CENSUS 2020: EXAMINING THE READINESS OF KEY ASPECTS OF THE CENSUS BUREAU'S 2020 CENSUS PREPARATION

HEARING

BEFORE THE

COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM HOUSE OF REPRESENTATIVES

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CENSUS 2020: EXAMINING THE READINESS OF KEY ASPECTS OF THE CENSUS BUREAU'S 2020 CENSUS PREPARATION

Thursday, June 9, 2016

HOUSE OF REPRESENTATIVES,
COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM,
WASHINGTON, D.C.

The committee met, pursuant to call, at 9:04 a.m., in Room 2154, Rayburn House Office Building, Hon. Jason Chaffetz [chairman of the committee] presiding.

Present: Representatives Chaffetz, Mica, Duncan, Jordan, Walberg, Amash, Gosar, Farenthold, Meadows, Mulvaney, Blum, Walker, Buck, Hice, Carter, Grothman, Palmer, Maloney, Norton, Clay, Cooper, Connolly, Kelly, Watson Coleman, Plaskett, DeSaulnier, Welch, and Lujan Grisham.

Chairman CHAFFETZ. The Committee on Oversight and Government Reform will come to order, and without objection, the chair is authorized to declare a recess at any time.

I thank you all for being here as we examine the preparations of the census of 2020. Hard to believe, but it is coming up before us. And, in fact, it is less than 4 years away, so now is the time to identify problems while they can still be remedied.

Today's hearing is especially important, given the modernization efforts undertaken by the census as it attempts to control the rising costs of administering the decennial census. The cost of counting individuals has gone up roughly 500 percent since 1970, and cost estimates for the 2020 census have exceeded $17 billion. I appreciate the Bureau taking proactive steps to save taxpayer dollars by adopting new technologies to increase efficiency and lower costs. That is the whole premise of technology. It is supposed to make life easier, simpler, more efficient, and more effective, and we can extrapolate the data more quickly.

But in the Bureau's effort to cut the price tag for the 2020 census, it may have bitten off a little bit more than it can chew, and we are here to get on the record and talk about and have candid discussions about the realities of moving forward.

The Bureau is attempting to modernize through two separate programs: the 2020 census and the Census Enterprise Data Collection and Processing program, also known as CEDCaP. It is the bureau-wide program to digitize and modernize not only the decennial census but all of the surveys that are conducted by the Bureau. And among the different systems being updated, they're the mobile device platform, an Internet response platform, and programs to manage enumerators.

But right now, as best we can tell, the Bureau is zero for 17, that is 0 for 17 in its efforts to execute final versions of the IT necessary for these modernization efforts. With only a year-and-a-half before the 2018 end-to-end test, the Bureau cannot afford to dither on decisions and risk failing to test aspects of the modernization program. Failure to be ready for the 2018 test can mean that first-time systems were tested actually in 2020, and that is what we are trying to avoid.

Allowing the 2020 census to proceed with untested programs and risk another HealthCare.gov fiasco must not happen. By all accounts, the Bureau does not have a clear backup plan in place in its modernization efforts to be completed on time, and it is a bit incomprehensible because for the 2010 census the Bureau attempted a far less expansive modernization effort utilizing custom-built mobile enumeration device that ultimately failed. This is the widget if you will, the gadget. This is a $3 billion mistake that happened, $3 billion and it didn't work and had to be trashed, and we don't want to have to go through that again. It was a real problem.

The challenges facing the successful execution of the Bureau's plan for the 2020 census extend beyond merely the actual systems. Problems exist in both staffing and the cost realm as well. The Bureau has had a number of long-term vacancies in key positions. It was just monday of this week that the Bureau announced the appointment of a permanent chief information officer Kevin Smith roughly 11 months since the departure of the previous CIO. We are glad that Mr. Smith is joining us.

He is not here on the panel today. I thought it would be a little unfair, on day 4 of his new employment, to call him before Congress, but he has a massive task in front of him. I look forward to working with Mr. Smith and make sure that our committee is fully integrated with what is happening and not happening.

Today, however, vacancies in key leadership positions remain, including the chief information technology security officer for CEDCaP. Obviously, the sensitivity of the data is of most concern.

The Bureau is also experiencing problems related to the cost of its modernization efforts. The GAO, who's represented here today, and the Department of Commerce inspector general feel that the Bureau is inaccurately estimating the cost for the census. The Bureau has estimated that its modernization efforts will cost around $548 million. However, GAO states that an independent estimate is nearly twice that amount based on the Bureau's efforts of being successful, it is estimated the cost will actually be closer to $1.1 billion. That is not an insignificant difference, and we are here to explore in part today why the difference in such a vast—we are talking about hundreds of millions of dollars in difference.

I would like to thank all of you in advance for your participation and your testimony here today. I look forward to working with you, and we will have regular hearings as the Oversight and Government Reform Committee does have jurisdiction in this matter.

Chairman CHAFFETZ. I will now recognize the gentlewoman from New York, Mrs. Maloney, for her opening statement.

Mrs. MALONEY. First of all, thank you, Mr. Chairman, for convening today's hearing to examine the Census Bureau's readiness

to conduct the 2020 decennial census. I want to thank you and the panelists for being here on this important national issue.

I am very pleased to hear that information technology is playing such a key role in the upcoming census and that the Bureau is taking advantage of the Internet, handheld devices for enumerators, and other technologies that before now were not widely available.

The well-planned use of technology is critical to the success of the decennial census, the Nation's largest peacetime activity, and a constitutionally mandated foundation of our democracy. If we do not have good data, then this country does not have a foundation on which to base good public policy for both the public and private sector.

Census data is used to apportion seats in the United States House of Representatives, defines State Legislature and city legislature districts, determines school district assignments, and helps the private sector and the government make sound investments of where the people are and where the needs are. Decisions on how to fund special education grants, adoption assistance, the creation of small business development centers, rural business enterprise grants, and other programs are all dependent on an accurate census.

The Census Bureau and Department of Commerce have admitted that there have been challenges in preparing for the largest census to date, one that encompasses a population projected to reach more than 324 million people by 2020. According to the GAO, chief among those challenges is the fact that the Bureau has gone without a permanent chief information officer for nearly a year.

Since November, Joint Government Operations and Information Technology Subcommittee hearing on the census, Harry Lee, the Bureau's acting CIO; and Steven Cooper, the Department of Commerce's CIO, have done an admirable job of filling the gap and responding to GAO's IT-related recommendations. As of today, only three out of the 114 IT-related recommendations made by GAO remain unaddressed. I would like to congratulate you on this achievement.

This week's announcement that Kevin Smith has been hired as the Bureau's chief information officer is encouraging and will provide additional leadership to help guide the decision-making process.

However, there is still a great deal of work to be done if the Bureau is going to meet the census modernization goals. For example, while the decision to rely more heavily on technology makes sense, we must incorporate solutions that recognize that access to technology like broadband Internet is inconsistent across the country. Now, that is a huge challenge. According to a January 2016 Federal Communication Commission's report, 10 percent of Americans do not have broadband Internet access. In rural areas, that number increases to nearly 40 percent.

For the first time on a nationwide scale, the Bureau will individuals and households to respond to the 2020 census via the Internet, so congratulations to catching up with the rest of the country. We are going to the Internet. That makes good sense. The Bureau is projecting that more than 50 percent of the households will provide that information using the Internet, and that this will be a huge,

huge savings to the Census Bureau. But I have to ask, without access to a broadband Internet connection, is that number realistic?

In an election year, we are reminded of how fundamental the census is to our democracy and the sustained well-being of all of our communities. There is a lot of work to be done, and the Bureau's plans are certainly ambitious. While I am encouraged by the progress being made, I think it is important that realistic contingency plans are also being considered. I am looking forward to hearing the specifics today on what those contingency plans—what is your fallback plan if you can't reach these goals? And at what point and at what judgment call would be made to adopt the fallback plans.

Again, I want to thank the majority and the chairman for calling this hearing, and I want to thank the witnesses for testifying. This is a fundamental part of our democracy, a fundamental part of our planning, and fundamentally important to the growth of our economy and the ability of our government to respond to the needs of our people.

So I thank all that are part of making the census the best ever in the history of our great country.

I thank you and I yield back.

Chairman CHAFFETZ. I thank the gentlewoman.

I will hold the record open for 5 legislative days for any members who would like to submit a written statement, and will now recognize our panel of witnesses.

I am pleased to welcome the Honorable John Thompson, director of the United States Census Bureau. Mr. Steve Cooper is the chief information officer at the United States Department of Commerce. Mr. Harry Lee has been the acting chief information officer at the United States Census Bureau. Ms. Carol Harris is the director of information technology acquisition management issues at the United States Government Accountability Office. And Ms. Carol Rice is the assistant inspector general at the Office of Economic and Statistical Program Assessment at the United States Department of Commerce. We thank you all for being here.

Pursuant to committee rules, all witnesses are to be sworn before they testify, so if you will please rise and raise your right hand.

[Witnesses sworn.]

Chairman CHAFFETZ. Thank you. Let the record reflect the witnesses have all answered in the affirmative.

In order to allow time for some good discussion, we would appreciate it if you would limit your oral presentation to no more than 5 minutes. Your entire written statement will be made part of the record.

Director Thompson, you are now recognized for 5 minutes.

WITNESS STATEMENTS

STATEMENT OF JOHN H. THOMPSON

Mr. THOMPSON. Good morning, Chairman Chaffetz, Ranking Member Maloney, and other members of the committee. I really appreciate the opportunity to update you on the 2020 census. I'm proud to report today that we are on time and on schedule.

This is a joint statement with Harry Lee, acting associate director for information technology and chief information officer. I thank Mr. Lee for his service over the past year. On Monday, he will be joined by our new CIO Kevin Smith, who comes from the U.S. Patent and Trademark Office.

In November, I testified that we're on track to execute a decennial census that is innovative, efficient, and accurate. The 2020 census operational plan includes 350 design decisions of which 168 had been made in November. Since then, we've made an additional 45 decisions on schedule and in some cases ahead of schedule.

My written testimony provides a detailed description of our progress, which I will summarize in the remainder of my oral testimony.

The Census Bureau is pursuing four key innovation areas that will make it easier for people to respond and save taxpayers more than $5 billion: first, reengineering address canvassing; second, optimizing self-response; third, using administrative records and third-party data; fourth, reengineering field operations.

We're testing these innovations in our 2016 census tests in Los Angeles and in Harris County, Texas, which includes review of our system's readiness and operations. I've visited both sites and seen the operations, the innovations. Next week, our visit our National Processing Center to observe our in-office address canvassing progress.

Today, I will focus on the decisions we've made to support these innovations since November. Use of mobile devices for 2020: A key aspect of reengineering our field operations is replacing enumerators' paper and pencil with mobile devices. These devices have software to securely collect household information, transmit data, make daily assignments, updates, and time sheets.

Based on the findings from our 2014 and 2015 tests, we decided to employ device as a service, another decision made ahead of schedule. In this arrangement, a contractor will provide devices and service contracts to enumerators on our behalf.

Cloud computing: One of our objectives for the 2016 test was to test collection systems in the cloud. Mr. Cooper will discuss this further in his testimony.

Census Enterprise Data Collection and Processing, or CEDCaP systems, build/buy. Since December 2014, we've been assessing whether to use commercial software products to collect and process data or whether to build our own systems. In May, we announced our decision to use a commercial platform with specific solutions developed by census experts.

We made this decision with confidence due to rigorous analysis. First, our in-house teams had created and tested prototypes that refined our requirements and helped us better understand how we could reengineer our business processes. Then, we analyzed commercially available products against these requirements identified by the prototypes. Finally, we conducted our analysis with significant input from experts at Carnegie Mellon University and the National Academy of Sciences. Ultimately, we decided that this approach best meets our data-collection and processing goals for the 2020 census.

Preparing for future decisions: Census tests are critical to our preparation for 2020. This fall, we will test in-field address canvassing procedures and systems in Buncombe County, North Carolina; and St. Louis, Missouri. In 2017, we will conduct a nationwide self-response test with an in-field component tested on two American Indian reservations. We will also test address canvassing integration of our data-collection methods in Puerto Rico. We will announce sites for the 2018 end-to-end test very soon. Systems testing will begin this November with the first field component beginning in 2017—the fall of 2017.

Mitigating risk: As I discuss in detail in my written testimony, mitigating risk is a high priority for the Census Bureau. In particular, we've maintained an enterprise-level risk management program which contains comprehensive risk registers for individual programs, including the 2020 census and CEDCaP.

An extremely critical risk is cybersecurity, and you will hear more about that from Mr. Cooper as well.

Another significant risk we face is budget uncertainty. If adequate funding is not received in fiscal year 2017, we will have to reprioritize activities to ensure that the 2018 end-to-end census test and the 2020 enumeration will take place on time. If we have to defer activities, the cost of the census will increase.

I thank the Congres for your continued support, interest in our work. I am confident the Census Bureau will achieve its objectives with congressional support.

I look forward to answering your questions. Thank you.

[Prepared statement of Mr. Thompson follows:]

WRITTEN STATEMENT OF
JOHN THOMPSON
DIRECTOR, U.S. CENSUS BUREAU
U.S. DEPARTMENT OF COMMERCE

ON
THE READINESS OF THE CENSUS BUREAU'S MODERNIZATION EFFORTS FOR THE 2020 DECENNIAL CENSUS

BEFORE THE
HOUSE COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM

JUNE 9, 2016

Chairman Chaffetz, Ranking Member Cummings and members of the Committee, I appreciate the opportunity to update you on the Census Bureau's continued progress towards a redesigned 2020 Census.

I'm proud to report today that the 2020 Census is on time and on schedule.

This is a joint statement with Harry A. Lee, Acting Associate Director for Information Technology and Chief Information Officer. I thank Mr. Lee for his service as interim CIO; we've made great progress in our IT preparations for the 2020 Census under his guidance. I'm pleased to announce that Kevin Smith will join the Census Bureau as the new Associate Director for Information Technology and CIO on Monday. Mr. Smith comes from the U.S. Patent and Trademark Office where he was Chief Information Security Officer and Deputy CIO. He also has more than a decade of private sector experience in the IT field.

In November, I testified before many of you that the Census Bureau is on schedule to execute an accurate Decennial Census. At that point, the Census Bureau had just released the 2020 Census Operational Plan, outlining the design for a reengineered census. The operational plan documented 350 design decisions, of which 168 had already been made. We continue to make significant progress. Since November, we have made an additional 45 decisions based on the results of our research and testing program. These decisions were made according to schedule, and in some instances, ahead of schedule. Today I will discuss our progress in more detail, focusing on key milestones, including Decennial Device as a Service, Cloud computing, and Census Enterprise Data Collection and Processing Program (CEDCaP).

It is important to remember how we got here. Decisions are only made based on solid research and extensive testing. The 2020 Census' success rests on an extensive research and testing program. We need to test our new systems and processes in a live environment, identify any improvements that we need to make, and make them before we launch the actual Decennial Census.

Four key innovation areas

Between FY 2012 and FY 2015, the Census Bureau implemented a series of increasingly complex operational tests to study methodologies and chart the path toward the 2020 Census. This led us to four key innovation areas for 2020 that will make it easier than ever for people to respond, and will save taxpayers more than $5 billion compared to doing the census the old way. By the end of this year, the Census Bureau will have determined the final methodologies associated with the four key design areas. I would like to share a few examples.

First, the goal of *reengineering address canvassing* is to eliminate nationwide in-field address canvassing in 2019. Instead, the Census Bureau has developed innovative methodologies for updating our geographic databases throughout the decade. We are determining where housing address changes are taking place and implementing a plan for capturing them. We are using a combination of methods to accomplish this, including addresses obtained from the U.S. Postal Service, local governments, commercial databases, and other private sector resources. Our goal is to maintain our address list more efficiently, eliminating the need to conduct costly in-field canvassing for every area of the country but ensuring every area in the country is covered either through in-office or in-field canvassing.

In September 2015, we started the in-office address canvassing operation at our National Processing Center – an operation that I will have the opportunity to observe in person next week. We currently have approximately two hundred employees reviewing satellite imagery to help detect new housing units, in conjunction with the sources I mentioned above. After eight months of production, I am pleased to report that the results of this work are in line with the 2020 Census design goals released in October 2015 – to conduct a 100 percent review of address canvassing in the office and review only 25 percent of those in the field. This fall, we will conduct the Address Canvassing Test in Buncombe County, N.C., and St. Louis, Mo., to test our procedures and systems related to in-field address canvassing. This test will include the use of an important CEDCaP system, the Listing and Mapping Instrument, designed to collect address and spatial data on a mobile device.

Second, the goal of *optimizing self-response* aims to reduce the number of households requiring follow-up. The results of the 2014 Census Test, 2015 Optimizing Self Response Test, the 2015 Census Test, and the 2015 National Content Test have helped refine our design decisions. We learned about the importance of using a communication strategy that includes partnerships, targeted digital advertising, and traditional mailed materials. We learned that while the majority of the population will respond using the Internet, this is associated with especially high call volumes to our census questionnaire assistance centers.

In support of this goal, we will award two major contracts this summer that leverage these test findings and our preparations for the 2020 Census - the Integrated Communications Contract and the Census Questionnaire Assistance Contract. Requirements for both of these contracts will be informed by our test findings. We will award both of these contracts on schedule, and one year prior to award last decade.

Third, the goal of *utilizing administrative records and third party data* is to use information people have already provided to reduce expensive in person follow-up. The Census Bureau has a long history of using administrative records, and has policies and procedures in place to protect the

confidentiality of those records. Research from the 2014 Census Test, the 2015 Census Test, the 2010 Census, and the American Community Survey support our 2020 Census design goals. Addresses for which the Census Bureau did not receive a self-response will form the initial universe of addresses for the Nonresponse Follow-up (NRFU) operation. Prior to any fieldwork, vacant addresses will be removed from the NRFU workload using administrative records. Undeliverable-As-Addressed information from the USPS will provide the core administrative records source for the identification of vacant units.

After an initial attempt to contact nonresponding housing units, the NRFU workload will be further reduced through the removal of cases where administrative records and third-party data are available and usable to enumerate the occupied housing units. The NRFU operational design will use administrative records and third-party data to enumerate occupied housing units. For this effort, core administrative records will come from the Internal Revenue Service, the Centers for Medicare and Medicaid Services, the Indian Health Service and the Social Security Administration, as well as existing Census Bureau information and third-party data. We are continuing to look for additional administrative data sets to use in the NRFU effort. Addresses removed from the NRFU workload as either vacant or occupied will receive a final mailing that encourages occupants to self-respond to the 2020 Census.

Fourth and finally, the goal of *reengineering field operations* is to use technology to more efficiently and effectively manage the 2020 Census fieldwork. Most of this fieldwork is associated with NRFU – the largest, most expensive operation in the census. Over the past few years, testing for this innovation area focused on specific operations and systems, including development of the supporting infrastructure to collect and process data for over 140 million housing units and over 330 million people during the 2020 Census. During the 2015 Census Test, we learned that using an operational control system to manage the NRFU caseload was successful in optimizing the route enumerators followed and the best time of day to visit. In combination with the use of mobile devices to conduct the interviews, this increases productivity, helps streamline the staffing and physical infrastructure, and provides actionable real-time management information to supervisors.

NRFU for the 2016 Census Test began on May 12, 2016, according to schedule. Based on findings from the 2015 Census Test, we made adjustments to the operational control system and alerts. We conducted enhanced geocoding of address coordinates to better align with the road network to allow for better routing and optimization of the cases. In addition, we will now interview the managers of multi-unit structures to identify vacant and potentially non-existent housing units before enumeration attempts. Finally, feedback from the 2015 Census Test debriefings included comments about the lack of positive alerts that could be sent to reinforce strong performance. As a result, an enumerator now receives a periodic complimentary message for conducting high-quality work. Following the 2016 Census Test, we will finalize our strategy for NRFU in the 2020 Census.

Decennial Device as a Service

A key aspect of reengineering our field operations is replacing paper and pencil with mobile devices for enumerators who visit nonresponding households. In this way, we plan to better manage enumerators' workloads and routing in real time. These devices have software that

enumerators will use to securely collect households' information and transmit those data, their daily assignments, updates, and timesheets. The security and privacy of everyone's information is the primary concern and responsibility of every single person at the Census Bureau.

After the release of the 2020 Census Operational Plan, we held a rigorous planning and evaluation session to review the results from tests conducted in 2014 and 2015; outline the execution details of upcoming tests; and examine where we could reduce operational risk. As part of this effort, we considered the Government Accountability Office's (GAO) recommendations to examine whether we could make any decisions ahead of schedule to further reduce risk.

One area in which we made an ahead-of-schedule decision was on technology options for enumerators. Our tests in 2014 and 2015 provided enough data that we felt confident in deciding to employ the Decennial Device as a Service option. In this arrangement, the Census Bureau will award a contract to a company that will provide devices and the service contracts to enumerators on our behalf. We will issue an RFP for the Decennial Device as a Service contract in September 2016, and make the award in January 2017.

See our decision memo for Decennial Device as a Service at <www.census.gov/programs-surveys/decennial-census/2020-census/planning-management/memo-series/2020-memo-2016_01.html.>

Cloud computing

With our increasing reliance on technology in the four key innovation areas, one of our objectives for the 2016 Census Test was to test some of our collection systems in the Cloud. We successfully deployed and tested our applications for internet self-response systems in the Cloud. As a result of our testing, we were able to solidify our availability requirements, failover capabilities and security controls. However, we did not go live with these systems in the Cloud. The chosen Cloud solution had not demonstrated enough stability, meaning that there was a probability of failure and/or service interruption based on historical evidence. Due to this instability, we went live with our systems in our server-based infrastructure.

