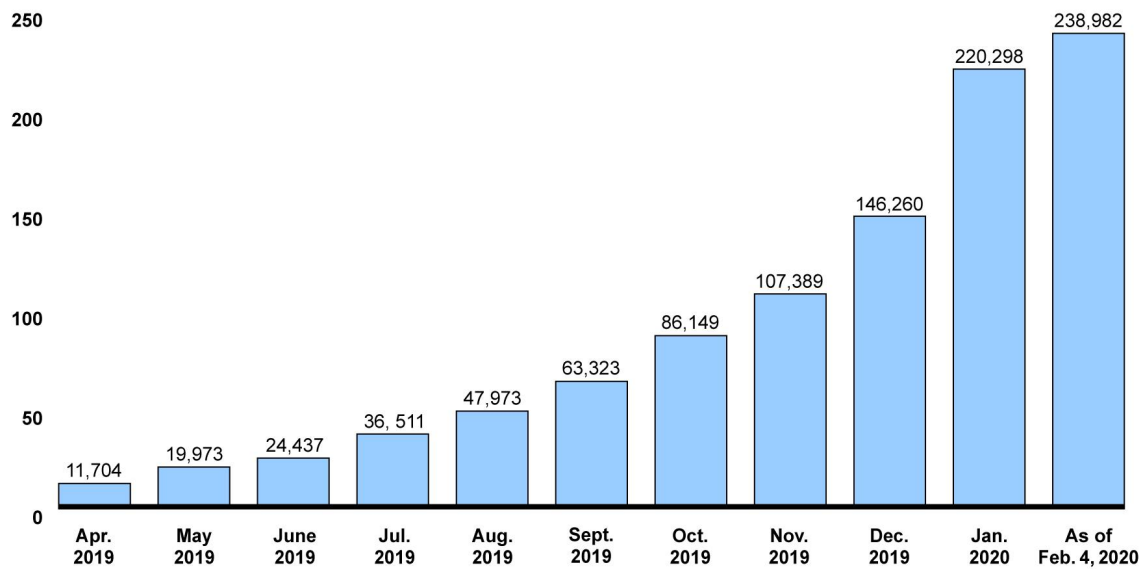
^aThe Census Bureau plans to hire by March 1, 2020

The Bureau Has Missed Interim Milestones for Establishing Community Partners

The Bureau is forming partnerships through its Community and National Partnerships to reach hard-to-count populations. According to the 2020 Census Partnership Plan, partnerships are crucial in educating the public and maximizing survey response rates, particularly for hard-to-count populations, such as persons with disabilities and persons experiencing homelessness.

Bureau management reports provide the number of community partners and participating organizations by sector and audiences served, as well as the number of events the partners have sponsored. The Bureau’s goal for 2020 is to have 300,000 community partners by March 2020. As of February 4, 2020, the Bureau had established relationships with 642 national participating organizations and 238,982 community partners such as media outlets, nonprofits, and healthcare organizations (see figure 3). Bureau officials told us that their interim goal was to have approximately 200,000 community partnerships in place by January 1, 2020 and 250,000 in place by February 1, 2020.

Figure 3: Number of Active Community Partners



Source: GAO analysis of Census Bureau management reports. | GAO-20-368R

Accessible Data for Figure 3: Number of Active Community Partners

Date	Number of Active Community Partners
Apr 2019	11,704
May 2019	19,973
June 2019	24,437
July 2019	36,511
Aug. 2019	47,973
Sept. 2019	63,323
Oct. 2019	86,149
Nov. 2019	107,389
Dec. 2019	146,260
Jan. 2020	220,298
As of Feb. 4, 2020	238,982

By the end of the 2010 cycle, the Bureau had worked with nearly 256,000 partners. We have previously reported that hiring for Partnership Specialists, who often help establish Community Partner relationships, was delayed in 2019 due to delays in processing background checks and greater than expected attrition.⁹ Bureau officials told us that these delays had not affected the number of participating organizations and community partners and that they were pleased with the quality of those relationships. The Bureau’s website has webinars and materials available to partners on common barriers to census response and mapping tools that show locations of specific hard-to-count populations.