We now have an enterprise contract in place that will give us access to Cloud providers. In addition, on June 1, 2016 we issued an RFP for a technical integrator. The technical integrator will provide expertise from the private sector in technical areas that are critical to the success of the 2020 Census such as IT security, fraud detection, Cloud architecture, physical architecture, scalability engineering, and integration and performance testing. The technical integrator will develop and implement an overall program for integration of the 2020 Census IT solution. We will make the award for the technical integrator contract in August 2016.

Iterative testing over the past few years has resulted in a 2020 Census design that is strong and based on solid data. Each system will be tested independently in the Cloud in 2016. For the 2017 Census Tests, the Census Bureau plans to test systems in an integrated manner. In 2017, we will also run simulations to test scalability. All of these actions will ensure a successful 2018 End-to-End Census Test and a successful 2020 Census.

See our decision memo on 2020 Census Enterprise Architecture and Infrastructure Transition Plan that has cloud deployment timelines at <www.census.gov/programs-surveys/decennial-census/2020-census/planning-management/memo-series/2020-memo-2016_04.html.>

CEDCaP build vs. buy

As the prototype IT systems and procedures to support optimizing self-response and NRFU were tested, refined and used, they guided the development of our enterprise IT systems and procedures. In May 2016, the Census Bureau announced a major milestone in our development work. Since December 2014, we've been assessing whether to use commercial software products to collect and process data in the 2020 Census, or whether to build our own systems. We have determined that a hybrid approach – integrating a commercial off-the-shelf (COTS) platform with specific solutions developed by Census experts – will best meet our needs. This approach meets our data collection and processing goals for the 2020 Census, and builds the infrastructure to support all of our censuses and surveys in the future.

We made this decision with confidence, because for the past several years the Census Bureau has been creating CEDCaP, an enterprise-wide approach. As part of that effort, our in-house innovation and development teams have been hard at work developing prototypes that we successfully tested during the 2020 Census field tests. These prototypes delivered key digital data collection system capabilities. This testing has been a critical part of the development process, allowing us to better understand how we could reengineer our business processes.

Through this work, we developed and refined our requirements, enabling us to evaluate whether the final system would be built in-house or purchased as a commercial off-the-shelf product. The final requirements, an analysis of the development and testing results, and expert input from Carnegie Mellon University and the National Academy of Sciences determined that an integrated commercial off-the-shelf platform that can supply functional solutions and incorporate some of the in-house innovations we developed is the best way forward.

See our decision memo on CEDCaP build vs. buy at <www.census.gov/programs-surveys/decennial-census/2020-census/planning-management/memo-series/2020-memo-2016_06.html.> See the complete capability assessment and report at <www2.census.gov/about/policies/cedcap/cedcap-report-final.pdf.>

Content changes

In addition to our work developing the systems used to collect our data for the 2020 Census, we are also updating the content for the questionnaire itself. To ensure we count everyone once, and only once, and in the right place, we need to ensure that we ask the right questions in the right way.

Decisions on new content are reached through careful consideration and using the same criteria we have applied to the Decennial Census program for some time, chiefly that there is an explicit federal, legislative or programmatic need for the data. Our advisory committees provide

invaluable support and guidance in this process. To that end, we have begun collaborating with other federal agencies to determine whether existing questions need to be updated or new questions need to be added. Federal agencies will submit their proposed content changes for the 2020 Census to the Census Bureau by July 1, 2016. With their proposals in hand, we embark on an Office of Management and Budget-led evaluation, which includes multiple rounds of public comment. We will continue to engage with members of Congress and this Committee throughout this process. We will formally deliver the topics to the Congress in March 2017 and the questions in March 2018.

See our decision memo on content for the 2020 Census at <www.census.gov/programs-surveys/decennial-census/2020-census/planning-management/memo-series/2020-memo-2016_05.html.>

Preparations for future decisions

Our team of experts is aggressively working towards upcoming milestones for our key innovation areas, and census tests are critical to our preparation. For example, in our 2016 test, we implemented programs for testing the integration of systems, as well as reviewing the readiness of systems and operations at each stage. We will continue to use these review and testing programs in future Census Tests.

We are preparing for two tests in 2017. One test will be a nationwide self-response test combined with site tests on the Coleville Indian Reservation and Off-Reservation Trust Land in Washington and on the Standing Rock Reservation in North Dakota and South Dakota. A second test will be conducted in Puerto Rico to evaluate the effectiveness of address canvassing and integration of data collection methods.

We already have a team working on the 2018 End-to-End Census Test, and expect to announce the sites for that test shortly. We will start our systems testing for this important test in November 2016, with the first field component beginning in the fall of 2017.

Refining the systems we use for data collection and processing is a critical component of our proposal to save $5.2 billion in the 2020 Census, compared to repeating the 2010 Census design. The timing of decisions about these systems was critical to meet the schedules and timelines that are key to preparing for the 2018 End-to-End Census Test, which will test the integration of all major operations and systems.

Mitigating risk

Our planning also includes an extensive risk mitigation strategy. We have a schedule of when critical decisions need to be made for the 2020 Census. The CEDCaP schedule has been integrated with the schedule for the 2020 Census to assure that the critical functions needed to support the census are delivered on time.

The Census Bureau has an enterprise-level risk management program, which contains comprehensive risk registers for individual programs including the 2020 Census and CEDCaP.

Risk information maintained in each program's risk register includes triggers, mitigation strategies, and contingency plans, for risks with the highest exposure level. Senior Census Bureau leadership conduct quarterly reviews of the highest level, crosscutting risks and ensuring active monitoring. For example, we identified program risks that speak to the scalability of 2020 Census systems and the use of Cloud technology.

Data security is an important enterprise level risk that we are tracking on our risk registers. Our cybersecurity program provides protection to not only our IT infrastructure and systems, but more importantly, to the personal and business information we collect from our respondents and other sources. To secure this environment and data, our cybersecurity program is multi-dimensional, multi-level, and multi-governed. I am very confident in our ability to protect the information we collect and protect our information systems through our current cybersecurity policies and procedures. We continually look to improve our cybersecurity program in order to provide a high level of confidence to our respondents and partner organizations. As we have reported to GAO, our cybersecurity program already takes into consideration the information security challenges they mentioned in a recent draft report. We appreciate GAO's identification of these IT security challenges, and we will look to continue to make improvements in each area.

In addition to actively monitoring items on our risk registers, another key part of our risk mitigation strategy has been to build working prototypes and test them throughout the decade. This process allows us to ensure that capabilities and requirements are identified and documented early. We have successfully fielded key modules of CEDCaP, and CEDCaP modules are in production in other Census Bureau programs. In addition, as stated in the 2020 Census Operational Plan, we are making innovative use of existing technology and software instead of inventing on our own. We developed a working prototype for components of the 2020 Census that we successfully tested in 2014, 2015, and 2016. Based on this prototype, we have incorporated much of the 2020 Census program specifications into the next iteration. We will finish this work based on the results of tests in 2016 and 2017 in time for the 2018 End-to-End Census Test.

While we are constantly looking at ways to minimize risk for the 2020 Census, a significant risk we face is budget uncertainty. If adequate funding is not received in FY 2017, we will prioritize activities to ensure that the 2018 End-to-End Census Test and implementation activities for the 2020 enumeration will take place on time. We are committed to ensuring an accurate Census that fairly represents everyone. If we have to reprioritize and defer activities to later years, the cost of the Census will increase.

I want to thank Congress for the support we have received to date for 2020 Census programs, and for your continued interest in our work. I am confident the Census Bureau can achieve its objectives given Congressional support. I look forward to continuing to work with you, and to answering your questions.

Thank you.

Chairman CHAFFETZ. Thank you. Mr. Cooper, you are now recognized for 5 minutes.

STATEMENT OF STEVE I. COOPER

Mr. COOPER. Good morning. Chairman Chaffetz, Ranking Member Maloney, and members of the committee, thank you for the opportunity to testify this morning. It is my pleasure to address the committee and update you on our work for a successful 2020 census.

As you know, the Census Bureau faces an increasing set of challenges, including declining survey participation rates, increasing survey costs per household, funding constraints, and evolving cybersecurity threats. The Census Bureau continues working to ensure the necessary information technology is in place to support the 2020 decennial census.

In November, I testified before many of you and spoke about a major enterprise initiative providing support to the 2020 census, the Census Enterprise Data Collection and Processing, known as CEDCaP. CEDCaP is an integrated and standardized suite of systems that will provide shared data collection and processing solutions across all Census Bureau operations.

Just weeks ago, the Census Bureau announced a major decision on whether to use commercial software products or develop our own systems to collect and process data in the 2020 census. After a comprehensive evaluation and extensive analysis, we have determined that a hybrid approach—combining a commercial off-the-shelf COTS system with specific solutions developed by census experts—will best meet our needs. The full CEDCaP COTS Capability Assessment and Analysis Report is now available, as well as the related 2020 Decision Memo.

During this same period, our in-house innovation and development teams have been hard at work developing test prototypes for the 2020 census field tests. This testing has been a critical part of the development process, allowing us to better understand how to reengineer our business processes to save money during the 2020 census. The work of the teams helped us develop and refine our requirements and to conduct a well-informed evaluation of the COTS products.

Based on our final requirements, an analysis of the development and testing results, and with input from experts at Carnegie Mellon University and the National Academy of Sciences, we decided on an integrated COTS platform which can supply functional solutions that also incorporate innovations that we have developed in-house. This approach meets our data collection and processing goals for the 2020 census and allows us to build the infrastructure to support our censuses and surveys in the future as well.

Refining the systems we use for data collection and processing is a critical component of our proposal to save $5.2 billion in the 2020 census when compared to the 2010 census design. Meeting the schedules and timelines are key to preparing for the 2018 end-to-end test, which will test the integration of all major operations, processes, and systems.

The Census Bureau continues to explore how best to employ cloud-computing services to support the performance and scaling

needs of 2020 census systems, particularly for the Internet self-response option that must support millions of users. As part of this effort, we have developed several guidance documents to include a cloud strategy, a cloud maturity model, cloud concept of operations, a consolidated project dashboard to measure that progress and success, and cloud readiness checklist. We are ready to evaluate cloud candidates among census systems and applications before beginning any migration or transition activities.

The Census Bureau is currently engaging in robust technical activities to innovate and fully transition to the cloud. Proof-of-concept activities include performing integration, load, and penetration testing to validate results. We have collected lessons learned to incorporate high availability and redundancy in the cloud.

We intend to engage and acquire private sector expertise to partner with census to obtain cloud services and ensure overall system readiness and security for the decennial census.

Obviously, securing confidential data is a major concern for the Census Bureau. The Census Bureau uses an enterprise-layered defense approach to protect its data and systems. This includes the use of Department of Homeland Security-managed EINSTEIN program, intrusion-detection systems, intrusion-prevention systems. We have segmented Census Bureau's network to isolate the internal network from systems that are Internet-accessible, and we have adopted risk management framework guidelines from our colleagues at the National Institute of Standards and Technology.

Census works very closely with the Department of Commerce in addressing the various cybersecurity goals set forth by the Department, the Office of Management and Budget, and the Department of Homeland Security. Moreover, Census also has an active Computer Incident Response Team to identify and investigate incidents that may be cybersecurity-related. The CIRT has trained forensic specialists on staff who are involved in incident investigation and response. In addition to DHS EINSTEIN, we've employed a layered defense strategy with the implementation of Census Intrusion Detection Systems, firewalls, and antivirus scanning.

Consistent with my testimony in November and based upon my ongoing observations, the Census Bureau and the 2020 census program is well-positioned to leverage enterprise initiative to realize significant efficiencies and mitigate risk. Innovations in cloud computing, mobile technology, and cybersecurity continue to show great promise, but to adequately implement these strategies and meet the challenges will require the best efforts of the Census Bureau and continued congressional support.

I am deeply grateful for this opportunity to testify, and I'm pleased to answer any questions you may have. Thank you.

[Prepared statement of Mr. Cooper follows:]

Oral Testimony
of

Steven Cooper, Chief Information Officer, Department of Commerce

Before the U.S. House of Representative
Committee on Oversight and Government Reform

Thursday, June 9, 2016

Chairman Chaffetz, Ranking Member Cummings and members of the Committee, thank you for the opportunity to testify this morning.

I am Steve Cooper, Chief Information Officer for the Department of Commerce. It is my pleasure to address the Committee and update you on our work for a successful 2020 Census.

As you know, the Census Bureau faces an increasing set of challenges, including declining survey participation rates; increasing survey costs per household; funding uncertainty; and evolving cybersecurity threats. The Census Bureau continues working to ensure the necessary information technology—or "IT"—is in place to support the 2020 Census.

In November, I testified before many of you and spoke about a major enterprise initiative providing support to the 2020 Census – the Census Enterprise Data Collection and Processing – known as "CEDCaP". CEDCaP is an integrated and standardized suite of systems that will provide shared data collection and processing solutions across all Census Bureau operations.

Just weeks ago, the Census Bureau announced a major decision on that path on whether to use commercial software products or develop our own systems to collect and process data in the 2020 Census. After a comprehensive evaluation and an extensive analysis, we have determined that a hybrid approach – combining a commercial off-the-shelf (COTS) system with specific solutions developed by Census experts – will best meet our needs. The full CEDCaP "COTS Capability Assessment and Analysis Report" is available as well as the related 2020 Decision Memo.

During this same period, our in-house innovation and development teams have been hard at work developing test prototypes for the 2020 Census field tests. These

prototypes delivered key digital data collection system capabilities for data collection. This testing has been a critical part of the development process, allowing us to better understand how to re-engineer our business processes to save money during the 2020 Census. The work of the teams helped us develop and refine our requirements, and to make a well-informed evaluation of the COTS products.

Based on our final requirements, an analysis of the development and testing results and with input from experts at Carnegie Mellon University and the National Academy of Sciences, we decided on an integrated COTS platform that can supply functional solutions that incorporate innovations that we have developed in-house. This approach meets our data collection and processing goals for the 2020 Census and builds the infrastructure to support our censuses and surveys in the future.

Refining the systems we use for data collection and processing is a critical component of our proposal to save $5.2 billion in the 2020 Census when compared to the 2010 Census design. Meeting the schedules and timelines is key to preparing for the 2018 End-to-End Test, which will test the integration of all major operations and systems.

The Census Bureau continues to explore how best to employ cloud computing services to support the performance and scaling needs of 2020 Census systems, particularly for the internet self-response option that must support millions of users. We have acquired new talent and are currently working to enhance and increase our staff knowledge of cloud initiatives. We are in the process of building and establishing the governance and relevant processes, and currently establishing the appropriate contracting vehicles for Census Bureau needs. As part of this effort, we have drafted documents to include a Cloud Strategy, a Cloud Maturity Model, Cloud CONOPS, Consolidated Project Dashboard, and Cloud Readiness Checklist among others. We are poised to evaluate cloud candidates' compatibility with Census systems and applications before beginning migration or transition activities.

The Census Bureau is currently engaging in robust technical activities to innovate and fully transition to the Cloud. Proof-of-concept activities include performing integration, load, and penetration testing to validate results. We have collected lessons learned to incorporate high availability and redundancy in the cloud. We have sufficiently gained essential knowledge of Cloud Service Providers (CSPs) technology and are prepared for the migration and integration of additional capabilities. We intend to engage and acquire private sector expertise to partner

with Census to obtain cloud services and ensure overall system readiness for the decennial census.

Obviously, securing confidential data is a major concern for the Census Bureau. The Census Bureau uses an enterprise layered defense approach to protect its data and systems, utilizing:

- Department of Homeland Security-managed Einstein program to protect Internet traffic;
- Cloud service provider to protect against Distributed Denial of Service (DDoS) attacks;
- Intrusion detection systems and intrusion prevention systems;
- Segmented Census Bureau's network to isolate the internal network from systems that are Internet accessible.
- Risk management framework guidelines from the National Institute of Standards and Technology (NIST).

Census works very closely with their colleagues in the Department of Commerce (DOC) in addressing the various cybersecurity goals issued by DOC, the Office of Management and Budget (OMB), and the Department of Homeland Security (DHS). We participate in the DHS EINSTEIN program that detects and blocks threats at the federal network perimeter, and are working with DOC to onboard into the DHS Continuous Diagnostic and Mitigation (CDM) program that helps agencies identify vulnerabilities and other risk factors inside their networks. Census also has a rigorous program for the development and formal approval of secure configuration baselines and conducts automated scanning to look for unapproved baseline changes and security vulnerabilities.

Moreover, Census also has an active Computer Incident Response Team (CIRT) to investigate incidents that may be cybersecurity related. The CIRT has trained forensic specialists on staff who are involved in incident investigation and response as needed. In addition to DHS Einstein, Census also employs a layered defense strategy with the implementation of Census Intrusion Detection Systems, firewalls and anti-virus scanning. Furthermore, it is working on a contract to provide "brand protection" to monitor the internet for sites that mimic the Census Bureau.

Consistent with my testimony in November and based on my ongoing observations, the Census Bureau and the 2020 Census Program are well positioned and poised to leverage enterprise initiatives to realize significant efficiencies. Innovations in cloud computing, and cybersecurity continue to show great promise.

But to adequately implement these strategies and meet the challenges will require the best efforts of the Census Bureau and continued Congressional support.

I am deeply grateful for this opportunity to testify before this committee and share these observations, and I am pleased to answer any questions you may have.

Chairman CHAFFETZ. Thank you. Mr. Lee, my understanding is you did a combined statement with Director Thompson, correct?

Mr. LEE. That is correct.

Chairman CHAFFETZ. Okay. We will now go to Ms. Harris. You are now recognized for 5 minutes.

STATEMENT OF CAROL CHA HARRIS

Ms. HARRIS. Chairman Chaffetz, acting Ranking Member Maloney, and members of the committee, thank you for inviting me to testify today.

Your continued oversight in hearings of the 2020 census are vital to ensuring that this important effort is managed effectively. The Bureau will rely on an enterprise-wide IT initiative called CEDCaP to deliver systems and infrastructure needed to carry out its redesign operations. For example, CEDCaP is planning to enable an Internet response option, implement a new system to track and manage enumerator caseloads, and use mobile devices for field data collection. As such, CEDCaP is integral to helping the 2020 census program achieve its estimated $5.2 billion cost-savings goal.

Based on ongoing work, I'll highlight three key points regarding the Bureau's IT plans for 2020. First, CEDCaP has little time remaining to implement key production systems needed for 2020. The CEDCaP program is expected to deliver 17 solutions for 2020, and implementation of the final production systems for the 17 has not yet started. For about half, the Bureau just recently made the decision to buy these solutions.

However, by August 2017 the Bureau intends to begin end-to-end testing to validate that CEDCaP systems are ready to go live on census day. This gives the Bureau less than a year-and-a-half to reengineer business processes; configure, integrate, and test planned systems.

Further, our in-depth analysis of three high-priority CEDCaP projects show that key IT management best practices were not fully implemented. For example, while each of the three projects meet weekly to monitor costs and schedule variances, their efforts to adequately assess progress have been hampered because none have up-to-date cost performance baselines or project plans with key details such as milestone dates for when production systems are to be released.

Until the Bureau addresses the weaknesses we identified, it will be at greater risk of cost and schedule increases and failure to deliver capabilities that will meet the needs of 2020.

Second, more effective management of the interdependencies between the CEDCaP and 2020 programs is needed. These two programs are intended to be on parallel implementation tracks, and while steps have been taken to coordinate schedules, risk, and requirements, these programs lack effective processes for managing their interdependencies. For example, the Bureau's process for managing shared activities requires the programs to maintain two separate dependency schedules rather than establishing one integrated dependency schedule, as called for by best practice. This has contributed to the misalignment of major milestone events, including key build-or-buy decisions that CEDCaP ultimately needed to accelerate to meet the needs of 2020.

In addition, the Bureau has proceeded with CEDCaP work without having a fully defined and institutionalized process for collecting business requirements. The lack of fully defined requirements has been a problem for the Bureau in the past and contributed to a $3 billion overrun and failed IT program in the 2010 census. Bureau officials have told us that they are taking or plan to take steps to address the issues. However, until these interdependencies are managed more effectively, the Bureau will be limited in understanding the work needed by both programs to deliver CEDCaP systems.

Third, there are critical information security challenges that will need to be effectively addressed when implementing the 2020 census. Among other things, the Bureau's introduction of an Internet response option puts respondents at more risk for phishing attacks—that is, requests for personal information from authentic-looking but fake emails and Web sites.

The Bureau must also make certain that key IT positions are filled and have appropriate information security knowledge and expertise. As of this week, the Bureau filled its most critical and long-standing IT leadership vacancy: the chief information officer position. More work will be needed to fill the remaining gaps, including the CEDCaP chief security engineer, to ensure that sensitive information collected during the census is adequately secure.

In summary, the Bureau has a considerable amount of work left with less than a year-and-a-half remaining until its production systems must be ready for the 2020 end-to-end test. The margin for error is slim, and it will be critical for the Bureau to fully implement our recommendations. Doing so will improve the Bureau's ability to deliver on its IT plans and realize cost savings.

That concludes my statement, and I look forward to addressing your questions.

[Prepared statement of Ms. Harris follows:]

GAO Highlights

Highlights of GAO-16-723T, a testimony before the Committee on Oversight and Government Reform, House of Representatives

Why GAO Did This Study

The U.S. Census Bureau (which is part of the Department of Commerce) plans to significantly change the methods and technology it uses to count the population with the 2020 Decennial Census. The Bureau's redesign of the census relies on the acquisition and development of many new and modified systems. Several of the key systems are to be provided by an enterprise-wide initiative called CEDCAP, which is a large and complex modernization program intended to deliver a system-of-systems for all the Bureau's survey data collection and processing functions.