[The Bureau Is at Risk of Missing Near-Term Schedule Milestones for IT Systems Testing and Needs to Quickly Address Concerns Related to the Readiness of Its Internet Response System](#)

⁹GAO, *2020 Census: Status Update on Early Operations*, [GAO-20-111R](#) (Washington, D.C.: Oct. 31, 2019).

The Bureau is significantly changing how it intends to conduct the census during this decennial, in part by re-engineering key census-taking methods and infrastructure, and making use of new IT applications and systems.¹⁰ Most notably, the Bureau plans to offer an option for households to respond to the survey via the internet and enable field-based enumerators to use applications on mobile devices to collect survey data from households.

To conduct the 2020 Census, the Bureau plans to utilize 52 new and legacy IT systems and the infrastructure supporting them. In October 2018, to help improve its implementation of IT, the Bureau revised its systems development and testing schedule. Specifically, the Bureau organized the development and testing schedule for its 52 systems into 16 operational deliveries.¹¹ Each of the 16 operational deliveries was assigned milestone dates for, among other things, development, performance and scalability testing,¹² and system deployment.

As of January 2020, the Bureau had made progress in executing work against its revised schedule by deploying the systems for five of the 16 operational deliveries. For example, the Bureau deployed the systems for the integrated partnership and communications¹³ operational delivery in January 2020. Further, the Bureau was continuing system development, performance and scalability testing, and/or integration testing for the remaining 11 operational deliveries, including self-response and non-response follow-up. For example, the Bureau was working to complete integration testing and performance and scalability testing for the systems needed to support self-response (including the internet response option), in preparation for deploying the final systems in March 2020.

However, as of January 2020, five of the remaining 11 operational deliveries were at risk of not meeting key near-term milestones planned for completing performance and scalability testing and/or integration testing by April 2020. These five operational deliveries are the post enumeration survey,¹⁴ self-response, group quarters enumeration, update enumerate/update leave, and non-response follow-up. For example:

- **Self-response:** The Bureau recently identified a scalability issue that was preventing it from meeting a critical testing goal for its primary internet response system (known as the Enterprise Censuses and Surveys Enabling Platform–Internet Self-Response, or ECaSE–ISR).¹⁵ Specifically, in early January 2020, the Bureau stated that an issue with

¹⁰GAO, *2020 Census: Bureau Needs to Take Additional Actions to Address Risks to a Successful Enumeration*, [GAO-19-685T](#) (Washington, D.C.: Jul. 24, 2019).

¹¹The Bureau plans to deploy the 52 systems being used in the 2020 Census multiple times in a series of operational deliveries, which includes operations such as address canvassing or self-response (e.g., the ability to respond to the 2020 Census through the internet). That is, the Bureau may deploy a system for one operation in the 2020 Census (such as address canvassing), and again for a subsequent operation (such as self-response). As such, additional development and testing may occur each time a system is deployed.

¹²According to the Bureau's 2020 Census Operational Plan, the purpose of performance and scalability testing is to ensure that systems will scale to meet the workloads, or volumes, of the 2020 Census.

¹³The purpose of the Bureau's integrated partnership and communications operation is to communicate the importance of 2020 Census participation to the entire population of the 50 states, the District of Columbia, and U.S. territories.

¹⁴The post enumeration survey is intended to provide estimates of 2020 Census net coverage and components of coverage for housing units and people in the United States and Puerto Rico, excluding remote Alaska.

¹⁵ECaSE–ISR is a modified commercial-off-the-shelf product developed by a third-party contractor.

the design of its recently revised Trusted Internet Connection¹⁶ was preventing it from meeting its goal of enabling up to 600,000 users to access the internet response system at the same time without experiencing performance issues.¹⁷ According to the Bureau, ECaSE–ISR was able to reach up to 400,000 concurrent users during testing before encountering performance issues.