This statement summarizes preliminary findings from GAO's draft report on, among other things, the Bureau's management of the interdependencies between the CEDCAP and 2020 Census programs, and key information security challenges the Bureau faces in implementing the 2020 Census design. To develop that draft report, GAO reviewed Bureau documentation such as project plans and schedules and compared them against relevant guidance; and analyzed information security reports and documents.

What GAO Recommends

GAO's draft report includes several recommendations to help the Bureau better manage CEDCAP and 2020 Census program interdependencies related to schedule, risk, and requirements. The draft report is currently with the Department of Commerce and the Bureau for comment.

View GAO-16-723T. For more information, contact Carol C. Harris at (202) 512-4456 or chac@gao.gov.

June 9, 2016

INFORMATION TECHNOLOGY

Management of Interdependencies between Programs Supporting 2020 Census

What GAO Found

The 2020 Census program is heavily dependent upon the Census Enterprise Data Collection and Processing (CEDCAP) program to deliver the key systems needed to support the 2020 Census redesign. However, GAO's preliminary findings showed that while the two programs have taken steps to coordinate their schedules, risks, and requirements, they lacked effective processes for managing their interdependencies. Specifically:

- Among tens of thousands of schedule activities, the two programs are expected to manually identify activities that are dependent on each other, and rather than establishing one integrated dependency schedule, the programs maintain two separate dependency schedules. This has contributed to misalignment in milestones between the programs.
- The programs do not have an integrated list of interdependent program risks, and thus they do not always recognize the same risks that impact both programs.
- Among other things, key requirements have not been defined for validating responses from individuals who respond to the census using an address instead of a Bureau-assigned identification number, because of the Bureau's limited knowledge and experience in this area. The lack of knowledge and specific requirements related to this critical function is concerning, given that there is less than a year and a half remaining before the Census end-to-end test begins in August 2017 (which is intended to test all key systems and operations to ensure readiness for the 2020 Census).

Officials have acknowledged these weaknesses and reported that they are taking, or plan to take, steps to address the issues. However, until these interdependencies are managed more effectively, the Bureau will be limited in understanding the work needed by both programs to meet milestones, mitigate major risks, and ensure that requirements are appropriately identified.

While the large-scale technological changes for the 2020 Decennial Census introduce great potential for efficiency and effectiveness gains, they also introduce many information security challenges. For example, the introduction of an option for households to respond using the Internet puts respondents more at risk for phishing attacks (requests for information from authentic-looking, but fake, e-mails and websites). In addition, because the Bureau plans to allow its enumerators to use mobile devices to collect information from households who did not self-respond to the survey, it is important that the Bureau ensures that these devices are adequately protected. The Bureau has begun efforts to address many of these challenges; as it begins implementing the 2020 Census design, continued focus on these considerable security challenges will be critical.

Chairman Chaffetz, Ranking Member Cummings, and Members of the Committee:

I am pleased to be here today to discuss the U.S. Census Bureau's (Bureau) readiness to deliver an enterprise information technology (IT) initiative, referred to as the Census Enterprise Data Collection and Processing (CEDCAP) program, in time to support a significantly redesigned 2020 Census. Specifically, CEDCAP is a large and complex modernization program intended to deliver a system-of-systems for all the Bureau's survey data collection and processing functions, rather than continuing to rely on unique, survey-specific systems.

CEDCAP is particularly important as it is intended to support significant changes for how the Bureau (which is a part of the Department of Commerce) is planning to conduct the 2020 Census. Specifically, the Bureau is aiming to modernize and automate its outdated and inefficient methods of conducting decennial censuses, and to save the government approximately $5.2 billion.[1] This includes plans to significantly change the methods and technology it uses to count the population, such as offering an option for households to respond to the survey via the Internet, enabling a mobile data collection application for field enumerators to use on mobile devices to collect survey data from households, and automating the management of field operations. These new capabilities and supporting systems are expected to be delivered by CEDCAP.

With less than a year and a half remaining before the Census end-to-end test begins in August 2017 (which is intended to test all key systems and operations to ensure readiness for the 2020 Census), this hearing is especially timely. My statement today is based on a draft report, which is currently with Commerce and the Bureau for comment. Specifically, my remarks summarize key preliminary findings from that study, in which we (1) describe the status of the 12 CEDCAP projects, (2) evaluate the extent to which the Bureau is implementing best practices in monitoring and controlling selected projects, (3) determine the extent to which the Bureau is adequately managing the interdependencies between the CEDCAP and 2020 Census programs, and (4) describe the key information security challenges the Bureau faces in implementing the 2020 Census design. We plan to issue this report next month.

[1]Total savings compared to Bureau's projected cost of 2020 Census using traditional approach and methods (in 2020 constant dollars).

Regarding the first objective in our draft report, we reviewed relevant CEDCAP program and project documentation, such as the transition plan, segment architecture, project charters, and monthly progress reports, and interviewed Bureau officials on the status and plans of all 12 projects.

To address the second objective, we selected three of the CEDCAP projects based on those that Bureau officials identified as being the highest priority for the 2020 Census—(1) Centralized Operational Analysis and Control Project, (2) Internet and Mobile Data Collection Project, and (3) Survey (and Listing) Interview Operational Control Project. We analyzed project schedules, risk registers, and management reports for these three projects and interviewed Bureau officials on their efforts to manage these projects. We compared the Bureau's approach against best practices for project monitoring and control identified by the Software Engineering Institute's Capability Maturity Model® Integration for Acquisition (CMMI®-ACQ) and for Development (CMMI-DEV).[2]

To address the third objective, we analyzed relevant documentation from the CEDCAP program and the 2020 Census program, such as risk management plans, program-level risk registers, master schedules, program management plans, and requirements management documentation, and compared them against best practices identified in CMMI-ACQ and CMMI-DEV, as well as practices identified by GAO for managing interdependencies.[3] We also interviewed Bureau officials from the CEDCAP and 2020 Census programs on their approach to managing interdependencies between the two programs.

For the fourth objective, we reviewed relevant documents, such as CEDCAP and 2020 Census program risk registers and relevant GAO reports on information security challenges. We analyzed and aggregated this information to develop an initial list of information security challenges the Bureau faces in implementing the 2020 Census design. We validated the list of key challenges by obtaining input from internal and external experts in information security and/or Decennial Census operations. We also reviewed documentation regarding the Bureau's progress in

[2]Software Engineering Institute, Capability Maturity Model® Integration for Acquisition (CMMI®-ACQ), Version 1.3 (Pittsburgh, Pa.: November 2010); CMMI for Development (CMMI-DEV), Version 1.3 (Pittsburgh, Pa.: November 2010).

[3]CMMI-ACQ; CMMI-DEV; and GAO, *GAO Schedule Assessment Guide: Best Practices for Project Schedules*, GAO-16-89G (Washington, D.C.: Dec. 22, 2015).

implementing our 2013 information security recommendations.[4] More details on our objectives, scope, and methodology will be provided in the report that we are issuing next month.

We are conducting the work on which this statement is based 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

On October 6, 2015, the Bureau released the first version of its 2020 Census Operational Plan, which is intended to outline the design decisions that drive how the 2020 Decennial Census will be conducted—and which are expected to dramatically change how the Bureau conducts the Decennial Census. This plan outlines 350 redesign decisions that the Bureau has either made or is planning to make. The Bureau has determined that about 51 percent of the design decisions are either IT-related or partially IT-related (84 IT-related and 94 partially IT-related) and the Bureau reported that, as of April 2016, it had made about 58 percent of these decisions (48 IT-related and 55 partially IT-related).

Examples of decisions that have been made include the following:

- **Internet response**—For the first time on a nationwide scale, the Bureau will allow individuals/households to respond to the census on the Internet from a computer, mobile device, or other devices that access the Internet.
- **Non-ID processing with real-time address matching**—The Bureau will provide each household with a unique ID by mail. However, users may also respond to the online survey without the unique ID by entering their address. This operation includes conducting real-time matching of respondent-provided addresses.

[4]GAO, *Information Security: Actions Needed by Census Bureau to Address Weaknesses*, GAO-13-63 (Washington, D.C.: Jan. 22, 2013). Another version of this report contained sensitive information and, as a result, was issued for limited distribution.

- **Non-response follow-up**—If a household does not respond to the census by a certain date, the Bureau will send out employees to visit the home. These enumerators will use a census application, on a mobile device provided by the Bureau, to capture the information given to them by the in-person interviews.[5] The Bureau will also manage the case workload of these enumerators using an operational control system that automatically assigns, updates, and monitors cases during non-response follow-up.

- **Administrative records**—As we reported in October 2015, the Bureau is working on obtaining and using administrative records from other government agencies,[6] state and local governments, and third-party organizations to reduce the workload of enumerators in their non-response follow-up work. For example, the Bureau plans to use administrative records to, among other things, identify vacant housing units to remove from enumerators' workloads.[7]

- **Mobile devices**—The Bureau plans to award a contract that would provide commercially available mobile phones and the accompanying service contract on behalf of the Census Bureau to enumerators, who will use these devices to collect census data. This approach is referred to as the device-as-a-service strategy.

- **Cloud computing**—The Bureau plans to use a hybrid cloud solution where it is feasible, and has decided it will use cloud services for the Internet response option as well as for non-ID processing with real-time address matching.[8]

[5]The Bureau had been researching an option for enumerators to use their own device for non-response follow-up activities, but has decided not to pursue this option.

[6]The Bureau reported that it plans to obtain information such as the U.S. Postal Service's undeliverable as addressed data, the Internal Revenue Service's individual taxpayer data, and the Centers for Medicare & Medicaid Service's Medicare enrollment data.

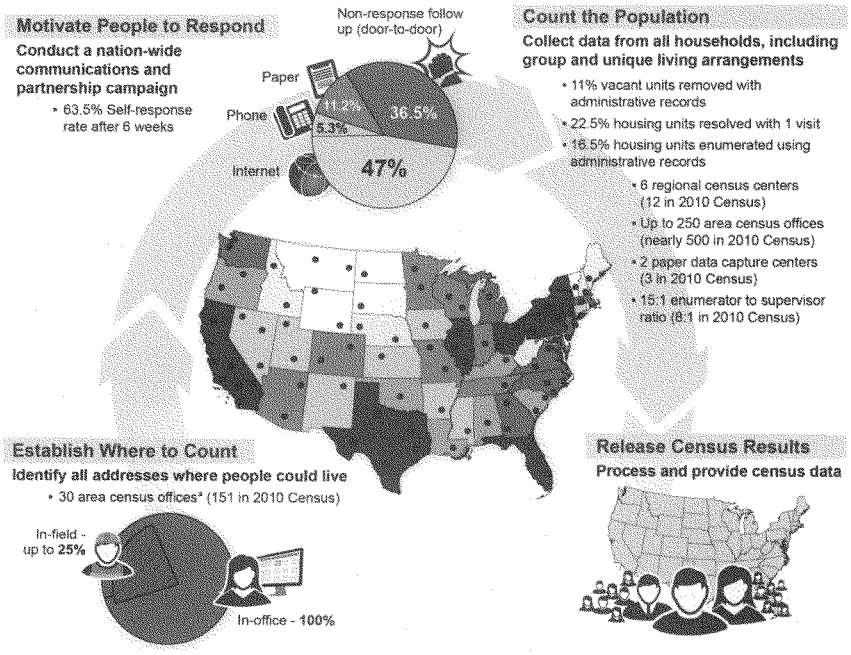
[7]GAO, *2020 Census: Additional Actions Would Help the Bureau Realize Potential Administrative Records Cost Savings*, GAO-16-48 (Washington, D.C.: Oct. 20, 2015).

[8]Cloud computing is a means for delivering computing services via IT networks. A hybrid cloud is one type of deployment model for providing cloud services that combines two or more other deployment models, such as private—set up specifically for one organization—and public—available to the general public and owned and operated by the service provider, and is bound together by standardized or proprietary technology.

- **Address canvassing**—The Bureau has decided to reengineer its address canvassing process to reduce the need for employing field staff to walk every street in the nation in order to update its address list and maps. For example, the Bureau plans to first conduct in-office address canvassing using aerial imagery, administrative records, and commercial data before sending staff into the field.

Figure 1 provides an overview of additional decisions and assumptions for the 2020 Census, resulting from the October 2015 operational plan.

Figure 1: Overview of the Census Bureau's Plans and Assumptions for the 2020 Census, as of October 6, 2015



Source: GAO analysis of Census Bureau data. | GAO-16-723T

Note: The Bureau continues to refine its assumptions as it conducts further research and testing leading up to the 2020 Census.

[a]The 30 area census offices for identifying addresses where people could live are included in the 250 area census offices planned for the 2020 Census.

The decisions made to date have been informed by several major field tests, including

- the 2014 Census test, which was conducted in the Maryland and Washington, D.C., areas to test new methods for conducting self-response and non-response follow-up;
- the 2015 Census Test in Arizona, which tested, among other things, the use of a field operations management system to automate data collection operations and provide real-time data and the ability to reduce the non-response follow-up workload using data previously provided to the government, as well as enabling enumerators to use their personally owned mobile devices to collect census data; and
- the 2015 Optimizing Self-Response test in Savannah, Georgia, and the surrounding area, which was intended to explore methods of encouraging households to respond using the Internet, such as using advertising and outreach to motivate respondents, and enabling households to respond without a Bureau-issued identification number.

The following are examples of decisions that had not been finalized as of April 2016:

- **Invalid return detection and non-ID response validation**—The Bureau has not decided on its approach for identifying whether fraudulent returns have been submitted for the 2020 Census or the criteria and thresholds to decide whether further investigation may be needed, such as field follow-up.
- **Solutions architecture**—While the Bureau has established a notional solutions architecture for the 2020 Census, it has not decided on the final design.
- **Internet response for island areas**—The Bureau has not decided on the extent to which the Internet self-response option will be available for island area respondents.[9]
- **Additional uses of cloud**—While Bureau officials have decided on select uses of cloud-based solutions, decisions remain on additional possible uses. For example, the Bureau is exploring whether it will use a cloud service provider to support a tool for assigning, controlling, tracking, and managing enumerators' caseloads in the field.

[9]The decennial census island areas include Puerto Rico, U.S. Virgin Islands, Guam, American Samoa, and Commonwealth of the Northern Mariana Islands.

CEDCAP Program Structure and Relationship to the 2020 Census Program

Several of the key systems needed to support the 2020 Census redesign are expected to be provided as CEDCAP enterprise systems under the purview of the Bureau's IT Directorate. According to Bureau officials, the remaining systems (referred to as non-CEDCAP systems) are to be provided by the 2020 Census Directorate's IT Division or other Bureau divisions.

Specifically, CEDCAP relies on 2020 Census to be one of the biggest consumers of its enterprise systems, and 2020 Census relies heavily on CEDCAP to deliver key systems to support its redesign. Thus CEDCAP is integral to helping the 2020 Census program achieve its estimated $5.2 billion cost savings goal. Accordingly, as reported in the President's Budget for Fiscal Year 2017, over 50 percent of CEDCAP's funding for fiscal year 2017 ($57.5 million of the requested $104 million) is expected to come from the 2020 Census program.

The CEDCAP program, which began in October 2014, is intended to provide data collection and processing solutions (including systems, interfaces, platforms and environments) to support the Bureau's entire survey life cycle (including survey design; instrument development; sample design and implementation; data collection; and data editing, imputation, and estimation).

The program consists of 12 projects, which have the potential to offer numerous benefits to the Bureau's survey programs, including the 2020 Census program, such as enabling an Internet response option; automating the assignment, controlling, and tracking of enumerator caseloads; and enabling a mobile data collection tool for field work. Eleven of these projects are intended to deliver one or more IT solutions. The twelfth project—IT Infrastructure Scale-Up—is not intended to deliver IT capabilities, solutions, or infrastructure; rather, it is expected to provide funding to the other relevant projects to acquire the necessary hardware and infrastructure to enable 2020 Census systems to scale to accommodate the volume of users. Table 1 describes the objectives of each project.

Table 1: Census Enterprise Data Collection and Processing (CEDCAP) Project Objectives

Project	Objective
Address Listing and Mapping	Provide a multi-platform enterprise solution for field collection of addresses and mapping information.
Dashboard for Monitoring	Provide an interface between the dashboard reporting system that monitors survey cost, progress, and quality and the multi-mode operational control system.
Internet and Mobile Data Collection	Provide two solutions—an internet self-response option for censuses and surveys and a mobile data collection application for field interviewers to collect survey data from respondents.
Questionnaire Design and Metadata	Provide two solutions—a centralized solution for designing surveys and standardizing input parameters across data collection modes and a paper rendering component.
Survey (and Listing) Interview Operational Control	Provide two solutions—a tool for assigning, controlling, tracking, and managing enumerators' caseloads and a data collection tool to enhance efficiency of field operations.
Centralized Operational Analysis and Control	Provide three solutions—a control system that serves as the operational brain for dynamic caseload management across multiple survey modes and acts as the main interface between multiple other CEDCAP systems, an enterprise modeling platform that stores and uses data to execute statistical models, and a set of application programming interfaces that automate data accessibility to administrative records and previous survey data.
Centralized Development and Test Environment	Provide an integrated environment in which to perform development, integration testing, and pre-production testing.
Electronic Correspondence Portal	Provide census respondents with an electronic assistance portal.
Scanning Data Capture from Paper	Provide an enterprise capability to scan data from paper-based forms.
Service Oriented Architecture	Provide a platform on which services can be deployed and from which services can be consumed by other applications through an application programming interface that is accessible across the enterprise.
Survey Response Processing	Provide two solutions—a data processing system that performs sample selection and a system to perform response processing.
IT Infrastructure Scale-Up	Provide funding to the other relevant projects to acquire the necessary hardware and infrastructure to enable 2020 Census systems to scale to accommodate the volume of users.

Source: GAO analysis of Bureau documentation. | GAO-16-723T

The eleven projects are to provide functionality incrementally over the course of 13 product releases. The product releases are intended to support major tests and surveys at the Bureau through 2020. Of the 13 product releases, 7 are intended to support 6 remaining major tests the

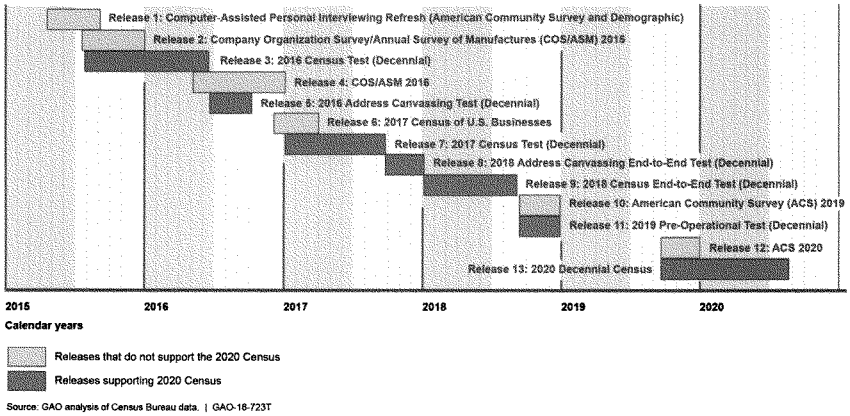
2020 Census program is conducting as it prepares for the 2020 Census,[10] as well as 2020 Census live production. The remaining 6 releases support the other surveys such as the American Community Survey (ACS) and Economic Census.[11] Most recently, the CEDCAP program has been working on delivering the functionality needed for the third product release, which is to support a major census test, referred to as the 2016 Census Test—conducted by the 2020 Census program to inform additional decennial design decisions.

The 2018 Census end-to-end test (mentioned previously) is critical to testing all production-level systems and operations in a census-like environment to ensure readiness for the 2020 Census. The 2020 Census program plans to begin this test in August 2017. Figure 2 identifies which of the 13 CEDCAP product releases support the 2020 Census versus other surveys, as of May 2016.

[10]Beginning in 2013, the Bureau conducted several major field tests to examine possible redesign options, including the 2013 Census test, 2014 Census test and the 2015 Census test. These tests were used to inform design decisions that were identified in Bureau's 2020 Census Operational Plan. As of March 2016, the Bureau planned to conduct four more major tests to further refine the design through 2018 with the support of CEDCAP, including the ongoing 2016 Census Test, 2016 Address Canvassing Test, 2017 Census Test, and 2018 Census End-to-End test. According to Bureau officials, they planned to also conduct defect resolution and post end-to-end performance testing, although time frames for those tests have not yet been established.

[11]The ACS collects data on social, demographic, economic, and housing characteristics on a monthly basis and aggregates the results into 1- and 5-year estimates. The Economic Census is conducted every 5 years and provides statistics on all non-farm business establishments in the United States.

Figure 2: Census Enterprise Data Collection and Processing (CEDCAP) Product Release Schedule – 2020 Decennial Census vs. Other Bureau Surveys, as of May 2016



Source: GAO analysis of Census Bureau data. | GAO-16-723T

Note: On June 2, 2016, Bureau officials provided us with updated program documentation, which they indicated includes changes to their release schedule. We have not reviewed this new documentation to verify the changes.

The Bureau's past efforts to implement new approaches and systems have not always gone as planned. As one example, during the 2010 Census, the Bureau planned to use handheld mobile devices to support field data collection for the census, including following up with nonrespondents. However, due to significant problems identified during testing of the devices, cost overruns, and schedule slippages, the Bureau decided not to use the handheld devices for non-response follow-up and reverted to paper-based processing, which increased the cost of the 2010 Census by up to $3 billion and significantly increased its risk as it had to

switch its operations to paper-based operations as a backup.[12] Due in part to these technology issues the Bureau was facing, we designated the 2010 Census a high-risk area in March 2008.[13]

We have also identified and reported on numerous occasions concerns about the Bureau's IT internal control, its IT preparations for the 2020 Census, and its looming deadline.[14] Accordingly, we identified CEDCAP as an IT investment in need of attention in our February 2015 High-Risk report.[15]

Further, we testified in November 2015 that key IT decisions needed to be made soon because the Bureau was less than 2 years away from end-to-end testing of all systems and operations to ensure readiness for the 2020 Census and there was limited time to implement it.[16] We emphasized that the Bureau had deferred key IT-related decisions, and that it was running out of time to develop, acquire, and implement the systems it will need to deliver the redesign and achieve its projected $5.2 billion in cost savings.

In addition to the IT issues I am testifying on today, there are other risks and uncertainties facing a successful headcount that we are monitoring at

[12]GAO, *2010 Census: Preliminary Lessons Learned Highlight the Need for Fundamental Reforms*, GAO-11-496T (Washington, D.C.: Apr. 6, 2011); and *Information Technology: Census Bureau Testing of 2010 Decennial Systems Can Be Strengthened*, GAO-09-262 (Washington, D.C.: Mar. 5, 2009).

[13]GAO, *Information Technology: Significant Problems of Critical Automation Program Contribute to Risks Facing 2010 Census*, GAO-08-550T (Washington, D.C.: Mar. 5, 2008).

[14]GAO, *Information Technology: Census Bureau Needs to Implement Key Management Practices*, GAO-12-915 (Washington, D.C.: Sept. 18, 2012); *Information Security: Actions Needed by Census Bureau to Address Weaknesses*, GAO-13-63 (Washington, D.C.: Jan. 22, 2013) (Another version of this report was issued for limited distribution.); *2020 Census: Prioritized Information Technology Research and Testing Is Needed for Census Design Decisions*, GAO-14-389 (Washington, D.C.: Apr. 3, 2014); and *2020 Census: Key Challenges Need to Be Addressed to Successfully Enable Internet Response*, GAO-15-225 (Washington, D.C.: Feb. 5, 2015).

[15]Every 2 years at the start of a new Congress, GAO calls attention to agencies and program areas that are high risk due to their vulnerabilities to fraud, waste, abuse, and mismanagement, or are most in need of transformation. As part of a new entry into the February 2015 update to our High-Risk Series focused on improving the management of IT acquisitions and operations, CEDCAP was identified as an IT investment—among others across the federal government—in need of the most attention. See GAO, *High-Risk Series: An Update*, GAO-15-290 (Washington, D.C.: Feb. 11, 2015).

[16]GAO, *2020 Census: Key Information Technology Decisions Must Be Made Soon*, GAO-16-205T (Washington, D.C.: Nov. 3, 2015).

the request of Congress. For example, in October 2015, we reported on actions the Bureau needs to take in order to ensure it fully realizes potential cost-savings associated with its planned use of administrative records. Likewise, we are assessing the reliability of the Bureau's estimate of the cost of the 2020 Census and anticipate issuing that report to Congress later this month. We also have ongoing work evaluating the 2016 Census Test, which is currently taking place in Harris County, Texas, and Los Angeles County, California.

CEDCAP's 12 Projects Are at Various Stages of Planning and Design

As part of our ongoing work, we determined that the 12 CEDCAP projects are at varying stages of planning and design. Nine of the projects began when the program was initiated in October 2014, two of the projects began later in June 2015, and the twelfth project—IT Infrastructure Scale-Up[17]—has not started. The 11 ongoing projects have efforts under way to deliver 17 solutions, which are in different phases of planning and design.

- For 8 of the 17 solutions, the Bureau recently completed an analysis of alternatives to determine whether it will acquire commercial-off-the-shelf (COTS) solutions or whether they will be built in-house in order to deliver the needed capabilities. On May 25, 2016, the Bureau issued a memorandum documenting its decision to acquire the capabilities using a COTS product. The memorandum also described the process used to select the commercial vendor.
- For the remaining 9 IT solutions, the Bureau has identified the sourcing approach (e.g., buy, build, or use/modify existing system) and has either identified the solution to be implemented or are in the process of evaluating potential solutions. For example, the Electronic Correspondence Portal project is working on combining an existing government-off-the-shelf product with an existing COTS product.

All projects are scheduled to end by September 2020.[18]

[17]The twelfth project, according to Bureau officials, is to provide the funding to enable 2020 Census systems to scale-up to accommodate the increased volume of users, rather than to deliver an IT capability or solution.

[18]According to Bureau officials, the program will continue beyond 2020.

In 2013, the CEDCAP program office estimated that the program would cost about $548 million to deliver its projects from 2015 to 2020. In July 2015, the Bureau's Office of Cost Estimation, Analysis, and Assessment completed an independent cost estimate for CEDCAP that projected the program to cost about $1.14 billion from 2015 to 2020 ($1.26 billion through 2024).

Bureau officials reported that, as of March 2016, the projects have collectively spent approximately $92.1 million—17 percent of the total program office estimate and 8 percent of the independent cost estimate. According to Bureau officials, the program used the 2013 program cost estimate to establish its current budget and to track project costs.

Selected CEDCAP Projects Partially Met Project Monitoring and Control Best Practices

We determined that the three selected CEDCAP projects we reviewed—the Centralized Operational Analysis and Control project, Internet and Mobile Data Collection project, and Survey (and Listing) Interview Operational Control project— did not fully implement best practices for project monitoring and control, which are critical for making sure that projects are meeting their goals and that action can be taken to correct problems in a timely fashion.[19]

- **Determining progress against the plan.** This involves comparing actual cost and schedule against the documented plan for the full scope of the project and communicating the results. While the three projects meet weekly to monitor the current status of each project and produce monthly reports that document cost and schedule progress, their plans did not include sufficient detail against which to monitor progress. For example, project planning documents for the three projects did not include key information, such as when build-or-buy decisions were to be made or when final systems are to be released. This is especially problematic when the production systems that these projects are expected to produce need to be implemented in time for the 2018 end-to-end system integration test, which begins in August 2017 (in less than a year and a half). Bureau officials agreed with our concerns and in June 2016 they stated that they are in the process of

[19]These practices have been identified in the Software Engineering Institute's CMMI-ACQ and CMMI-DEV.

updating the project plans and expect to be done by August 2016. It will be important that these plans include the full scope of these projects to enable the project managers and the CEDCAP program manager to determine progress relative to the full scope of the projects.

- **Document significant deviations in performance.** Projects should identify and document when deviations from planned cost and schedule occur that, if left unresolved, would preclude the project from meeting its objectives. The Bureau's monthly progress reports capture schedule and cost variances and document when these variances exceed the threshold for significant deviation, which is 8 percent. For example, the Internet and Mobile data collection project had a cost variance of 20 percent in September 2015 and the Survey (and Listing) Interview Operational Control project had a cost variance of 25 percent in September 2015, which were flagged by the projects as exceeding the significant deviation threshold. However, the projects are measuring deviations against their budgeted amounts, which are based on the 2013 CEDCAP program office cost estimate. This estimate was developed based on very early assumptions and limited details about the program and is thus out-of-date. In the absence of an up-to-date cost estimate, the program lacks a basis for monitoring true deviations in performance. Accordingly, our draft report includes a recommendation that the Bureau update the CEDCAP program office cost estimate to reflect the current status of the program as soon as appropriate information becomes available.

- **Taking corrective actions to address issues when necessary.** Projects should take timely corrective actions, such as revising the original plan, establishing new agreements, or including additional mitigation activities in the current plan, to address issues when cost or schedule deviates significantly from the plan. The CEDCAP program has established a process for taking corrective actions to address issues when needed and, as of April 2016, Bureau officials stated they have not needed to take any corrective actions to address CEDCAP program issues. For example, while we found several significant deviations in cost and schedule for the three projects in the monthly progress reports, these did not require corrective actions because they were due to, for example, delays in contract payments, contract awards, and other obligations for hardware and software outside the control of the CEDCAP program office.

- **Monitoring the status of risks periodically.** This practice can result in the discovery of new risks, revisions to existing risks, or the need to

implement a risk mitigation plan. The three projects monitor the status of their risks in bi-weekly project status meetings and monthly risk review board meetings, have established risk registers, and regularly update the status of risks in their registers. However, while according to Bureau officials the projects are to document updates on the status of their risks in their respective risk registers, the Internet and Mobile Data Collection and Survey (and Listing) Interview Operational Control projects do not consistently document status updates. For example, these programs had not updated the status of medium-probability, medium-impact risks for several months. Bureau officials recognized the need to document updates in the risk registers more consistently and stated that efforts are under way to address this, but they did not have an estimated completion date. Until these efforts are complete, the Bureau will not have comprehensive information on how risks are being managed. Accordingly, our draft report includes a recommendation that the Bureau ensure that updates to the status of risks are consistently documented for CEDCAP's Internet and Mobile Data Collection and Survey (and Listing) Interview Operational Control projects.

- **Implementing risk mitigation plans.** Risk mitigation plans that include sufficient detail—such as start and completion dates and trigger events and dates—provide early warning that a risk is about to occur or has just occurred and are valuable in assessing risk urgency. As of October 2015, the three projects had developed basic risk mitigation steps for each of the risks associated with the projects that required a mitigation plan. However, these risk mitigation plans lacked important details such as start or completion dates. Additionally, two projects did not have any trigger events for their risks that exceed a predefined exposure threshold. Bureau officials recognized that there were issues with their risk management process and stated that they were working on addressing them. Bureau officials told us they had revised their risk management process to address these weaknesses, but it was unclear to what extent this process has been implemented. Without detailed risk mitigation plans and trigger events, officials will be hindered in their ability to identify potential problems and mitigate their impacts. Therefore, our draft report includes a recommendation that the Bureau consistently implement detailed risk mitigation plans for the three projects.

The Bureau Lacks Processes for Effectively Managing Interdependencies between CEDCAP and 2020 Census Programs

CEDCAP and 2020 Census Programs Do Not Have an Effective Process for Integrating Schedule Dependencies

Despite significant interdependencies between the CEDCAP and 2020 Census Programs, our ongoing audit work determined that the Bureau is not effectively managing these interdependencies. About half of CEDCAP's major product releases (7 of 13 total), are to align with and support the remaining 6 major 2020 Census tests, as well as the operations of the 2020 Census. Accordingly, the CEDCAP and 2020 Census programs have both established master schedules that contain thousands of milestones and tens of thousands of activities through 2020 Census production and have identified major milestones within each program that are intended to align with each other. In addition, both program management offices have established processes for managing their respective master schedules.

However, the CEDCAP and 2020 Census programs maintain their master schedules using different software where dependencies between the two programs are not automatically linked and are not dynamically responsive to change, as called for by best practices identified in our Schedule Assessment Guide.[20] Consequently, the two programs have been manually identifying activities within their master schedules that are dependent on each other, and rather than establishing one dependency schedule, as best practices dictate, the programs have developed two separate dependency schedules for each program, and meet weekly with the intent of coordinating these two schedules. Our schedule guide also indicates that constantly updating a schedule manually defeats the purpose of a dynamic schedule and can make the schedule particularly prone to error.

In addition, the programs' dependency schedules only include near-term schedule dependencies, and not future milestones through 2020 Census production. For example, as of February 2016, the dependency schedules only included tasks associated with the CEDCAP product release in support of the 2020 Census program's 2016 Census Test through July 2016. According to Bureau officials, they are currently

[20]GAO-16-89G.

working to incorporate activities for the next set of near-term milestones, which are to support the 2016 Address Canvassing Test.

This practice of maintaining separate dependency schedules which must be manually reconciled has proven to be ineffective, as it has contributed to the misalignment between the programs' schedules. For example:

- The CEDCAP program originally planned to complete build-or-buy decisions for several capabilities by October 2016, while the 2020 Census timeline specified that these decisions would be ready by June 2016. In November 2015, CEDCAP officials stated that they recognized this misalignment and decided to accelerate certain build-or-buy decisions to align with 2020 Census needs.
- As of April 2016, while CEDCAP's major product releases need to be developed and deployed to support the delivery of 2020 Census' major tests, CEDCAP's releases and 2020 Census' major tests milestones were not always aligned to ensure CEDCAP releases would be available in time. For example, development of the seventh CEDCAP release, which is intended to support the 2017 Census Test, is not scheduled to begin until almost a month after the 2017 Census Test is expected to begin (December 2016), and is not planned to be completed until about 2 months after the 2017 Census Test ends (July 2017). Bureau officials acknowledged that CEDCAP release dates need to be revised to accurately reflect the program's current planned time frames and to appropriately align with 2020 Census time frames. Officials stated that these changes will be made by the end of May 2016.

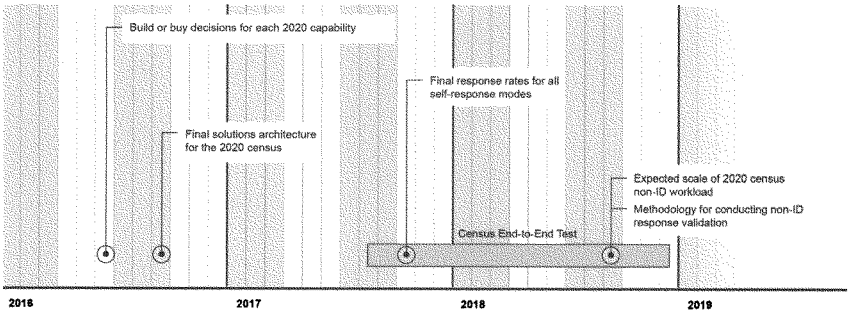
Adding to the complexity of coordinating the two programs' schedules, several key decisions by the 2020 Census program are not planned to be made until later in the decade, as we testified in November 2015.[21] This may impact CEDCAP's ability to deliver those future requirements and have production-ready systems in place in time to conduct end-to-end testing, which is to begin in August 2017. For example, the Bureau does not plan to decide on the full complement of applications, data, infrastructure, security, monitoring, and service management for the 2020 Census—referred to as the solutions architecture—until September 2016. The Bureau also does not plan to finalize the expected response rates for all self-response modes, including how many households it estimates will

[21]GAO-16-205T.

respond to the 2020 survey using the Internet, telephone, and paper, until October 2017.

Figure 3 illustrates several IT-related decisions which are not scheduled to be made until later in the decade, and may impact CEDCAP's ability to prepare for the end-to-end test and 2020 Census.

Figure 3: Examples of 2020 Census-related IT Decisions Planned for Later in the Decade that Could Impact CEDCAP, as of April 2016



Source: GAO analysis of Census Bureau data. | GAO-16-723T

Note: These reflect when final design decisions are to be made. The Bureau plans to make some preliminary design decisions earlier, such as in the areas of solutions architecture, self-response rates, and non-ID workload.

Further exacerbating these difficulties, as of April 2016 (a year and a half into the CEDCAP program), the programs have not documented their process for managing the dependencies, contrary to our schedule guide which indicates that if manual schedule reconciliation cannot be avoided, the parties should define a process to preserve integrity between the different schedule formats and to verify and validate the converted data whenever the schedules are updated.[22] Program officials stated that they aim to document this process by June 2016, but this would at best

[22]GAO-16-89G.

document a process that has not been effective, likely leading to additional misalignment in the future.

We concluded in our draft report that without an effective process for ensuring alignment between the two programs, the Bureau faces increased risk that capabilities for carrying out the 2020 Census will not be delivered as intended. Thus, our draft report (which is with Commerce and the Bureau for comment) includes a recommendation that the Bureau define, document, and implement a repeatable process to establish complete alignment between CEDCAP and 2020 Census programs by, for example, maintaining a single dependency schedule.

CEDCAP and 2020 Census Programs Do Not Have an Integrated List of Risks Facing Both Programs

The CEDCAP and 2020 Census programs were also not effectively managing risks common to the two programs. Both the CEDCAP and 2020 Census programs have taken steps to collaborate on identifying and mitigating risks. For example, both programs have processes in place for identifying and mitigating risks that affect their respective programs, facilitate risk review boards, and have representatives attend each other's risk review board meetings to help promote consistency.

However, our preliminary findings indicate that these programs do not have an integrated list of risks (referred to as a risk register) with agreed-upon roles and responsibilities for tracking them, as called for by best practices identified by GAO for collaboration and leading practices in risk management.[23] This decentralized approach introduces two key problems.

First, there are inconsistencies in tracking and managing interdependent risks. Specifically, selected risks were recognized by one program's risk management process and not the other, including the following examples as of March 2016:

- The CEDCAP program identified the lack of real-time schedule linkages as a high probability, high-impact risk in its risk register, which as of March 2016 had been realized and was considered an

[23]GAO, *Results-Oriented Government: Practices That Can Help Enhance and Sustain Collaboration among Federal Agencies*, GAO-06-15 (Washington, D.C.: Oct. 21, 2005) and CMMI-ACQ and CMMI-DEV, *Integrated Project Management and Risk Management Process Areas.*

issue for the program. However, the 2020 Census program had not recognized this as a risk in its risk register.

- While CEDCAP had identified the ability to scale systems to meet the needs of the Decennial Census as a medium-probability, high-impact risk in its risk register, the 2020 Census program had not recognized this as a risk in its risk register.
- The CEDCAP program had identified the need to define how the Bureau will manage and use cloud services to ensure successful integration of cloud services with existing infrastructure as a low probability, high-impact risk in its risk register; however, the 2020 Census program had not recognized the adoption of cloud services as a formal risk in its risk register. This is especially problematic as the 2020 Census program recently experienced a notable setback regarding cloud implementation. Specifically, the 2020 Census program was originally planning to use a commercial cloud environment in the 2016 Census Test, which would have been the first time the Bureau used a cloud service in a major census test to collect census data from residents in parts of the country. However, leading up to the 2016 Census Test, the program experienced stability issues with the cloud environment. Accordingly, in March 2016, the 2020 Census program decided to cancel its plans to use the cloud environment in the 2016 Census Test. Officials stated that they plan to use the cloud in future census tests.

According to 2020 Census program officials, they did not consider the lack of real-time schedule linkages to be a risk because they were conducting weekly integration meetings and coordinating with CEDCAP on their schedules to ensure proper alignment. However, manually resolving incompatible schedules in different software can be time-consuming, expensive, and prone to errors. And, as noted above, the Bureau's process for managing schedule dependencies between the two programs has not been effective. Regarding the lack of scalability and cloud services risks in the 2020 Census risk log, 2020 Census program officials acknowledged that it was an oversight and that they should have been recognized by the program as formal risks.

The second problem of not having an integrated risk register is that tracking risks in two different registers can result in redundant efforts and potentially conflicting mitigation efforts. For example, both programs have identified in their separate risk registers several common risks, such as risks related to late changes in requirements, integration of systems, human resources, build or buy decisions, and cybersecurity. These interdependent risks found in both risk registers can introduce the

potential for duplicative or inefficient risk mitigation efforts and the need for additional reconciliation efforts.

Thus we concluded in our draft report that until it establishes a comprehensive list of risks facing both the CEDCAP and 2020 Census programs, and agrees on their respective roles and responsibilities for jointly managing this list, the Bureau is in danger of not fully addressing risks facing the programs. Accordingly, in our draft report we include a recommendation that the Bureau establish a comprehensive and integrated list of all interdependent risks facing the CEDCAP and 2020 Census programs, and clearly identify roles and responsibilities for managing this list.

Processes for Managing Requirements between CEDCAP and 2020 Census Have Not Been Finalized

Lastly, despite their significant interdependencies, a process for managing requirements for the two programs has not been finalized. The Bureau's Office of Innovation and Implementation is responsible for gathering and synthesizing business requirements across the Bureau, including from the 2020 Census program, and delivering them to CEDCAP. Additionally, for the 2020 Census program, the Bureau established the 2020 Census Systems Engineering and Integration program office, which is responsible for delivering 2020 Census business requirements to the Office of Innovation and Implementation. CEDCAP receives the requirements on an incremental basis and builds functionality containing subsets of the requirements in the 40-day cycles.

However, as of April 2016, the Office of Innovation and Implementation's process for collecting and synthesizing requirements, obtaining commitment to those requirements from stakeholders, and managing changes to the requirements—as recommended by best practices[24]—had not been finalized. According to Bureau officials, they have drafted the process and are working on incorporating feedback from customers. Office officials stated that they plan to finalize this documentation by June 2016. Additionally, as of April 2016, the 2020 Census Systems Engineering and Integration program had not yet finalized its program management plan which outlines, among other things, how it is to establish requirements to be delivered to the Office of Innovation and Implementation, which are then to be delivered to CEDCAP. According to program officials, they have been working on a draft of this plan and

[24]CMMI-ACQ and CMMI-DEV, *Requirements Management Process Area.*

expect it to be finalized by June 2016. As a result, the Bureau has developed three CEDCAP releases without having a fully documented and institutionalized process for collecting those requirements.

In addition, the 2020 Census program identified about 2,500 capability requirements needed for the 2020 Census; however, there are gaps in these requirements. Specifically, we determined that of the 2,500 capability requirements, 86 should be assigned to a test prior to the 2020 Census, but were not. These included 64 requirements related to redistricting data program, 10 requirements related to data products and dissemination, and 12 requirements related to non-ID response validation. Bureau officials stated that the 74 redistricting data program and data products and dissemination requirements have not yet been assigned to a Census test because they have not yet gone through the Bureau's quality control process, which is planned for later this calendar year.

Regarding the 12 non-ID response validation requirements, Bureau officials stated that once this area is better understood, a more complete set of requirements will be established, and then they will assign the requirements to particular tests, as appropriate. As of April 2016, the Bureau was in the early stages of conducting research in this area. Thus, it has not tested non-ID response validation in the 2013, 2014, or 2015 Census tests. These tests were intended to, among other things, help define requirements around critical functions. With less than a year and a half remaining before the 2018 Census end-to-end test begins, the lack of experience and specific requirements related to non-ID response validation is especially concerning, as incomplete and late definition of requirements proved to be serious issues for the 2010 Census.