In mid-January 2020, due to concerns with resolving this scalability issue in a timely manner, the Associate Director for Decennial Census Programs and other Bureau leadership officials stated that the Bureau was reviewing its options for using another system called Primus to provide the internet response capability for the 2020 Census. According to Bureau documentation, Primus is a Bureau-developed backup system that was intended to provide internet data collection capabilities in the event that normal operations of ECaSE–ISR are disrupted. The officials stated that recent testing of Primus indicated that it could meet the scalability goal of 600,000 concurrent users; however, additional integration and performance and scalability testing remained to be completed.

On February 7, 2020, the Bureau made a decision to use Primus as the primary internet response system for the 2020 Census. The Bureau added that it is planning to use ECaSE–ISR to support its Questionnaire Assistance Contact Centers, as well as provide a backup for Primus.

Given that the Bureau expects the internet response system will be available to the public in March 2020, it is important that the Bureau quickly ensures the readiness of the system it has decided to use. Late design changes, such as the shift from one system to another, can introduce new risks, in part, because the backup system was not used extensively in earlier operational testing. Notably, Primus was not used as the internet response system during the Bureau’s 2018 End-to-End Test.¹⁸ As a result, this increases the risk that operational problems may go undiscovered before the system is deployed, in part because the 2018 End-to-End Test was the last opportunity to test the system under Census-like conditions.

- **Non-response follow-up:** The Bureau has identified several issues during the testing of two systems expected to be used to conduct non-response follow-up—the enumeration

¹⁶External network traffic (traffic that is routed through agency’s external connections) must be routed through a Trusted Internet Connection. External connections include those connections between an agency’s information system or network and the globally-addressable internet or a remote information system or network and networks located on foreign territory.

¹⁷The Bureau stated that it was at testing at 5 times the expected internet self-response user load of 120,000 concurrent users, for a total of 600,000 concurrent users, to minimize risk.

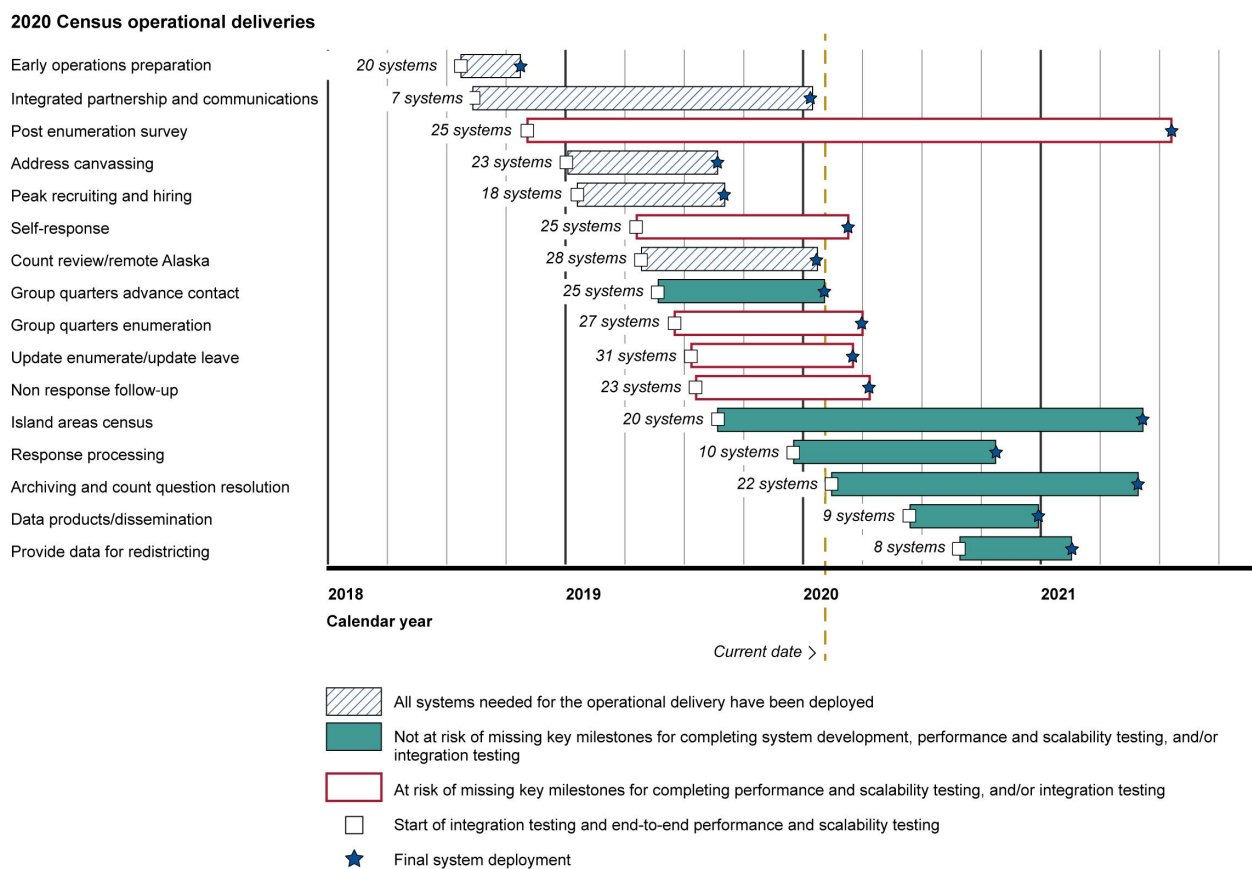
¹⁸According to the Bureau, the 2018 End-to-End Test was conducted to confirm key technologies, data collection methods, outreach and promotional strategies, and management and response processes that are intended to be deployed in support of the 2020 Census.