Failure to fully define requirements has been a problem for the Bureau in the past. Specifically, leading up to the 2010 Census, we reported in October 2007 that not fully defining requirements had contributed to both cost increases and schedule delays experienced by the failed program to deliver handheld computers for field data collection—contributing to an up to $3 billion overrun.[25] Increases in the number of requirements led to the need for additional work and staffing. Moreover, we reported in 2009 and 2010 that the Bureau's late development of an operational control system to manage its paper-based census collection operations resulted in

[25]GAO, *Information Technology: Census Bureau Needs to Improve Its Risk Management of Decennial Systems*, GAO-08-79 (Washington, D.C.: Oct. 5, 2007).

system outages and slow performance during the 2010 Census.[26] The Bureau attributed these issues, in part, to the compressed development and testing schedule.

As the 2020 Census continues to make future design decisions and CEDCAP continues to deliver incremental functionality, it is critical to have a fully documented and institutionalized process for managing requirements. Additionally, we concluded in our draft report that until measures are taken to identify when the 74 requirements related to the redistricting data program and data products and dissemination will be tested, and to make developing a better understanding of, and identifying requirements related to, non-ID response validation a high and immediate priority, or to consider alternatives to avoid late definition of such requirements, the Bureau is at risk of experiencing similar issues that it experienced during the 2010 Census. Thus, our draft report includes the following recommendations:

- finalize documentation of processes for managing requirements for CEDCAP;
- identify when the 74 requirements related to redistricting data program and data products and dissemination will be tested; and
- make developing a better understanding of and identifying requirements related to non-ID respondent validation a high and immediate priority, or consider alternatives to avoid late definition of such requirements.

Census Bureau Faces Several Information Security Challenges in Implementing the 2020 Census

While the Bureau plans to extensively use IT systems to support the 2020 Census redesign in an effort to realize potentially significant efficiency

[26]GAO, *2010 Census: Data Collection Operations Were Generally Completed as Planned, but Long-standing Challenges Suggest Need for Fundamental Reforms*, GAO-11-193 (Washington, D.C.: Dec. 14, 2010); *2010 Census: Data Collection Is Under Way, but Reliability of Key Information Technology Systems Remains a Risk*, GAO-10-567T (Washington, D.C.: Mar. 25, 2010); *2010 Census: Key Enumeration Activities Are Moving Forward, but Information Technology Systems Remain a Concern*, GAO-10-430T (Washington, D.C.: Feb. 23, 2010); and *2010 Census: Census Bureau Continues to Make Progress in Mitigating Risks to a Successful Enumeration, but Still Faces Various Challenges*, GAO-10-132T (Washington, D.C.: Oct. 7, 2009).

gains and cost savings, this redesign introduces the following critical information security challenges.

- **Developing policies and procedures to minimize the threat of phishing**—Phishing is a digital form of social engineering that uses authentic-looking, but fake, e-mails, websites, or instant messages to get users to download malware, open malicious attachments, or open links that direct them to a website that requests information or executes malicious code. Phishing attacks could target respondents, as well as Census employees and contractors. The 2020 Census will be the first one in which respondents will be heavily encouraged to respond via the Internet. The Bureau plans to highly promote the use of the Internet self-response option throughout the nation and expects, based on preliminary research, that approximately 50 percent of U.S. households will use this option. This will likely increase the risk that cyber criminals will use phishing in an attempt to steal personal information. A report developed by a contractor for the Bureau noted that criminals may pretend to be a census worker caller, or website, to phish for personal information such as Social Security numbers and bank information.

  Further, phishing attacks directed at Census employees, including approximately 300,000 temporary employees, could have serious effects. The U.S. Computer Emergency Readiness Team (US-CERT) has recently reported on phishing campaigns targeting federal government agencies that are intended to install malware on government computer systems. These could act as an entry point for attackers to spread throughout an organization's entire enterprise, steal sensitive personal information, or disrupt business operations.

  To minimize the threat of phishing, organizations such as US-CERT and the National Institute of Standards and Technology (NIST) recommend several actions for organizations, including communicating with users.[27] Additionally, as we previously reported, in 2015 the White House and the Office of Management and Budget identified anti-phishing as a key area for federal agencies to focus on in enhancing their information security practices.[28]

[27]National Institute of Standards and Technology, *Guide to Malware Incident Prevention and Handling for Desktops and Laptops*, SP 800-83 Revision 1 (Gaithersburg, Md.: July 2013).

[28]GAO, *Federal Information Security: Agencies Need to Correct Weaknesses and Fully Implement Security Programs*, GAO-15-714 (Washington, D.C.: Sept. 29, 2015).

- **Ensuring that individuals gain only limited and appropriate access to 2020 Census data**—The Decennial Census plans to enable a public-facing website and mobile devices to collect personally identifiable information (PII) (e.g., name, address, and date of birth) from the nation's entire population—estimated to be over 300 million. In addition, the Bureau is planning to obtain and store administrative records containing PII from other government agencies to help augment information that enumerators did not collect. Additionally, the 2020 Census will be highly promoted and visible throughout the nation, which could increase its appeal to malicious actors. Specifically, cyber criminals may attempt to steal personal information collected during and for the 2020 Decennial Census, through techniques such as social engineering, sniffing of unprotected traffic, and malware installed on vulnerable machines.[29]

  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 our 2015 High Risk List, 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.[30] Technological advances have allowed both government and private sector entities to collect and process extensive amounts of PII more effectively.

  However, the number of reported security incidents involving PII at federal agencies has increased dramatically in recent years. Because of these challenges, we have recommended, among other things, that federal agencies improve their response to information security incidents and data breaches involving PII, and consistently develop and implement privacy policies and procedures. Accordingly, it will be important for the Bureau ensure that only respondents and Bureau officials are able to gain access to this information and that

[29]Sniffing occurs when data are sent to or from a device over an unsecured (i.e., not encrypted) network connection, allowing an eavesdropper to "listen to" and record the information that is exchanged. Malware is malicious software (including spyware and viruses) that is often disguised as a game, patch, utility, or other useful third-party software application.

[30]GAO-15-290. 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 personally identifiable information.

enumerators and other employees only have access to the information needed to perform their jobs.

- **Adequately protecting mobile devices**—The 2020 Census will be the first one in which the Census Bureau will provide mobile devices to enumerators to collect personally identifiable information from households who did not self-respond to the survey. The Bureau plans to use a contractor to provide approximately 300,000 census-taking-ready mobile devices to enumerators. The contractor will be responsible for, among other things, the provisioning, shipping, storage, and decommissioning of the devices. The enumerators will use the mobile devices to collect non-response follow-up activities.

  Many threats to mobile devices are similar to those for traditional computing devices; however, the threats and attacks to mobile devices are facilitated by vulnerabilities in the design and configuration of mobile devices, as well as the ways consumers use them. Common vulnerabilities include a failure to enable password protection and operating systems that are not kept up to date with the latest security patches.[31] In addition, because of their small size and use outside an office setting, mobile devices are easier to misplace or steal, leaving their sensitive information at risk of unauthorized use or theft.

  In 2012 we reported on key security controls and practices to reduce vulnerabilities in mobile devices, protect proprietary and other confidential business data that could be stolen from mobile devices, and ensure that mobile devices connected to the organization's network do not threaten the security of the network itself.[32] For example, we reported that organizations can require that devices meet government specifications before they are deployed, limit storage on mobile devices, and ensure that all data on the device are cleared before the device is disposed of. Doing so can help protect against inappropriate disclosure of sensitive information that is collected on the mobile devices. Accordingly, we recommended, among other things, that the Department of Homeland Security, in collaboration with the Department of Commerce, establish measures about consumer awareness of mobile security. In September 2013,

[31]GAO-12-757.

[32]GAO-12-757.

the Department of Homeland Security addressed this recommendation by developing a public awareness campaign with performance measures related to mobile security.

- **Ensuring adequate control in a cloud environment**—The Bureau has decided to use cloud solutions whenever possible for the 2020 Census; however, as stated previously, it has not yet determined all of the needed cloud capabilities. In September 2014, we reported that cloud computing has both positive and negative information security implications for federal agencies.[33] Potential information security benefits include the use of automation to expedite the implementation of secure configurations on devices; reduced need to carry data on removable media because of broad network access; and low-cost disaster recovery and data storage. However, the use of cloud computing can also create numerous information security risks for federal agencies, including that cloud service vendors may not be familiar with security requirements that are unique to government agencies, such as continuous monitoring and maintaining an inventory of systems. Thus, we reported that, to reduce the risks, it is important for federal agencies to examine the specific security controls of the provider the agency is evaluating when considering the use of cloud computing.

  In addition, in April 2016, we reported that agencies should develop service-level agreements with cloud providers that specify, among other things, the security performance requirements—including data reliability, preservation, privacy, and access rights—that the service provider is to meet.[34] Without these safeguards, computer systems and networks, as well as the critical operations and key infrastructures they support, may be lost, and information—including sensitive personal information—may be compromised, and the agency's operations could be disrupted.

- **Adequately considering information security when making decisions about the IT solutions and infrastructure supporting the 2020 Census**—Design decisions related to the 2020 Census will have security implications to be considered when making decisions

[33]GAO, *Cloud Computing: Additional Opportunities and Savings Need to Be Pursued*, GAO-14-753 (Washington, D.C.: Sept. 25, 2014).

[34]GAO, *Cloud Computing: Agencies Need to Incorporate Key Practices to Ensure Effective Performance*, GAO-16-325 (Washington, D.C.: Apr. 7, 2016).

about future 2020 Census design features. As described previously, as of April, the Census Bureau still had yet to make 350 decisions about the 2020 Census, and half of those have an IT component. For example, the Bureau has not yet made decisions about key aspects of its IT infrastructure to be used for the 2020 Census, including defining all of the components of the solution architecture (applications, data, infrastructure, security, monitoring, and service management), deciding whether it will develop a mobile application to enable respondents to submit their survey responses on their mobile devices, and deciding how it plans to use cloud providers.

We have previously reported on challenges that the Bureau has had in making decisions in a timely manner. Specifically, in April 2014, and again in April 2015, we noted that key decisions had yet to be made about the 2020 Census, and noted that as momentum builds toward Census Day 2020, the margin for schedule slippages is getting increasingly slim. The Chief Information Security Officer echoed these concerns, stating that any schedule slippage can affect the time needed to conduct a comprehensive security assessment. As key design decisions are deferred and the time to make such decisions becomes more compressed, it is important that the Bureau ensures that information security is adequately considered and assessed when making design decisions about the IT solutions and infrastructure to be used for the 2020 Census.

- **Making certain key IT positions are filled and have appropriate information security knowledge and expertise**—As our prior work and leading guidance recognize, having the right knowledge and skills is critical to the success of a program, and mission-critical skills gaps in such occupations as cybersecurity pose a high risk to the nation. Whether within specific federal agencies or across the federal workforce, these skills gaps impede federal agencies in cost-effectively serving the public and achieving results. Because of this, we added strategic human capital management, including cybersecurity human capital, to our High Risk List in 2001, and it remains on that list today.[35] These skills gaps are also a key contributing factor to our high-risk area of ensuring the security of federal information systems. As we reported in February 2015, although steps have been taken to close critical skills gaps in the cybersecurity area, it remains an ongoing problem and additional efforts are needed to address this issue government-wide.

[35]GAO-15-290.

We also reported in February 2015, that the Bureau continues to have critical skills gaps, such as in cloud computing, security integration and engineering, enterprise/mission engineering life-cycle, requirements development, and internet data collection.[36] The Bureau has made some progress in addressing its skills gaps and continues to work toward ensuring that key information security skills are in place. However, the Bureau has faced longstanding vacancies in key IT positions, such as the Chief Information Officer (vacant from July 2015 to June 2016) and the CEDCAP Chief Security Engineer (vacant since October 2015). Ensuring that key positions are filled with staff who have the appropriate expertise will be important to ensure that security controls are adequately designed in the systems used to collect and store census data.

- **Ensuring that contingency and incident response plans are in place that 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 Decennial Census, it is especially important that systems are available for respondents to ensure a high response rate. Contingency planning and incident response help ensure that if normal operations are interrupted, network managers are able to detect, mitigate, and recover from a service disruption while preserving access to vital information. Implementing important security controls including policies, procedures, and techniques for contingency planning and incident response helps to ensure the confidentiality, integrity, and availability of information and systems, even during disruptions of service.

  However, we have reported on weaknesses across the federal government in these areas. Specifically, in April 2014 we estimated that federal agencies (including the Department of Commerce) had not completely documented actions taken in response to detected incidents reported in fiscal year 2012 in about 65 percent of cases.[37] We made a number of recommendations to improve agencies' cyber incident response practices, such as developing incident response plans and procedures and testing them.

[36]GAO-15-225.

[37]GAO, *Information Security: Agencies Need to Improve Cyber Incident Response Practices*, GAO-14-354 (Washington, D.C.: Apr. 30, 2014).

- **Adequately training Bureau employees, including its massive temporary workforce, in information security awareness**—The Census Bureau plans to hire an enormous temporary workforce during the 2020 Census activities, including about 300,000 temporary employees to, among other things, use contractor-furnished mobile devices to collect personal information from households that have not yet responded to the Census. Because uninformed people can be one of the weakest links when securing systems and networks, information security awareness training is intended to inform agency personnel of the information security risks associated with their activities and their responsibilities in complying with agency policies and procedures designed to reduce these risks. However, ensuring that every one of the approximately 300,000 temporary enumerators is sufficiently trained in information security will be challenging. Providing training to agency personnel, such as this new and temporary staff, will be critical to securing information and systems.

- **Making certain security assessments are completed in a timely manner and that risks are at an acceptable level**—According to guidance from NIST, after testing an information system, authorizing officials determine whether the risks (e.g., unaddressed vulnerabilities) are acceptable and issue an authorization to operate. Each of the systems that the 2020 Census IT architecture plans to rely on will need to undergo a security assessment and obtain authorization to operate before they can be used for the 2020 Census.

- **Properly configuring and patching systems supporting the 2020 Census**—Configuration management controls ensure that only authorized and fully tested software is placed in operation, software and hardware are updated, information systems are monitored, patches are applied to these systems to protect against known vulnerabilities, and emergency changes are documented and approved. We reported in September 2015 that for fiscal year 2014, 22 of the 24 agencies in our review (including the Department of Commerce) had weaknesses in configuration management controls.[38] Moreover, in April 2015, US-CERT issued an alert stating that cyber threat adversaries continue to exploit common, but unpatched, software products from vendors such as Adobe, Microsoft, and Oracle. Without strong configuration and patch management, an

[38]GAO, *Federal Information Security: Agencies Need to Correct Weaknesses and Fully Implement Security Programs*, GAO-15-714 (Washington, D.C.: Sept. 29, 2015).

attacker may exploit a vulnerability not yet mitigated, enabling unauthorized access to information systems or enabling users to have access to greater privileges than authorized.

The Bureau's acting Chief Information Officer and its Chief Information Security Officer have acknowledged these challenges and described the Bureau's plans to address them. For example, the Bureau has developed a risk management framework, which is intended to ensure that proper security controls are in place and provide authorizing officials with details on residual risk and progress to address those risks. In addition, the Bureau has also embedded three security engineers in the 2020 Census program to provide assistance and guidance to project teams. Bureau officials also stated that they are in the process of filling—or plan to fill—vacancies in key positions and intend to hire staff with expertise in key areas, such as cloud computing. To minimize the risk of phishing, Bureau officials note that they plan to contract with a company to monitor the Internet for fraudulent sites pretending to be the Census Bureau. Continued focus on these considerable challenges will be important as the Bureau begins to develop and/or acquire systems and implement the 2020 design.

We have previously reported on Census Bureau weaknesses that are related to many of these information security challenges. Specifically, we reported in January 2013 that the Bureau had a number of weaknesses in its information security controls due in part to the fact that it had not fully implemented a comprehensive information security program.[39] Thus, we made 13 public recommendations in areas such as security awareness training, incident response, and security assessments. We also made 102 recommendations to address technical weaknesses we identified related to access controls, configuration management, and contingency planning.[40]

As of May 2016, the Bureau had made significant progress in addressing these recommendations. Specifically, it had implemented all 13 public recommendations and 88 of 102 technical recommendations. For example, the Bureau developed and implemented a risk management

[39]GAO, *Information Security: Actions Needed by Census Bureau to Address Weaknesses*, GAO-13-63 (Washington, D.C.: Jan. 22, 2013). Another version of this report was issued for limited distribution.

[40]These recommendations were included in a separate report with limited distribution due to the sensitive nature of the information it contained.

framework with a goal of better management visibility of information security risks; this framework addressed a recommendation to document acceptance of risks for management review.

Of the remaining 14 open recommendations, we have determined that 3 require additional actions by the Bureau, and for the other 11 we have work under way to evaluate if they have been fully addressed. These recommendations pertain to access controls and configuration management, and are related to two of the security challenges we previously mentioned—ensuring individuals gain only limited and appropriate access, and properly configuring and patching systems. The Bureau's progress toward addressing our recommendations is encouraging; however, completing this effort is necessary to ensure that sensitive information is adequately protected and that the challenges we outline in this report are overcome.

In conclusion, our ongoing audit work determined that the CEDCAP program has the potential to offer numerous benefits to the Bureau's survey programs, including the 2020 Census program. While the Bureau has taken steps to implement these projects, considerable work remains between now and when its production systems need to be in place to support the 2020 Census end-to-end system integration test—in less than a year and a half. Moreover, although the three selected CEDCAP projects had key project monitoring and controlling practices in place or planned, the gaps we identified in our draft report are impacting the Bureau's ability to effectively monitor and control these projects.

Given the numerous and critical dependencies between the CEDCAP and 2020 Census programs, their parallel implementation tracks, and the 2020 Census' immovable deadline, it is imperative that the interdependencies between these programs are effectively managed. However, this has not always been the case, and additional actions would help align the programs.

Additionally, while the large-scale technological changes for the 2020 Decennial Census introduce great potential for efficiency and effectiveness gains, it also introduces many information security challenges, including educating the public to offset inevitable phishing scams. Continued focus on these considerable security challenges and remaining open recommendations will be important as the Bureau begins to develop and/or acquire systems and implement the 2020 Census design.

Our draft report, which is currently with Commerce and the Bureau for comment, includes several recommendations that, if implemented, will help address the issues we identified and improve the management of the interdependencies between the CEDCAP and 2020 Census programs.

In addition, prior to today's hearing we discussed the preliminary findings from our draft report with Bureau officials, including the Decennial Census Programs' Associate Director, and incorporated their technical comments, as appropriate. According to the officials, they have actions under way to address some of the issues we identified, such as those related to improving risk management for CEDCAP projects. Regarding our finding that the CEDCAP and 2020 programs lack an effective process for integrating schedule dependencies, Bureau officials stated that they believe that they are in compliance with GAO's schedule guide. However, we maintain that the Bureau is not in compliance with the GAO schedule guide because it has not documented an effective process for managing the dependencies. Regarding our finding that the two programs do not have an integrated list of risks facing both programs, Bureau officials stated that they have an enterprise-wide risk management program, in which the Deputy Director has visibility into risks affecting both programs. While we agree that the Deputy Director has visibility into the CEDCAP and 2020 Census risks, documentation of joint management of key program risks does not exist. Therefore, we maintain our position that it is important that the programs establish a comprehensive list of risks facing both programs and agree on their respective roles and responsibilities for jointly managing the list.

Chairman Chaffetz, Ranking Member Cummings, and Members of the Committee, this completes my prepared statement. I would be pleased to respond to any questions that you may have.

Contact and Acknowledgments

If you have any questions concerning this statement, please contact Carol C. Harris, Director, Information Technology Acquisition Management Issues, at (202) 512-4456 or chac@gao.gov. GAO staff who made key contributions to this testimony are Shannin G. O'Neill (Assistant Director), Jeanne Sung (Analyst in Charge), Andrew Beggs, Chris Businsky, Juana Collymore, Lee McCracken, and Kate Sharkey.

Chairman CHAFFETZ. Thank you. Ms. Rice, you are now recognized for 5 minutes.

STATEMENT OF CAROL N. RICE

Ms. RICE. Thank you. Good morning, Chairman Chaffetz, Congresswoman Maloney, and members of the committee. I appreciate the opportunity to speak today about where the Census Bureau stands as it plans for a more modern, cost-effective 2020 census.

The Office of Inspector General is continuing its oversight of the Bureau's 2020 census planning efforts. The Bureau has stated—has a stated goal to conduct a cost-effective decennial while not compromising accuracy primary through automation and eliminating pen-and-paper processes.

To meet its goals, the Bureau has focused on four areas: first, address canvassing. Through continuous updating of census maps and address lists, as well as conducting fewer in-field verifications, the Bureau has a projected savings of $900 million.

Second, self-response. The Bureau is looking to maximize the participation rate. The more people that reply via the Internet or returning their paper questionnaire, the less need in associated cost there is to send someone to a non-responding household. It projects savings of $400 million through these efforts.

Third, administrative records. The Bureau can leverage government and third-party data to improve address lists, verify respondent information, fill in blanks or invalid answers, and assess the overall 2020 census accuracy. Using these records, the Bureau projects savings of $1.4 billion.

And fourth, field operations. The Bureau is looking to automate field data collection, establish an enterprise IT system for data collection and processing, the CEDCaP that so many of my colleagues here have discussed, streamlining field staffing and reduce the number of field offices. By reengineering field operations, the Bureau projects savings $2.5 billion.

I should note that the summary above is not an exhaustive list of all the 2020 census innovations. The 2020 census operational plan identifies 34 operations, all in various planning stages, and over 184 design decisions requiring answers as of 7 months ago when the plan was released.

OIG and other stakeholders support these innovations. Our concerns lie with the challenges that the Bureau faces in preparing these innovations for 2020 execution. More specifically, as we review and report on 2020 research and testing, we're concerned with the evaluation criteria and issues relating to the costs.

We're concerned that some of the research and testing the Bureau is conducting lacks rigorous success criteria, meaning established, quantifiable benchmarks to make informed, empirical decisions. Without measurable success criteria, the Bureau and stakeholders cannot determine whether the activities tested will result in a better method or a better way to conduct the census.

Over the past several years, we've also reported a number of concerns about the Bureau's cost-accounting and cost-estimating practices. Looking at the decennial program's method of recording salary costs in May 2014, we reported how the Bureau did not adequately track project costs. Instead, salaries were recorded and

paid on previously set budget allocations. In other words, actual spending on projects wasn't really tracked. As a result, the Bureau and stakeholders could not calculate the return on investments.

Similarly, cost estimates must be documentable and transparent. For fiscal years 2013 through 2015, the Bureau lacked detail or support documenting its cost-savings estimates in the 2020 census R&T budget justifications. Stakeholders must understand how cost savings can and will be achieved.

In September 2015, we reported on how the Bureau's 2014 census test proved to be a missed opportunity to validate the cost estimates and established benchmarks for the success of the proposed design options. In order to accurately estimate what the cost of a new innovation will be in the future, the costs associated with the activity must be collected during the field test.

And in the first half of 2016, we've issued two reports on the address and map database, MtDB, that will inform the 2020 census. Again, we reported that the Bureau didn't collect cost data or conduct a cost-benefit analysis for one of the—for the 2015 address validation test. Without clear, objective cost data, without establishing criteria by which to measure the outcomes of its tests, the Bureau jeopardizes meeting its cost and quality goals. OIG supports the Bureau's spirit of innovation as long as the Bureau properly tests, assesses, and prepares for these innovations well in advance of census day 2020. The decennial is too important and too costly for any unneeded risks.

Thank you, and I am happy to respond to any questions.

[Prepared statement of Ms. Rice follows:]

Chairman Chaffetz, Ranking Member Cummings, and Members of the Subcommittee:

I appreciate the opportunity to testify today about the Census Bureau's modernization efforts for the 2020 Census, as well as the bureau's overall preparedness for carrying out key aspects of the 2020 Census. This testimony is informed by our oversight of last decade's decennial—and, primarily, the bureau's planning to date of the 2020 Census.

Plans to automate 2010 Census field data collection had to be greatly curtailed late in the decade. Problems developing and operating the handheld computers and related automation compelled the bureau to abandon its plan to use the devices during nonresponse followup (NRFU) and forced it to make late-stage preparations instead for a pen-and-paper operation. This change led to major cost escalation, disruption of workflow, and high operational risk. For the 2020 Census, the bureau is committed to conducting a decennial census at a lower cost per household (adjusted for inflation) than the 2010 Census.

Our testimony today will address the bureau's 2020 Census efforts toward

- accurately accounting for and estimating 2020 Census costs;
- containing costs while maintaining accuracy through an innovative decennial design; and
- ensuring preparedness through project planning and risk management.

1. Accurately Accounting for and Estimating 2020 Census Costs

Throughout the decade leading up to the 2010 Census, the Census Bureau remained uncertain of what the 2010 Census' total cost would ultimately be. With a life-cycle cost estimate of more than $11 billion established in 2003 that eventually topped $14 billion in 2008, the 2010 Census ultimately totaled in excess of $12 billion. The final cost was nearly twice the cost of the 2000 Census (in nominal dollars)—due in part to a late-stage design change and higher-than-expected contractor costs. In recent history, the cost of the decennial census has roughly doubled during each cycle.

Over the last 3 years, OIG has issued a number of findings and recommendations to the bureau related to 2020 Census cost accounting and estimates, with which the Census Bureau has concurred. Some recurring themes in our reports include recommendations to improve controls over cost monitoring and budget development.

Accounting for actual costs. Our May 2014 report, *The Census Bureau Lacks Accurate and Informative Cost Data to Guide 2020 Census Research Through a Constrained Budget Environment,* identified control weaknesses in the Decennial Program's method for recording salary costs. Neither specific project costs nor the cost of the entire Decennial Program's research effort to date could be determined, because project costs were recorded in the accounting system simply to match previously set budget allocations. Additionally, recorded salary costs did not necessarily account for what the employee actually worked on, so some projects could have been charged to incorrect activities and accounts. Inadequate accounting of employees' actual work and level of effort required to accomplish project goals and inaccurate project costs hinder the Decennial Program's ability to assess the return on investment of research efforts. It

also makes it difficult to make informed decisions about how to implement budget reductions. In addition, we found that the bureau's Decennial Program was unable to provide us with documentation supporting fiscal years (FYs) 2013 and 2014 Congressional budget justifications by tying specific requests in the President's budget to specific project activities.

The bureau's FY 2013–2015 budget justifications for 2020 Census research and testing (R&T) program assumed $5.2 billion in savings if design innovations could be implemented. Likewise, a regional office realignment was justified by an annual savings estimate of $14–$17 million per year, beginning in FY 2014. However, recently we identified issues with the bureau's cost estimates, and the bureau has not been able to demonstrate that actual cost savings can or will be achieved.

To effectively manage a program of the size, complexity, and cost of the 2020 Census—and assess the return on investment of R&T—managers need to develop detailed and supportable cost estimates to use as benchmarks for success. The estimates should then be compared to actual costs, to assess the return on investment of R&T. The bureau must improve its cost estimation and accounting practices in order to provide stakeholders assurance that budget requests are justified and will yield expected results.

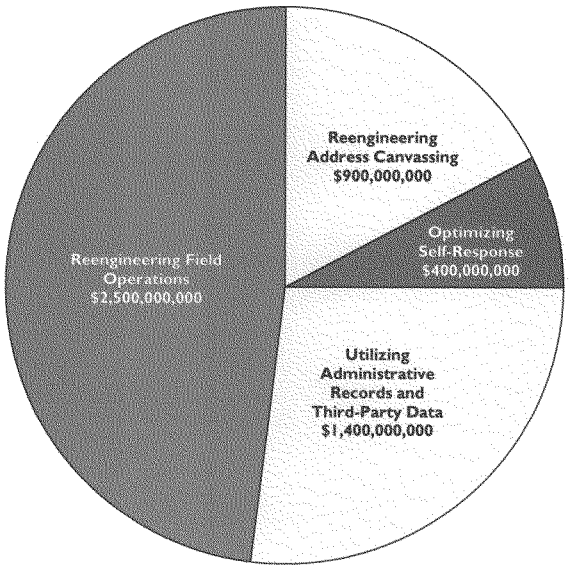
Supporting cost estimates. In our September 2015 report, *2020 Census—The 2014 Census Test Misses an Opportunity to Validate Cost Estimates and Establish Benchmarks for Progress,* we noted that the 2014 Census Test was a missed opportunity to validate cost estimates. We found that (1) the bureau's cost estimate lacked adequate documentation, (2) project teams did not follow project plan management and change control protocol, (3) the cost estimate did not account for some design features that were included or dismissed as viable options for the 2020 Census design, (4) the 2014 test did not provide cost data that can be used to validate cost savings estimates or compare the cost of various design strategies under consideration, and (5) 2014 test projects did not develop measurable success criteria, with which to validate potential cost savings or establish benchmarks for a cost-benefit analysis of test results.

In February and May of 2016, we issued two reports resulting from one audit on the Master Address File (MAF)/Topologically Integrated Geographic Encoding and Referencing system (TIGER) database (MTdb) and Local Update of Census Addresses (LUCA) for the 2020 Census. The February 2016 audit report, *The U.S. Census Bureau's Efforts to Ensure an Accurate Address List Raise Concerns over Design and Lack of Cost-Benefit Analysis,* aimed to (a) determine how efforts, such as the 2015 Address Validation Test, support the accuracy of the MAF and (b) evaluate the preparation of the LUCA program. Again, we found that the bureau did not collect cost data or conduct a cost-benefit analysis for two canvassing tests. And the May 2016 audit report, *The U.S. Census Bureau Geography Division Lacks Complete Information for Project Costs and Has Not Fully Monitored Geographic Support System Initiative (GSS-I) Goals,* found that the bureau did not identify costs for projects associated with continuously updating the MTdb.

2. Containing Costs While Maintaining Accuracy Through an Innovative Decennial Design

For the 2020 Census, the Census Bureau is expected to conduct a decennial census at a lower cost per household (adjusted for inflation) than it did during the 2010 Census—and maintain or improve the quality of the data it collects during the 2020 Census. To accomplish these goals, the bureau must overcome many challenges such as a constrained fiscal environment, rapidly changing technology, declining public participation, growing distrust in government, increased population diversity, complex living arrangements, and increased population mobility. To overcome these challenges and accomplish its 2020 Census goals, the bureau is focusing on four key innovation areas: (1) reengineering address canvassing; (2) optimizing self-response; (3) utilizing administrative records and third-party data; and (4) reengineering field operations. (Please see figure 1, below, for projected cost savings of each area.)

Figure 1. 2020 Census Innovation Areas and Projected Cost Savings



Source: U.S. Census Bureau, *2020 Census Operational Plan*, December 2015

The 2020 Census planning effort involves 34 operations. Of those, the address canvassing and NRFU operations are likely the most expensive; the bureau expects innovations in each of these four areas to reduce the cost of 2020 Census fieldwork by $5.2 billion (compared to the 2010 Census).

Reengineering address canvassing. By reengineering address canvassing, the Census Bureau expects to reduce the number of addresses needing field verification by 75 percent and save $900 million. To accomplish this, the bureau is focused on updating MTdb throughout the decade and conducting in-office and targeted in-field address canvassing operations.

Updating Census addresses and maps. The Census Bureau must enumerate the population in a decennial census that associates all addresses with a geographic location. The bureau therefore attempts to locate all MAF addresses geospatially in its TIGER system. As the backbone of the bureau's survey operations, the MTdb must be up-to-date and accurate. Because there is no single source for updating data in the MTdb, the bureau coordinates with providers of multiple data sources, such as tribal, state, and local governments; conducts its own operations to verify and update addresses and maps; and receives updates twice a year with the Delivery Sequence File (DSF) from the U.S. Postal Service.

After the 2010 Census, the bureau determined a need for a larger-scale effort for continuous MTdb validation and updates. This prompted the initiation of GSS-I, a continuous plan on a 10-year life cycle to provide the most current, accurate, and complete address, feature, and boundary data. To date, we have reviewed the LUCA and GSS-I programs. We found that the bureau eliminated two of the three 2010 LUCA participation options for the 2020 LUCA—and may not provide adequate alternatives for governments who find the remaining option too burdensome. As a result of the bureau's decision, the only participation option for the 2020 LUCA program participants is to identify and submit discrepancies between their residential address lists and the bureau's master address list.

The bureau stated that GSS-I could help government entities affected by the change. However, in our audit of the GSS-I program, we found the bureau did not monitor over one-third of the original goals it identified in its operational plan. As a result, the bureau does not know whether it has fulfilled those goals. Furthermore, with less than 4 years before the next decennial census, there may not be enough time to include all 2010 LUCA participants in the GSS-I program.

Reducing in-field address canvassing. In 2009, Census Bureau canvassers traversed almost every block in the nation to validate the address list. For the 2020 Census, the bureau is replacing 100 percent in-field address canvassing with a 100 percent in-office review and reduced in-field canvassing. To support this, the bureau has begun an operation that uses imagery to identify geographic changes that require further office review to update the MTdb and pinpoint areas for in-field verification. The in-office imagery review has been in place for over 6 months. We are currently assessing this operation to see whether it is being implemented as planned.

Optimizing self-response. The goal of optimizing self-response is to communicate the importance of the 2020 Census to the U.S. population and generate the largest possible self-response, reducing the NRFU workload. By offering an Internet response option,

the Census Bureau hopes to enable people to respond from any location at any time and via multiple types of electronic devices.

The bureau also hopes to allow people to respond without a unique identification code (i.e., non-ID processing), easing response to the 2020 Census. To accomplish this, however, the bureau must figure out how to collect address information and match it, in real time, to the MAF/TIGER system. This requires real-time map interface and response validation—both during the response and via back-end processing. Without automated, real-time matching and processing, manual matching and geocoding is required when automated non-ID processing cannot determine an acceptable geographic location match.

Although the bureau did not implement an Internet response option for the 2010 Census, it has confirmed the feasibility via the American Community Survey, the 2012 National Content Test, the 2014 and 2015 Census Site Test, and the 2015 Optimizing Self-Response Test. The bureau has decided to provide an Internet self-response option for the 2020 Census. However, a number of challenges remain—such as how to achieve the 55 percent response rate, which the bureau requires to attain its estimated cost savings. There are also a number of additional issues regarding optimized self-response in general, and the Internet self-response option in particular, that the bureau still has to resolve before deciding on the final design of the 2020 Census.

Utilizing administrative records and third-party data. Greater use of administrative records offers the potential to enhance the decennial census in a number of important areas: from improving the MAF to finding households or individuals who may otherwise be missed to providing quality control for the enumeration process. These personal records contain information that individuals have already provided to various government agencies or commercial entities, such as their names, addresses, age, sex, race, and a wide variety of demographic, socioeconomic, and housing information.

As indicated in the Census Bureau's 2020 business plan, supplementing decennial operations with information from these records could potentially reduce enumeration costs and help the bureau avoid inaccurate enumerations by

- improving the address list;
- supplying answers to questions with invalid or blank responses;
- providing information for households that do not respond to the questionnaire, an in-person visit, or a phone interview;
- validating respondent information; and
- helping assess overall decennial accuracy (i.e., providing coverage measurement).

However, relevant statutes governing other federal agencies do not facilitate the use of administrative records by the Census Bureau because these statutes either do not compel agencies to provide their records to the bureau in response to requests or state that agencies are only required to provide certain information to the bureau.

Reengineering field operations. The Census Bureau's plans include (1) providing automated field data collection solutions to assign and monitor work, collect and submit data, and perform administrative functions such as payroll and communications; (2) streamlining (and thereby reducing) the number of staff and field offices; and (3) employing an enterprise-wide data collection and processing infrastructure. The goal of this innovation is to use new technology and automated systems to allow enumerators, supervisors, and managers to be more productive and efficient—resulting in a more effective NRFU operation and a cost reduction of $2.5 billion.

Automated field data collection. For the 2010 Census, the bureau had planned to reduce the costs of field operations by using custom mobile handheld computing devices—equipped with global positioning system capabilities—to automate the workload assignment, data collection, and information processing functions. However, the project experienced constant setbacks, including technical problems, escalating costs, and missed deadlines. In April 2008, the decision was made to abandon the plan to use the handhelds for NRFU, although they were successfully deployed for the address canvassing operation.

For the 2020 Census, the bureau—using off-the-shelf devices—has developed in-house applications that have enumerated households in the 2013–2015 site tests. We are examining the 2015 Census Test of NRFU in Maricopa County, Arizona, to assess (a) whether the bureau's reengineered and automated operational control system for managing fieldwork functioned as expected and (b) the bureau's progress for determining whether enumerators are able to use personally owned mobile devices to collect household data, as well as the status of the bureau's efforts to overcome policy and legal issues associated with the use of those devices.[1]

Streamlined 2020 Census field structure. By providing enumerators with the capability to perform all administrative and data collection tasks remotely—directly from a handheld device—and enabling supervisors to work remotely and communicate with their staff via the devices, the bureau expects these enhanced capabilities to significantly reduce the number of local field offices required to support 2020 Census fieldwork. The bureau also expects this increased automation to make it easier for supervisors to monitor and manage their enumerators. Therefore, the bureau assumes that the ratio of enumerators to supervisor can be increased, reducing the number of supervisors required.

We are also reviewing the 2016 Census Test of NRFU in Harris County, Texas, and Los Angeles County, California, to assess whether—through (a) increased use of technology, (b) streamlined office and staffing structure, and (c) increased

[1] In January 2016, the Census Bureau decided to eliminate "Bring Your Own Device" as an option for providing enumerators with devices or smartphones. Instead, the bureau decided to implement the Device as a Service (DaaS) strategy for providing enumerators with equipment during the 2020 Census. Under the DaaS option, a single vendor—at a single cost—will supply the necessary equipment, handle all logistics, configure the devices, manage inventory, and provide technical support.

management and staff productivity—the bureau will be able to manage more enumerators with fewer supervisors during the 2020 Census. During the 2016 test, the bureau is assessing two different staffing ratios—20 enumerators to 1 supervisor in Los Angeles County, and 30 enumerators to 1 supervisor in Harris County. This is a significant increase from the number of enumerators (approximately 8) each supervisor managed during the 2010 Census. Our fieldwork in this area is ongoing, and no findings have been developed. At the end of the test, the bureau intends to assess the cost and quality tradeoffs associated with each new, greater staffing ratio.

Census Enterprise Data Collection and Processing (CEDCaP) program. The bureau's goal is to have mature, proven systems in place well in advance of the 2020 Census to avoid building one-time use applications. To accomplish this, the bureau intends to deliver an integrated and standardized network of systems, using an enterprise-wide approach to collect and process data through shared services.

However, in the past, the bureau has struggled with program management and meeting scheduled benchmarks for its information technology (IT) development programs. With less than 4 years remaining until Census Day (April 1, 2020), the bureau is running out of time to successfully deploy an enterprise solution. Yet the bureau must develop, test, and implement a cost-effective, secure IT infrastructure to collect and process data in time to support the 2020 Census workload volume.

As part of our FY 2016 audit plan, we recently initiated an audit of the planning, design, incremental development, and implementation of CEDCaP. Our objectives are to (1) determine whether applicable enterprise architectural and system development standards, methodologies, and best practices are being effectively employed on the CEDCaP program, and (2) assess the adequacy of plans for scalability, reliability, and security throughout the development lifecycle of CEDCaP cloud-based applications.

3. Ensuring Preparedness Through Project Planning and Risk Management

The Decennial Program began its 2020 Census R&T phase with a plan to conduct 24 small, medium, and large field tests to mature innovations in an iterative manner—culminating in FY 2014 with a large integration field test. However, during late 2012 and early 2013, the Decennial Program R&T activity schedule was revised four times and activities were delayed with each revision. Under this *initial* revised schedule, the R&T field tests were set to conclude in FY 2016. In June 2013, citing budget constraints, the bureau announced its plan to cut the number of field tests leading up to the large integration test to 11. The 2014 large integration test has been recast as the Census End-to-End Test—now scheduled for 2018.

The bureau only has a limited number of opportunities left to develop, test, and refine 2020 Census design alternatives, as well as resolve remaining issues. Along with the 2016 Census Test, and the 2016 Address Canvassing Test, there remains the 2017 Census Test, the 2018 Census End-to-End Test, and Post End-to-End Testing in 2019.

The 2020 Census design includes 34 operations at various planning stages. In addition to determining the final content topics and questionnaire wording for the 2020 Census, the bureau has identified 184 design issues, which still have to be resolved before the final 2020 Census design decisions can be made (see appendix A). As of June 2016, these unresolved design issues include 92 related to response data collected by enumeration operations and, of those, 20 specifically related to NRFU.

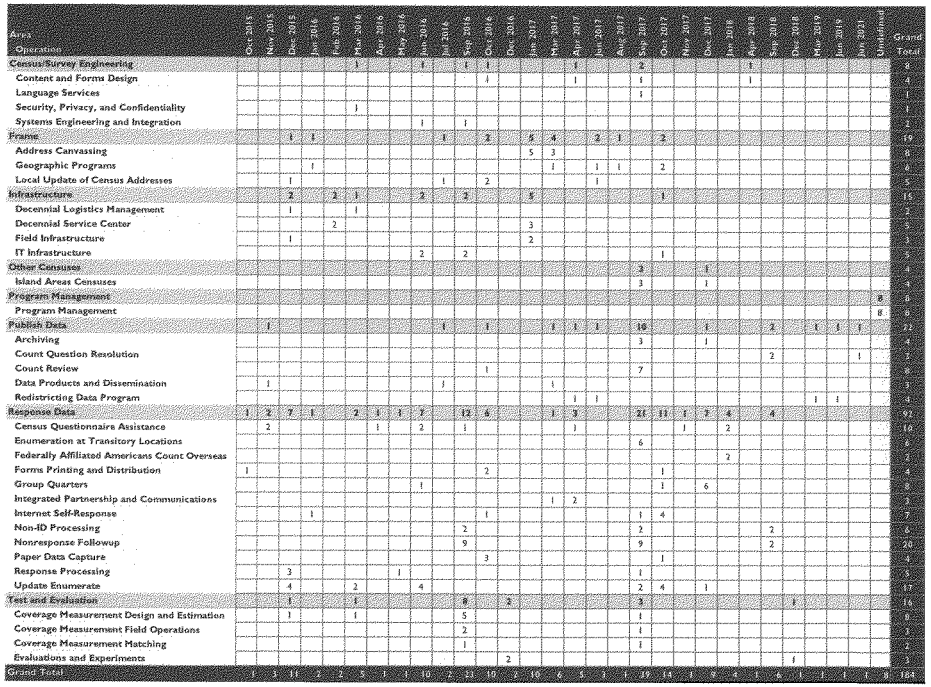
The Decennial Program—which must finalize its design decisions well before Census Day 2020—faces the challenge of completing its mission under the pressure of tight deadlines. In addition to this challenge, many R&T projects have lacked measurable success criteria with which to validate potential cost savings or establish benchmarks for analyzing test results. Many of the projects included in past tests have lacked certain requirements promulgated by GAO, as well as the bureau itself, including

- research results that address specific research questions in a timely manner;
- recommendations resulting from projects that are supported by appropriate evidence;
- outputs—such as data, products, or objects—during the project's life cycle;
- performance measures to evaluate progress towards achieving the outputs and to evaluate project and program performance against pre-established targets; and
- performance metrics that (1) align with the goals and mission of the R&T effort and that are clearly communicated, (2) are clearly stated with a unique name and definition and include a specific methodology used for calculation, (3) have quantifiable goals that can be achieved during a defined time period, (4) are free from significant bias and produce the same result under similar conditions, (5) cover activities that support program goals and objectives, and (6) provide new and unique information.