application¹⁹ and the Sampling, Matching, Reviewing, and Coding system.²⁰ Specifically, as of January 2020, the Bureau reported that it needed to identify the root causes of, and implement resolutions for, issues identified when using the enumeration application (e.g., in certain cases, needing to restart or reinstall the application for it to work correctly).

Further, regarding the Sampling, Matching, Reviewing, and Coding system, the Bureau reported that it needed to, among other things, resolve outstanding system defects and implement new requirements to improve system performance and scalability. Given that these two systems are expected to be deployed into production in April 2020, it is important that the Bureau quickly resolve these issues.

Figure 4 presents an overview of the status for all 16 operational deliveries, as of January 2020.

Figure 4: Status of 16 Operational Deliveries for the 2020 Census, as of January 2020



Source: GAO analysis of Census Bureau data. | GAO-20-367T

Note: The 52 systems being used in the 2020 Census are to be deployed multiple times in a series of operational deliveries (which include operations such as address canvassing or self-response). That is, a system may be deployed for one operation in the 2020

¹⁹The enumeration application, also known as the Enterprise Censuses and Surveys Enabling Platform—Enumeration, is intended to support Bureau employees who travel from door-to-door throughout the country to try to obtain census data from individuals who do not respond through other means, including the internet, on paper, or by phone. The application is also expected to be used by these employees to, among other things, provide their availability for performing work and for reporting expenses.

²⁰The Sampling, Matching, Reviewing, and Coding system is expected to, among other things, apply quality control algorithms to determine whether enumerators are using validated procedures and collecting accurate data.

Census (such as address canvassing), and be deployed again for a subsequent operation such as self-response). As such, additional development and testing may occur each time a system is deployed.

These five at-risk operational deliveries add uncertainty to a highly compressed time frame over the next 2 months. Going forward, the Bureau must effectively manage the at-risk operational deliveries to better ensure that it meets near-term milestones for completing IT systems testing, and is ready for the major operations of the 2020 Census. Further, it will be critical that the Bureau expeditiously completes remaining integration and performance and scalability testing for its internet response system to better ensure that the system functions as intended.

The Bureau Faces Significant Cybersecurity Challenges in Securing Its Systems and Data

Our prior and ongoing work has identified significant challenges that the Bureau faces in securing systems and data for the 2020 Census.²¹ Specifically, the Bureau continues to face challenges related to addressing cybersecurity weaknesses, tracking and resolving cybersecurity recommendations from the Department of Homeland Security (DHS), and addressing numerous other cybersecurity concerns (such as protecting the privacy of respondent data). For example:

- **Addressing cybersecurity weaknesses within prescribed time frames.** The Bureau’s risk management framework requires it to conduct a full security assessment for nearly all the systems expected to be used for the 2020 Census. If deficiencies are identified, the Bureau is to determine the corrective actions—known as plans of actions and milestones (POA&Ms)—needed to remediate those deficiencies.

The Bureau had made progress in addressing open POA&Ms as of the end of December 2019, but more work remains. Specifically, the Bureau reduced the number of open “high” and “very high-risk” POA&Ms from 264 in January 2019 to 191 as of the end of December 2019.

However, we reported in April 2019 that the Bureau did not always address POA&Ms in accordance with its established deadlines.²² Thus, we recommended that the Bureau take steps to ensure that identified corrective actions for cybersecurity weaknesses are implemented within prescribed time frames. As of December 2019, this recommendation remained open. Specifically, as of December 2019, 81 of the 191 (about 42 percent) total open “high” and “very high-risk” POA&Ms were delayed past their scheduled completion dates. Additionally, 50 of the 191 (about 26 percent) total open “high” and “very high-risk” POA&Ms were delayed 60 or more days.

In February 2020, the Bureau told us that it is taking steps to more actively manage overdue POA&Ms. According to the Bureau’s Chief Information Security Officer, the delay in addressing these POA&Ms was due to technical challenges such as interdependencies among multiple system components.

We have ongoing work that will continue to evaluate the Bureau’s progress in ensuring that corrective actions are implemented within prescribed time frames. Fully implementing our recommendation will help to ensure that the Bureau is in a better position to manage and mitigate cybersecurity risks in a timely manner.

- **Tracking and resolving cybersecurity recommendations from DHS.** DHS is working with the Bureau to support its 2020 Census cybersecurity efforts. For example, since

²¹See, for example, GAO, [GAO-19-431T](#) and [GAO-18-655](#).

²²GAO, *2020 Census: Further Actions Needed to Reduce Key Risks to a Successful Enumeration*, [GAO-19-431T](#) (Washington, D.C.: Apr. 30, 2019).

2017, DHS has provided various assessments to support the Department of Commerce and the Bureau's risk management of the 2020 Census and help to enhance the cybersecurity posture. In addition, DHS has developed plans with the Department of Commerce and the Bureau on the type of assistance that DHS expects to provide during 2020 Census operations.

DHS has provided numerous recommendations to assist the Bureau in strengthening its cybersecurity efforts in the last 2 years. Among other things, the recommendations pertained to strengthening cyber incident management capabilities, penetration testing²³ and web application assessments of select systems, and phishing assessments²⁴ to gain access to sensitive personally identifiable information (PII).²⁵ In April 2019, we recommended that the Bureau implement a process for documenting, tracking, and executing appropriate corrective actions to remediate the cybersecurity findings identified by DHS.²⁶ Such a plan would help ensure that DHS's efforts result in improvements to the Bureau's cybersecurity posture.

In the fall of 2019, the Bureau had developed a process for tracking IT-related recommendations from agencies such as DHS, the Commerce Inspector General, and GAO. More recently, the Bureau had begun implementing that process, and provided us with a spreadsheet that it is using to track the status of these recommendations. This spreadsheet included key information, such as corrective actions that the Bureau plans to take to address the recommendations, a point of contact responsible for actions taken to address each recommendation, and a time frame for implementation or for key activities to be completed. We have ongoing work intended to monitor the Bureau's continued progress in implementing this process of tracking the status of the recommendations.