These projects lacked success criteria that established precise, predetermined, and quantifiable benchmarks against which to (a) measure actual test results and (b) determine whether projects or tests can achieve specific goals or objectives. The lack of appropriate success criteria for R&T projects—as well as the lack of corresponding cost estimates—restricts the bureau's ability to base decisions on actual results and inhibits the demonstration that expenditures produced quantifiable results that will help the bureau conduct a cost-effective and quality 2020 Census.

I will be pleased to take your questions.

Appendix A.
2020 Census Design Decisions Yet to Be Resolved



Area / Operation	Oct 2013	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Sep 2016	Oct 2016	Dec 2016	Jan 2017	Mar 2017	Apr 2017	Jun 2017	Aug 2017	Sep 2017	Oct 2017	Nov 2017	Dec 2017	Jan 2018	Apr 2018	Sep 2018	Dec 2018	Mar 2019	Jan 2020	Unplanned	Grand Total
Census/Survey Engineering					1				1		1	1				1			2				1						8
Content and Forms Design												1				1			1				1						4
Language Services																			1										1
Security, Privacy, and Confidentiality						1																							1
Systems Engineering and Integration									1		1																		2
Frame			1	1						1		2		5	4		2	1		2									19
Address Canvassing														5	3														8
Geographic Programs				1											1		1	1		2									4
Local Update of Census Addresses			1							1		2					1												5
Infrastructure			2		2	1				2		2		5						1									15
Decennial Logistics Management			1			1																							2
Decennial Service Center					2									3															5
Field Infrastructure			1											2															3
IT Infrastructure									2		2									1									5
Other Censuses																			3			1							4
Island Areas Censuses																			3			1							4
Program Management																												8	8
Program Management																												8	8
Publish Data		1							1		1			1	1	1			10			1		3		1	1	1	22
Archiving																			3			1							4
Count Question Resolution																								2				1	3
Count Review											1								7										8
Data Products and Dissemination		1							1						1														3
Redistricting Data Program																1	1									1	1		4
Response Data	1	2	7	1		2	1	1	7		12	6			1	3			21	11	1	7	4		4				92
Census Questionnaire Assistance		2					1		2		1					1					1		2						10
Enumeration at Transitory Locations																			6										6
Federally Affiliated Americans Count Overseas																							2						2
Forms Printing and Distribution	1											2								1									4
Group Quarters									1											1		6							8
Integrated Partnership and Communications															1	2													3
Internet Self-Response			1								1								1	4									7
Non-ID Processing											2								2					2					6
Nonresponse Followup											9								9					2					20
Paper Data Capture												3								1									4
Response Processing		3					1												1										5
Update Enumerate		4			2				4										2	4		1							17
Test and Evaluation		1			1						8		2						3						1				16
Coverage Measurement Design and Estimation		1			1						5								1										8
Coverage Measurement Field Operations											2								1										3
Coverage Measurement Matching											1								1										2
Evaluations and Experiments													2												1				3
Grand Total	1	3	11	2	2	5	1	1	10	2	21	10	2	10	6	5	1	1	19	14	1	8	4	3	6	1	1	1	9	184

Source: U.S. Census Bureau, *2020 Census Operational Plan*, December 2015

Chairman CHAFFETZ. Thank you. I appreciate that.

I will now recognize the gentleman from Michigan, Mr. Walberg, for 5 minutes.

Mr. WALBERG. Thank you, Mr. Chairman. And thanks to the panel for being here. This is a challenge, the census, but probably is the one benefit that comes that takes people's attention and minds and calls to my office off of IRS and VA for a while. And that is probably the only benefit, though. We understand it has to be done, but we want it to be done right and appreciate your efforts at that point.

Mr. Thompson, how reliant will the census 2020 be on CEDCaP?

Mr. THOMPSON. Congressman, CEDCaP is a key component for the 2020 census. It has a number of important systems that will be used in 2020. Those systems will also be reused for the enterprise, but we do depend on CEDCaP very heavily, and that's why we give it so much attention.

Mr. WALBERG. It is apparent that you will be extremely reliant on CEDCaP for important reasons, but is it safe to say that CEDCaP and the reliance on it will not go as planned or achieve the $5.2 billion in planned savings—2020 won't achieve that without CEDCaP?

Mr. THOMPSON. As I said, it's a critical part of the 2020 census. It—we are delivering key systems to support 2020 that are part of CEDCaP. And so yes, some of the systems that we rely on in CEDCaP like our control systems and our mobile technology systems are key to achieving parts of the—large parts of the savings.

Mr. WALBERG. Let me toss a similar question over to Ms. Harris. Is it safe to stay—let me just restate it. Is it safe to say that census 2020 is extremely reliant on CEDCaP and will not go as planned or achieve the $5.2 billion in planned savings without CEDCaP?

Ms. HARRIS. Yes, sir.

Mr. WALBERG. So it is extremely important. What are, Mr. Thompson, the top three risks facing the 2020 program and the CEDCaP program?

Mr. THOMPSON. So the top risk we face is cybersecurity, and we're doing a lot, as Mr. Cooper mentioned, on cybersecurity. Another significant resource we face, which we admit today, is maintaining the adequate resources and funding to build the systems. And the third big risk is that—that we have to mitigate is making sure that all the systems are integrated together, which is why our 2018 end-to-end test is so critical.

Mr. WALBERG. Could you give us more specifics on how you are trying to mitigate those risks? And I appreciate those three are, I think, what we are all looking at. What is the mitigation?

Mr. THOMPSON. So I would let either Mr. Cooper or Mr. Lee really talk about cybersecurity because they're the ones we rely ——

Mr. WALBERG. Okay.

Mr. THOMPSON.—for that.

Mr. WALBERG. Mr. Cooper?

Mr. COOPER. Thank you. We are taking every known set of steps and operations that we can take. They include working with other Federal agencies and colleagues across the Federal enterprise—the Department of Homeland Security, law enforcement agencies, appropriate other agencies—to ensure that we are implementing

things like Department of Homeland Security's EINSTEIN program, which scans the network for any indicators of compromise, helps us identify threats and vulnerabilities.

We are using a layered in depth set of defenses, so that includes encryption of data at rest, in transit, and whenever it's being moved from one environment to another environment. That helps us significantly improve our cyber capabilities against any possible breach that might actually access data.

However, we have taken steps to minimize the likelihood of any data breach of census data because the repositories of census data are not Internet-accessible. They're isolated from the Internet. That significantly reduces the operational threat from bad actors.

In addition, we have deployed censors both across the perimeter of our public-facing sites. We have censors at our application layer, at our data layer, and we continue to identify working with external private-sector partners more advanced methodologies and software capabilities to continuously improve and enhance our cyber posture.

Mr. WALBERG. I see my time is expired. I yield back.

Chairman CHAFFETZ. I thank the gentleman.

I will now recognize the gentlewoman from New York, Mrs. Maloney, for 5 minutes.

Mrs. MALONEY. I guess, Director Thompson and Director Harris, this decennial census is making the most use of technological innovations that weren't possible 10 years ago. A reliance on the Internet and solutions like the handheld electronic collection devices could mean more accurate census data and make collecting it faster and cheaper, but earlier, the chairman mentioned that the handheld operable device did not work in a prior test. Does the handheld device you are using now work, and has it been tested? I'll ask Director Harris.

Ms. HARRIS. Actually, I think that question would be probably more appropriately directed to Mr. Lee.

Mrs. MALONEY. Okay. Mr. Lee then. The handheld device that you are currently using, has that been tested? Is it working?

Mr. LEE. Yes. We currently use those devices in the field for our tests and I believe have actually brought examples.

Mrs. MALONEY. Okay. Great.

Mr. LEE. We have a Samsung Android device, and we also have an iPhone Apple device that the enumerators use in the field, are highly secure. The data that's collected is encrypted. When it's transmitted, it's encrypted. The enumerators can work their case list, availability of work, schedule their work availability times. They can call the service center for support if they need it, and they can provide their expense and travel reporting on this device.

Mrs. MALONEY. Is that part of the $5 billion savings or is that a separate category of savings?

Mr. LEE. The use of these devices in the field with the reduced number of personnel should be part of the $5.2 billion savings.

Mrs. MALONEY. Okay. Director Thompson, you know, we have a whole set of new technologies that you have mentioned. Would it be feasible, since it is so important to meet the timelines that we have to meet, as my colleagues have pointed out, would it be feasible to work towards implementing only the IT required for the

2020 census and leave the rest of the CEDCaP implementation until after we know that the 2020 census technology is in place and usable and functioning and working? Director Thompson?

Mr. THOMPSON. Congresswoman, thank you for the question. We have at the Bureau prioritized the CEDCaP work towards ensuring success for those systems necessary for 2020, and those are ——

Mrs. MALONEY. Okay.

Mr. THOMPSON.—the first systems we're delivering. After we deliver those systems, then we're going to work on other systems. But the 2020 census has priority for the CEDCaP program.

Mrs. MALONEY. And, Director Harris, you heard Mr. Cooper go through the steps they are taking. What other steps can the Bureau take to ensure that testing is completed and on time?

Ms. HARRIS. Well, Ranking Member Maloney, I appreciate the question. The first and foremost thing that we have to keep in mind is a time available that's remaining. We have less than a year-and-a-half. And given the complexity and the scope of the CEDCaP program—it is a systems-of-systems initiative—the best thing that they can do to ensure that they will be in a position to adequately test all these systems is to reduce the complexity and scope of this initiative.

And so that would mean that, in addition to what Director Thompson is saying of making the priority 2020 program versus ACS or the economic survey and other programs, what they can do, for example, is identify other areas of CEDCaP where it may not potentially give them the most bang for their buck. One example of that is non-ID processing where, at this time, automating that particular piece of functionality is still something that they are in the exploratory phase of. And given that we are in year 6, that is something that I would strongly consider that they drop off the table.

Mrs. MALONEY. Your response?

Mr. THOMPSON. So I can start.

Mrs. MALONEY. Okay.

Mr. THOMPSON. We are constantly evaluating the CEDCaP program against schedule and functionality and deliverability with an eye towards making sure that we can deliver a functional integrated system for the 2018 end-to-end test. And to date we feel that we are on schedule to deliver that system.

Mrs. MALONEY. Well, let's just talk about your fallback plan. What if you test it and you are not able to produce it? Can you fall back to a paper and pencil? We are moving into the 21st century, congratulations. I support that effort. But what happens? What is the fallback plan? We always look for that. So, Director Thompson, you had testified earlier that you didn't think that we could fall back to a paper-and-pencil approach. What is your response? What is the fallback plan, or is there one?

Mr. THOMPSON. So our plan—well, let me first start by saying that, right now, we estimate that we're going to do about 20 percent of the households in the United States with paper and pencil because ——

Mrs. MALONEY. Okay.

Mr. THOMPSON.—we don't believe that there's Internet access, and we believe that people would prefer to respond by paper and

pencil. So right off the bat we're going to start with 20 percent just because—that's as of today.

Secondly, what we are doing, as I said, we're constantly evaluating the CEDCaP program and the other 2020 programs so that what we put in place for the 2018 end-to-end test will be the systems that we use for 2020. And the—so if we can't develop certain capabilities by 2018, then those capabilities will not be included in 2020, and of course, we'll make sure that we update the committee and all other stakeholders on this—these—this progress as it develops.

Mrs. MALONEY. My time is expired. Thank you.

Chairman CHAFFETZ. I thank the gentlewoman.

I now recognize the gentleman from Texas, Mr. Farenthold, for 5 minutes.

Mr. FARENTHOLD. Thank you, Chairman Chaffetz.

Director Thompson, we visited about some of these issues before, and I want to follow up and see where we are. Let's talk about the cloud-based gathering system. How much of this is in-house versus how much of it is contracted out to, you know, a third-party cloud provider, say, Amazon or Rackspace, some company like that? Mr. Cooper, if you want to jump in on that.

Mr. THOMPSON. I think Mr. Cooper might ——

Mr. FARENTHOLD. All right. Super.

Mr. COOPER. Yes, I think maybe Mr. Lee and myself ——

Mr. FARENTHOLD. Okay.

Mr. COOPER.—may be better positioned to ——

Mr. FARENTHOLD. That is fine.

Mr. COOPER. The—it really becomes what most of us in the CIO community refer to as a hybrid cloud. That means that our intent is to use a data environment with a cloud service provider but that is isolated. It's private. It's considered a private cloud ——

Mr. FARENTHOLD. Right.

Mr. COOPER.—accessible only by authorized Census Bureau officials.

Mr. FARENTHOLD. My point is how much of it do you all own and how much of it are you renting time from somebody else?

Mr. COOPER. Harry ——

Mr. FARENTHOLD. Do you have rough percentages or anything?

Mr. LEE. I wish I could give you exact percentages right now, but let me answer how we'll determine that. We've identified what we think are the systems that need high scalability where we do not want to have to provision ——

Mr. FARENTHOLD. Right.

Mr. LEE.—resources within our own data center. We have—currently have a cloud contract in place that we're testing against. We've done some performance testing and scalability ——

Mr. FARENTHOLD. All right.

Mr. LEE.—so ——

Mr. FARENTHOLD. Again, I think you are getting to my point. If we run a massive data operation for several months every 10 years, so the more of that you outsource and don't have to buy computers, the better off we are because the rest of those 9 years the computers sit mainly unused, and 10 years down the road, you are not

going to want to use a 10-year-old computer again. So if you, you know ——

Mr. LEE. Exactly. And so one of the things we've done early on is we've identified what are those inputs that might have high performance and capacity requirements. We've built models.

Mr. FARENTHOLD. Right.

Mr. LEE. And as we conduct our tests, we update those models to predict what will the capacity and the workload be during the census so we can have those resources in a cloud-based ——

Mr. FARENTHOLD. Right, and ——

Mr. LEE.—environment.

Mr. FARENTHOLD.—these cloud companies understand this. They scale very well. I noticed you held up an Android. It looked like an S5. It may have been an S6; I couldn't tell from here. Are we going to provide those to the enumerators are or is it going to be a bring-your-own device system?

Mr. COOPER. Well, I can start. The Census Bureau made a decision. Originally the thinking was to use a bring-your-own device. But the evaluation, the field tests and everything demonstrated that that was not going to be both operationally effective, and it would not be cost-effective. So we have now made ——

Mr. FARENTHOLD. Why would it be more cost-effective to give somebody a $400 to $500 mobile device as opposed to an app that they could just download on a mobile device they already have?

Mr. COOPER. Because of the wide variety of operating systems and potential differences in phones that might meet the common set of thresholds. So the decision has now been made to move to a device as a service approach. So in fact the vendor selected through a competitive process will actually supply the devices.

Mr. FARENTHOLD. All right. And so ——

Mr. COOPER. That also is ——

Mr. FARENTHOLD. So then in 2021 I might be able to get a really cheap used cell phone ——

Mr. COOPER. Yes, sir.

Mr. FARENTHOLD.—that was actually used by a census enumerator, right?

Mr. COOPER. Yes, sir. And it will be completely scrubbed of any data.

Mr. FARENTHOLD. All right. I guess the other question is with respect to security. You talked a little bit about using the best practices in the EINSTEIN system. Wasn't EINSTEIN in place when the OPM was breached? It really doesn't stop the breaches. It tells you hopefully a lot sooner than when the OPM did it that you have got a problem.

Mr. COOPER. Yes, I would agree with that statement. I think what we might say is that EINSTEIN is necessary but not sufficient. EINSTEIN alone, as you've stated, won't protect us against everything. That's the reason for the additional measures we are taking in our cyber in-depth ——

Mr. FARENTHOLD. And finally ——

Mr. COOPER.—approach.

Mr. FARENTHOLD.—how important a target, I guess, do you consider yourself? I mean, most of the data that you collect will eventually be made publicly available? Obviously, not all of it, but a

vast majority of it you will just be able to download without having to hack in.

Mr. COOPER. True, but with one very, very, very important distinction, okay? Data that will be eventually released will be anonymized. Data that we collect is personally identifiable information, and it also includes business intelligence type of information.

Mr. FARENTHOLD. All right. I see my time ——

Mr. COOPER. Therefore, we have a responsibility ——

Mr. FARENTHOLD. I am not questioning that. Again, I am just curious as to how you all view that.

And I see my time is expired. Thank you.

Chairman CHAFFETZ. I thank the gentleman.

I now recognize the gentlewoman from the District of Columbia, Ms. Norton, for 5 minutes.

Ms. NORTON. Thank you very much, Mr. Chairman, and I thank all of you for very helpful testimony and commend you for how far you have gotten thus far.

During the last census, we had hearings that brought out what was apparently an issue that the census Director Thompson had never even thought much about, and that is how inmates, how prisoners are counted. This is an issue that has a lot of complexity and affects millions more who are not in prison than are in prison.

Apparently, the way in which the census handles this matter is to simply—the easiest thing you could do is what you would have done, I suppose, when the census first began, just count them where they are in the State prisons, in the prisons where they were, and individuals in State prisons may not be counted as a part of the congressional district, for example, that they come from. And in the Federal prisons, they may not count as residents of their State at all.

Now, the District of Columbia is unique. I wouldn't want to go off on that because all of our prisoners, because we were the only city that carries the functions. All of ours are in Federal prisons. But it really does pertain to every Member of Congress because the Federal prison has people who are from various States, and they are in various States while they are in prison.

I don't need to tell you that people look to the census with great interest because funds for everything from TANF to the surface transportation bill to community and mental health that affect their communities that rely on the census. And therefore, many more people are affected who are not in prisons.

Well, some States have recognized the undemocratic nature and frankly the unprofessional nature of the way in which the census has been doing it because the State Legislatures in some states have required counting prisoners where they normally reside rather than the prison where they are held, which inflates obviously in the most unfair way what some communities receive and deflate what others receive.

Now, only in May of this year—and this was a big problem in the last census—do I understand that the census requested comments. I don't even know whether this was an open-ended question, whether it was a rule, but I would like to ask you, Director Thompson, what kind of question was asked. I note nothing has

been published. And how will you count people who are in prison in the 2020 census?

Mr. THOMPSON. Thank you, Congresswoman.

So after every census we look at the rules we use to determine where to count people, and we evaluate them against the 1790 Census Act, which says essentially that we count people where they usually live or sleep. So what we did for this census was we put out the rules that we used for 2010, and in 2010 we counted prisoners in the prisons.

We put those rules out for comment, for public comment through the Federal Register process. We got a number of comments. Most of the comments centered on where to count prisoners and where to count the deployed military. We are in the process of evaluating those comments and putting out in a Federal Register notice again for comment the proposed rules we will use for 2020 so we can receive public comment on our proposal, and then we can proceed to making a final decision.

But that's where we are right now, and we anticipate that the Federal Register notice will come out before the end of June.

Ms. NORTON. Before the end of June there will be a Federal Register notice that says what? I'm sorry.

Mr. THOMPSON. There'll be a Federal Register notice that gives our proposal for the rules that ——

Ms. NORTON. There will be a rule, in other words?

Mr. THOMPSON. No, it'll be a proposal for comment. We will say this is how we propose to count various people, including prisoners, college students, the deployed military, and that will be out for public comment.

Ms. NORTON. You said June. That is this month.

Mr. THOMPSON. That's this month, yes.

Ms. NORTON. Thank you very much, Director Thompson.

Chairman CHAFFETZ. Thank you. I am going to recognize myself for 5 minutes.

Mr. Thompson, you say you are on time, on schedule, correct?

Mr. THOMPSON. Yes.

Chairman CHAFFETZ. Ms. Harris, from your perspective, I believe there are 17 key items that needed to be purchased or secured, contracts let. From your perspective, are they on time, on schedule?

Ms. HARRIS. I think it's—the answer—the short answer is no. I do believe that—the CEDCaP implementation schedules for those 17 solutions that I mentioned have not yet been determined, so I don't think the Bureau is in a position to say that they are on schedule because that implementation schedule is a critical component of the CEDCaP program, and until that schedule is defined, it's—I don't—I think they're in a difficult position to say that they're on time and on schedule.

Chairman CHAFFETZ. So the concern is that they don't have a schedule and that they are not integrated—there is no compatibility if you examine the two different schedules that are out there, correct? Explain that a little bit more to me in depth. You have looked at it.

Ms. HARRIS. Sure. So the first—so when I first said about there's a lack of an implementation schedule, that's for the most recent decision that they made to go with the cuts for roughly half of the

CEDCaP solutions. And so that schedule will currently be defined by the vendor that they have selected, and until that schedule comes out, I think it's hard for them to say that they are on time and on schedule.

The second piece of that is the current process in which the 2020 and CEDCaP programs are managing their interdependencies is inefficient. So they currently have a total of four schedules that they are managing. They're managing their own program schedules, and then they have these two interdependent schedules, which, you know, the 2020 program is managing their interdependent schedule, which identifies the dependencies with CEDCaP and then vice versa. So there are a total of four schedules, as opposed to having a single integrated interdependency schedule, which is what best practices call for.

Chairman CHAFFETZ. Mr. Thompson?

Mr. THOMPSON. So we are meeting all of the CEDCaP milestones. We go through a number of reviews with our colleagues at the Department of Commerce.