- **Disinformation from social media.** We previously reported that one of the Bureau's key innovations for the 2020 Census is the large-scale implementation of an internet self-response option. The public perception of the Bureau's ability to adequately safeguard the privacy and confidentiality of the 2020 Census internet self-responses could be influenced by disinformation spread through social media.

According to the Bureau, if a substantial segment of the public is not convinced that the Bureau can safeguard public response data against data breaches and unauthorized use, then self-response rates may be lower than projected, leading to an increase in cases for follow-up and in subsequent costs. For example, Bureau officials stated that, during the address canvassing operation, rumors were shared across social media platforms about the address canvassing operation or the staff performing it. The Bureau determined that the rumors created safety concerns for staff who were legitimately working to confirm addresses. To contain the rumors, officials explained that the Bureau

²³The National Institute of Standards and Technology defined penetration testing as security testing in which the evaluators mimic real-world attacks in an attempt to identify ways to circumvent the security features of an application, system, or network. Penetration testing often involves issuing real attacks on real systems and data, using the same tools and techniques used by actual attackers.

²⁴Phishing is a digital form of social engineering that uses authentic-looking, but fake emails to request information from users or direct them to a fake website that requests information.

²⁵Due to the sensitive nature of the recommendations, we are not identifying the specific recommendations or specific findings associated with them in this product.

²⁶[GAO-19-431T](#).

worked with local partners, fact-checkers, and law enforcement to share correct information. The Bureau also posted information on its website²⁷ explaining the rumors and also explaining how to determine whether someone is a Bureau employee and how to contact the Bureau.

To help address this challenge, Bureau officials stated that they plan to inform the public of the risks associated with disinformation from social media through the Bureau's education and communication campaigns. In addition, these officials stated that they plan to use specialized tools to monitor traditional media (e.g., newspapers) and social media, and then track, categorize, and respond to disinformation that may be shared. Additionally, Bureau officials stated that they are coordinating with several technology companies and social media platforms that have agreed to support the Bureau's efforts in various ways, which may include sharing information and modifying relevant Terms of Service to include support for the 2020 Census. Bureau officials have also stated that DHS is providing direct support primarily through information sharing.

- **Ensuring contingency and incident response plans are in place to encompass all of the IT systems to be used to support the 2020 Census.** Because of the brief time frame for collecting data during the 2020 Census, it is especially important that systems are available for respondents, in order to better ensure a high response rate. Contingency planning²⁸ and incident response help ensure that, if normal operations are interrupted, network managers will be able to detect, mitigate, and recover from a service disruption while preserving access to vital information.

In June 2019, Commerce's Inspector General identified several weaknesses in the Bureau's 2020 Census contingency planning efforts.²⁹ For example, the Inspector General identified, among other things, incomplete disaster recovery planning efforts during the Bureau's 2018 End-to-End Test that could have resulted in the Bureau being unable to execute mission critical 2020 Census operations in the event of a major disruption or outage. The Inspector General made eight recommendations to the Bureau including to, among other things, improve the documentation and implementation of disaster recovery planning activities. Bureau officials agreed with all eight of the Inspector General's recommendations and identified actions taken and planned to address them.

Further, the Bureau needs to finalize its contingency planning efforts for its internet response capability. For example, although the Bureau developed a contingency plan for its internet response system in August 2019, this plan is not finalized. In addition, as noted earlier, the Bureau recently made a decision to change the system that it intends to use as the primary system to provide the internet response capability. Given that internet response for the 2020 Census starts in March 2020—approximately 1 month away—it is important that the Bureau expeditiously finalize and test the contingency plan

²⁷<https://2020census.gov/en/news-events/rumors.html>

²⁸According to NIST, contingency planning is part of overall information system continuity of operations planning, which fits into a much broader security and emergency management effort that includes, among other things, organizational and business process continuity and disaster recovery planning.

²⁹U.S. Department of Commerce, Office of Inspector General, *The Census Bureau Must Correct Fundamental Cloud Security Deficiencies in Order to Better Safeguard the 2020 Decennial Census*, [OIG-19-015-A](#) (Washington, D.C.: June 19, 2019).

for its internet response capability and ensure that the plan reflects the approach the Bureau has recently decided to implement.

Regarding incident response, as mentioned previously, DHS provided the Bureau with findings and recommendations related to improving the Bureau's capabilities in this area in November 2017.³⁰ As of January 2020, the Bureau was still working to complete activities for several of these incident response recommendations. As part of our ongoing work, we are evaluating the Bureau's progress in tracking and implementing these and other recommendations provided by DHS.

- **Protecting the privacy of respondent data.** According to the Bureau's Chief Scientist, a challenge of the 2020 Census is to collect the data needed to meet mission needs while protecting the privacy of individual respondent data. This is important because the Bureau plans to enable a public-facing website and mobile devices to collect PII (e.g., name, address, and date of birth) from the nation's entire population—estimated to be over 300 million. Accordingly, it will be important for the Bureau to ensure that only responsible Bureau officials are able to gain access to respondent data, and that enumerators and other employees only have access to the data needed to perform their jobs.

We have reported on challenges to the federal government and the private sector in ensuring the privacy of personal information posed by advances in technology. For example, in 2015, we expanded one of our high-risk areas—ensuring the security of federal information systems and cyber critical infrastructure—to include protecting the privacy of PII.³¹ In addition, we noted that the number of reported security incidents involving PII at federal agencies had increased dramatically. To help mitigate this high-risk area, we reported that federal agencies need to, among other things, consistently develop and implement privacy policies and procedures.

To assist in protecting the privacy of respondent information as required by statute,³² the Bureau plans to apply a disclosure avoidance technique, known as differential privacy, to its publicly-released statistical products to protect the confidentiality of its respondents and their data.³³ As of November 2019, Bureau officials reported that they had tested this technique by creating sample data products using data collected during the 2010 Census and 2018 End-to-End Test. According to these officials, the sample data products included redistricting data and demographic and housing data. However, these

³⁰Because of the sensitive nature of the findings and recommendations in the DHS report, we are not identifying them publicly.

³¹GAO, *High-Risk Series: An Update*. [GAO-15-290](#) (Washington, D.C.: Feb. 11, 2015). We designated the security of our federal cyber assets as a high-risk area in 1997. In 2003, we expanded this high-risk area to include the protection of critical cyber infrastructure, and in 2015 we expanded it again, to include risks to PII.

³²13 U.S.C. § 9.

³³Differential privacy is a disclosure avoidance technique aimed at limiting statistical disclosure and controlling privacy risk. According to the Bureau, differential privacy provides a way for the Bureau to quantify the level of acceptable privacy risk and mitigate the risk that individuals can be reidentified using the Bureau's data. Reidentification can occur when public data is linked to other external data sources. According to the Bureau, using differential privacy means that publicly available data will include some statistical noise, or data inaccuracies, in order to protect the privacy of individuals. Differential privacy provides algorithms that allow policy makers to decide the trade-off between data accuracy and privacy.

officials noted that, for the 2020 Census, they may not be able to publish all of the data products that were published in prior decennials, in order to protect respondent privacy.

As of November 2019, the Bureau was collecting feedback from data users on the sample data products, and had not yet finalized the list of data products that would be produced after the 2020 Census. We have ongoing work monitoring the Bureau's progress as it works to implement differential privacy for the 2020 Census.

Agency Comments

We provided a copy of this draft report to the Department of Commerce. The Census Bureau provided technical comments that were incorporated as appropriate.

We are sending copies of this report to the Secretary of the Department of Commerce, the Under Secretary of Economic Affairs, the Director of the U.S. Census Bureau, and interested congressional committees. In addition, the report is available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact J. Christopher Mihm at 202-512-6806 or by email at mihmj@gao.gov or Nick Marinos at (202) 512-9342 or by email at marinosn@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in enclosure I.



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Chairman

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The Honorable Carolyn B. Maloney
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Enclosure I: GAO Contacts and Staff Acknowledgments

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