Chairman CHAFFETZ. Are those published? I mean, Ms. Harris is a pretty serious person. She doesn't think you met any of them, and you think you are on schedule. Are they published or is it in writing somewhere?

Mr. THOMPSON. So I think what Ms. Harris is referring to is we've just made a decision in May about build or buy, which we had planned to make. We've made that decision. We now have to—now that we've made the decision to build—I mean buy, we have to work at a new schedule and new costs based on that solution, but we also have a schedule for doing that.

Chairman CHAFFETZ. So you have a schedule to develop the schedule ——

Mr. THOMPSON. Yes.

Chairman CHAFFETZ.—but you say you are on schedule? Did I get that right?

Mr. THOMPSON. Yes, Congressman.

Chairman CHAFFETZ. Okay. So it doesn't engender a whole lot of confidence. You say you are going to be $5 billion less than last time? And last time, they were $3 billion over budget.

Mr. THOMPSON. Well, Congressman, so far the testing we've done has been demonstrating that we are going to save—get—hit the efficiencies that we need ——

Chairman CHAFFETZ. But you haven't even secured the vendors. You have just last month developed a schedule to develop a schedule ——

Mr. THOMPSON. Yes.

Chairman CHAFFETZ.—to secure a vendor, of which none of those contracts have been let, correct?

Mr. THOMPSON. That's not correct. We have ——

Chairman CHAFFETZ. What did I get wrong there?

Mr. THOMPSON. We have a vendor right now that we identified and will have a contract with.

Chairman CHAFFETZ. Who's that?

Mr. THOMPSON. It's Pegasystems.

Chairman CHAFFETZ. To do what?

Mr. THOMPSON. They're going to provide the platform that we will use to build out, as Ms. Harris noted, 6 of the 12 CEDCaP capabilities.

Chairman CHAFFETZ. And you are sure ——

Mr. THOMPSON. So let me go back a little bit. So, as you know, I actually ran the 2000 census, decennial census, and that census was delivered on time, on schedule, on budget. We are ahead of the pace that we were for delivering the 2000 census. We released an operational plan which had a detailed schedule for decisions, it had rationales for what we've learned from our testing, what we're going to be testing, when we're going to be delivering things. We released that 3 years earlier than we did in 2010. And it did have a very detailed schedule. We have very detailed schedules of what we have to do to be ready for the 2020 census, including a clear critical path to get to the 2018 end-to-end test.

Chairman CHAFFETZ. Okay. Ms. Harris and Ms. Rice, can you please offer perspective on that?

Ms. HARRIS. Mr. Chairman, I don't—I think the comparison to 2010 is one that can't be made. I mean, I think it's comparing apples to oranges ——

Chairman CHAFFETZ. Well, he was comparing 2000, correct?

Ms. HARRIS. Or even 2000 ——

Chairman CHAFFETZ. Right.

Ms. HARRIS.—because, quite frankly, the operations that they are intending to deploy for 2020 will be completely different from what it will look like in 2010 and 2000. So to say that the operational plan is released 3 years in advance, I think that my concern is that that puts us into—or lulls us into a false sense of security—or, I'm sorry, a false sense of confidence because, quite frankly, with a year-and-a-half remaining before the 2018 end-to-end test, the fact that the 17 solutions have not yet started implementation is of great concern to us based on the history of what occurred in 2010 but also based on what we have seen across the Federal Government in deploying these major IT modernization efforts, a system-of-system efforts.

Chairman CHAFFETZ. And, Ms. Rice, did you care to comment?

Ms. RICE. With respect to the CEDCaP progress, we just initiated an audit, so unfortunately ——

Chairman CHAFFETZ. Okay.

Ms. RICE.—I don't have any insight onto their schedule.

Chairman CHAFFETZ. Fair enough. My time is expired. I will now recognize Mrs. Watson Coleman for 5 minutes.

Mrs. WATSON COLEMAN. Thank you, Mr. Chairman, and thank you for holding this hearing. It is good to have this discussion so that we can make sure that the information we are collecting is accurate, that the processes that we are using are cost-effective and are efficient. So I am glad to hear that, and I am sure the rest of my colleagues will pursue that.

I want to talk to you, Mr. Thompson in particular, about something very important to me. In April we sent you a letter, about 80 of us, a bipartisan, bicameral letter to you urging the addition of questions regarding sexual orientation and identity, and we think that these are very important questions to be added when we are collecting this information because it helps us to understand

demographics, the needs, where discrimination is taking place, and helps to identify solutions at some point.

And so with that in mind, I wanted to know if you had the opportunity to look at this letter and if you all are indeed thinking about adding questions to this collection of information that addresses this community.

Mr. THOMPSON. Yes, I did receive the letter. I read it very carefully. I thought it was a very well-written, well-thought-out letter that—an aside. So—and we take it very seriously. So right now, we are in the process of going through a final review with all of the agencies that require information collection on the American Community Survey and the decennial census. And this is certainly a topic that we are discussing with them about the needs for collection of this information for various purposes.

I should also note that we do already collect this information on several of the surveys that we do at the Census Bureau, so we collect it on the National Health Interview Survey, and we collect it on the National Crime Victimization Survey.

Mrs. WATSON COLEMAN. As our collective communities are evolving on this understanding of this community and the uniqueness of some of their issues, I would think that we need to make sure that we have a comprehensive understanding of what that community looks like, where it is located, what its needs are, and what the impact of public policy and services are in that community. So I am glad to see that we are looking at it and that we can collect it in a way that everyone can use it and we have an understanding of how this will also inform public policy.

Thank you, and I yield back my time.

Chairman CHAFFETZ. I thank the gentlewoman.

I will now recognize ——

Mr. CONNOLLY. Would my colleague yield?

Mrs. WATSON COLEMAN. Yes, I will. Thank you.

Mr. CONNOLLY. I thank my friend.

I have got to ask, Director Thompson, you are from Philadelphia, Baltimore, or Canada?

Mr. THOMPSON. I'm from Washington, D.C.

Mr. CONNOLLY. Oh, okay, Washington. As you know, when you say o-u-t, you say it as a diphthong. There aren't many places in the U.S. that do that, so okay. Washington does it, original Washington.

Mr. THOMPSON. Yes, third generation Washington, D.C.

Mr. CONNOLLY. Director Harris, you talked in your testimony about phishing and the threat from that. Are you worried that the 2020 census reliance on the Internet will create an additional risk in that regard?

Ms. HARRIS. Certainly, it is a significant challenge and risk that the Bureau will have to build in as they implement the 2020 census. There's no doubt about that. I think one of the key things that they should be focusing in on is phishing education for the public. And in looking at the tests that they are currently doing in 2016 and 2015, we are not aware of any public campaigns to educate the population on phishing. So certainly, moving forward, that's something that they should be focusing on.

Mr. CONNOLLY. Director Thompson, can you address that, as well as how are you going to guarantee security of mobile devices that you are deploying as part of the census?

Mr. THOMPSON. Sure. So we are going to have a very substantial communications program for the 2020 census, and, in fact, we're going to be awarding the contract for that integrated campaign this year, by August. And as part of that, we will certainly be notifying the public about the census, about phishing, about other things, about security because a message that has—it's clear one message that has to get out is that the information provided to the Census Bureau will be secure and safe. So that will be part of the work we do. We have not mounted a large publicity campaign at this point, but we do have that in our plans and in our future budgeting.

I'll let—I mean, essentially for the security, we encrypt the data at rest and transit, and we ——

Mr. CONNOLLY. And real quickly, Mr. Cooper, you are shaking your head yes. You are confident that it is secure?

Mr. COOPER. I'm confident that we're taking every step we can possibly take to make it as secure as we can make it.

Mr. CONNOLLY. Thank you. Thank you to my colleague. I yield back, and I thank the chair, and I thank diphthong John Thompson for ——

Chairman CHAFFETZ. Thank you. I will now recognize the gentleman from North Carolina, Mr. Meadows, for 5 minutes.

Mr. MEADOWS. Thank you, Mr. Chairman.

Director Thompson, I want to thank you. I want to thank your team. I mean, these are not pleasant hearings. They are meant to highlight our problems, and so I don't want any of my questioning to be viewed as anything other than trying to work with you.

I do have some significant concerns, and I guess what percentage of the technology, the IT technology, has been procured at this particular point?

Mr. THOMPSON. Well, Congressman, what we have——

Mr. MEADOWS. Do we know?

Mr. THOMPSON. So we have procured the technology that we have needed to conduct our census tests.

Mr. MEADOWS. And that is a great answer to ——

Mr. THOMPSON. And then what ——

Mr. MEADOWS.—a question I didn't ask ——

Mr. THOMPSON. No, no, no, no, no ——

Mr. MEADOWS.—but what percentage ——

Mr. THOMPSON. What ——

Mr. MEADOWS. I mean, I am trying to figure out how much of the decisions have we already made? Because let me tell you what I am hearing from stakeholders and they are real concerned that we are buying parts of it and they are not interfacing. We are not doing—and that we are really making decisions but they are not systemic decisions that will ultimately produce a result. So how much of the technology, IT technology decisions have we made? Mr. Lee, do you know?

Mr. LEE. The number of decisions or the percentage of infrastructure that—you had two questions.

Mr. MEADOWS. Give me both.

Mr. LEE. All right. I don't have the exact percentage of the decisions that have been ——

Mr. MEADOWS. Because when I ask the question, I hear crickets on the other end ——

Mr. LEE. So ——

Mr. MEADOWS.—and that concerns me.

Mr. LEE. What we are doing as we deliver the 2016—'14, '15, '16, and '17 tests is we're actually testing on the infrastructure that'll be used to deliver the decennial census. As we test in the cloud, we identify the cloud requirements for scalability ——

Mr. MEADOWS. All of that is great. I just ask one simple question. What percentage, 25 percent?

Mr. THOMPSON. So ——

Mr. MEADOWS. Is that high or low?

Mr. THOMPSON. So, Congressman, I can—I began my testimony with the decisions that we've made and the decisions that remain to be made.

Mr. MEADOWS. Okay. So ——

Mr. THOMPSON. I did ——

Mr. MEADOWS.—if we have the universe ——

Mr. THOMPSON. I did not ——

Mr. MEADOWS.—of the ones that are yet ——

Mr. THOMPSON. I did not break those out by IT, non-IT. I can certainly break out those decisions and provide that to you, but I just wouldn't want to do it on the fly.

Mr. MEADOWS. Mr. Cooper?

Mr. COOPER. Okay. I'm going to go out on a limb here. From an—from my oversight role and responsibility, I look at it this way. I would say that probably we have made about 50 percent of the decisions that we need to make, and in doing so, we're actually on schedule because there are decisions, as Director Harris has pointed out, that we've not yet reached. I also agree with Director Harris. Here's the dilemma. If we run out of time in making some of those decisions, we're then beginning to narrow the time frame that we have to execute after we've made the decision.

Mr. MEADOWS. All right. So I thank you for stepping out on that limb. I will not hold you to 50 if it is 45 and will not suggest that—but that is what—but let me tell you my concern. Here we are about to do end-to-end testing in a year-and-a-half, and we have made 50 percent of the decisions. Let me tell you, that is a disaster waiting to happen. And I guess the other part of it is, is we have had a chief security engineer—how long did it take to replace him for CEDCaP? How long did that go vacant, Director Thompson?

Mr. THOMPSON. The CIO?

Mr. MEADOWS. Well, both the chief ——

Mr. THOMPSON. So we ——

Mr. MEADOWS. Have you hired somebody for the chief security engineer yet?

Mr. LEE. The—actually, the offer is in process for that position.

Mr. MEADOWS. So how long has it been vacant?

Mr. LEE. I don't have the exact ——

Mr. MEADOWS. Eleven months?

Mr. LEE. I'll get back to you.

Mr. MEADOWS. Eleven months? My notes say 11 months. Is that plus or minus a month?

Mr. LEE. I'm not sure on the security engineer ——

Mr. MEADOWS. Do you not see a problem ——

Mr. LEE. Yes.

Mr. MEADOWS.—that if we are talking about CIOs that have not been hired and chief security engineers that have not been hired, and I have 11 months, and that may or may not be accurate, if we can't make a decision on key personnel in 11 months, do you not think that we are going to have a problem with end-to-end testing in a year-and-a-half?

Mr. THOMPSON. So we have a chief security officer for the Census Bureau. We have a chief of our security branch. We embed members of that team in every project that we do, and we don't start a project live until we get an authority to operate and that gets signed off on by the CIO based on review of security. But we build security into every single operation that we do.

Mr. MEADOWS. Okay. I am out of time, so let me—the last promise, Mr. Cooper, you had for the last hearing was that we would get a much more detailed timeline in terms of benchmarks. That has not been done, and that was 6 months ago, and it needs to be done immediately. The other part is I said if Ms. Harris is not happy, I am not going to be happy. Ms. Harris is not happy, Director Thompson, and I need you all to work closer together with a great team. And I believe you have a great team. Let's get it done so we don't get egg on our face. I'll yield back.

Chairman CHAFFETZ. I thank the gentleman.

I will now recognize the gentlewoman from Illinois, Ms. Kelly, for 5 minutes.

Ms. KELLY. Thank you, Mr. Chair. I would like to thank the witnesses for their testimony, and I would like to discuss the Bureau's plan to collect 2020 census responses over the Internet.

When feasible, increasing the use of available technology makes a lot of sense. It saves both time and money. However, according to its operational plan, the Bureau has set a goal of having 55 percent of households respond to the census via the Internet. This number seems fairly high, especially given that not everyone has Internet access at home.

According to a January 2016 Federal Communication Commission report, 1 in 10 Americans does not have broadband Internet access. The number jumps to 39 percent of Americans when we look at those living in rural areas. And I have rural areas in my district like Pembroke Township, which is in my district. Director Thompson, how does the Bureau intend to collect information from households without Internet access?

Mr. THOMPSON. Thank you, Congresswoman. We have a multi-approach to do that. So where people would prefer to respond by the Internet, we make that option available initially. Where our data shows—and we have a lot of data on this from different sources—that the American people don't want to respond by the Internet or don't have access to the Internet, we plan to mail them a paper form, and we also plan to offer them the option to respond directly over the telephone, which we did not offer in previous censuses. So we're trying to make it easier for people to respond.

Where they have the Internet, they can use the Internet. Where they don't have the Internet, they can use paper, or they can call up and be counted over the phone.

Ms. KELLY. What about the use of the canvassers? Will you have that also?

Mr. THOMPSON. Yes, ma'am. We're anticipating that we'll get a little over 60 percent self-response and then for the rest we're going to use canvassers to collect that information.

Ms. KELLY. And do you know how many you plan to have?

Mr. THOMPSON. We plan—we're planning right now to have about 300,000 canvassers.

Ms. KELLY. Okay. Thank you.

Also, my concern comes from in 2010 it seems like the number of minorities was undercounted, so I want to make sure, particularly representing the type of district I do, that that does not happen again. Because the Internet is such a necessity in the 21st century, many low-income individuals do not have a computer at home, but they do have the use of cell phones. So how will you deal with individuals and their cell phones?

Mr. THOMPSON. So Congresswoman, we have optimized our response engine so that it will work on a cell phone, it will work on a tablet, or it'll work on a computer. But a cell phone works just fine.

Ms. KELLY. I just want to make sure every person that can be counted is counted.

Regardless of the "digital divide," a 55 percent Internet response rate seems like a stretch given that tests conducted by the Census Bureau have resulted in lower rates. The 2015 self-response test resulted in an Internet response rate of 33.4 percent. What is the plan if the Bureau does not reach its goal of 55 percent of responses from the Internet? How will you adjust?

Mr. THOMPSON. Congresswoman, we essentially believe that our test results still indicate that we will get about 55 percent nationally with an advertising campaign, with a partnership campaign in 2020. But, of course, if we need to use more paper, we'll use more paper. If we need to have more telephone, we'll have more telephone. And ultimately, if we need to knock on more doors, we'll knock on more doors. But what we—what—our goal is to count everyone.

Ms. KELLY. How will you benchmark that like by a certain time? If you don't have a certain percentage of responses, will you adjust? Or how do you set that goal?

Mr. THOMPSON. We're constantly doing testing and evaluation against that. For example, we have the American Community Survey that we run every month. We're looking at the use of Internet on that. We're running various queries of the population to understand their preferences for response.

Mrs. MALONEY. Will the gentlelady yield?

Ms. KELLY. Yes, I will.

Mrs. MALONEY. You raised a very important point, the digital divide, and I think you said we have 20 percent of Americans that do not have broadband. What can we do to get it to everybody? Everybody should have access. Mr. Thompson?

Mr. THOMPSON. So I was actually—what I said is we plan to mail to 20 percent, which includes those that don't have access but also we found that there are areas of the country in certain population groups where the population would prefer to respond via mail. So ——

Mrs. MALONEY. I guess the point I am trying to make is everyone should have access to the Internet, and we should probably work as a nation to have your constituents have access and everybody else's constituents have access to it.

Ms. KELLY. Yes.

Mrs. MALONEY. That would help with the census, it would help with the education of the children, and everything else so ——

Mr. COOPER. Yes ——

Ms. KELLY. I will yield back.

Mr. COOPER. Ranking ——

Ms. KELLY. I am out of time.

Mr. COOPER. Ranking Member Maloney ——

Chairman CHAFFETZ. I thank the ——

Mr. COOPER.—if I may just very quick, one of the things that I know the Census Bureau and the other agencies have done is to use community organizations like libraries, things like that, where cable can bring in Internet as opposed to wireless broadband, not a perfect solution, but it's an example of what can be leveraged.

Mrs. MALONEY. Okay. Thank you very much. I yield back.

Chairman CHAFFETZ. The gentlewoman's time is expired.

I will now recognize the gentleman from South Carolina, Mr. Mulvaney for 5 minutes.

Mr. MULVANEY. I thank the chairman, and I thank the panel.

I am going to do something I don't usually like to do, which is change gears but just a little bit. I know we have this conversation to talk a little about the 2020 census, but honestly, I don't get that many questions in my office about the 2020 census, at least yet. Every now and then we get folks calling to complain about, you know, the questions they have to answer and all that, but for the most part, I think folks at least in my district recognize that this is one of those rare constitutional duties. We actually have to do this, and they are happy to do it and to cooperate.

I was happy to hear, by the way, that we will be reaching out to people beyond just the Internet, Mr. Thompson, because, as I was discussing with Mr. Meadows, when you represent a relatively rural area, I don't know what the national percentage is of folks who don't have Internet access or at least broadband access, but in my district my guess it is above average. So I am glad to see as much as we are transitioning to the new technology, not forgetting the folks who may just either choose or not have the opportunity to do that, not what I want to ask about.

I want to talk real briefly about what they do call me about, which is the American Community Survey because that they don't get. And I assume, Mr. Thompson, I can ask you these questions about the survey a little bit. So, you know, why is what I can't get—I know why we count and I know that traditionally in the census we have asked a little bit more than just how many people live there and how many people are you. I get that, but I don't understand why we are asking about number of flushed toilets and the

interracial mix of people in the buildings, and I don't understand the fines. So tell me a little bit why are we doing this? Do we need to do this in order to fulfill the constitutional obligations?

Mr. THOMPSON. Thank you, Congressman. So the American Community Survey replaced what used to be the census long form, which was a sample of longer forms as part of the decennial census ——

Mr. MULVANEY. I remember it. And some people used to—every ——

Mr. THOMPSON. Every sixth house about.

Mr. MULVANEY. Got you.

Mr. THOMPSON. And that was used to allocate Federal dollars based on requests from different agencies. So we moved the long form to the American Community Survey so we can produce more accurate, more timely information than every 10 years. And we work with the Federal agencies to make sure that—we've done—we just did a big review of every question on the American Community Survey to make sure that there is a definitive need to collect that information to support a Federal program. Over $400 billion are allocated based on the American Community Survey data.

However, we've also heard and very strongly that there are concerns with the length of the American Community Survey. There are concerns with the mandatory message on the American Community Survey. And we have undertaken—and it's—and I could get you this. It's on our Web site. We've undertaken a program, a four-point program, to look at how we can make the American Community Survey less intrusive, how we can use other Federal records to reduce the burden on respondents.

And I also need to say that our goal is not to threaten the American people with fines or jail but to convince them of the importance to respond because what the information will do for their community.

Mr. MULVANEY. And I get that. And if I get it, I will probably fill it out because I would look at it as a civic duty and it doesn't offend me, provided that the questions are not too intrusive. I get that. I then when I was a younger man, my family actually got the long form, so I am a little bit familiar with it. But if I am a family who just doesn't want to do that, I want to meet my constitutional obligations, I want to fill out the new shorter form of the census, but I get the American Community Survey as well. Do you fine people for not turning this stuff in?

Mr. THOMPSON. No, Congressman.

Mr. MULVANEY. Have you ever put anybody in jail for not turning this stuff in?

Mr. THOMPSON. No, Congressman.

Mr. MULVANEY. All right. In that case ——

Mr. THOMPSON. In fact, Congressman, I need to say we—the Census Bureau is not an enforcement agency. We're a statistical agency. We'd have to get the Department of Justice to do that, but we have never asked.

Mr. MULVANEY. And you are not aware of the Department of Justice fining anybody for this? Okay. Mr. Chairman, we may want to just change the law because we are actually doing that it is not enforcing the law because a previous Congress in its infinite wisdom,

which is one of those things that makes me giggle when I say it, decided that there should be up to a $5,000 fine and jail time for not filling this thing out. So maybe it is something we should look at, making your life a little bit easier. You spoke to the importance of sort of toning down the mandatory language of that, and I think that is encouraging.

Folks want to be good citizens, they want to participate, they want to get you good information, but there is also stuff they might not want to tell you and to tell them that they might go to jail, have to pay a fine if they don't might be not the best kind of relationship we want to have with the taxpayers. So I appreciate your input on that, Mr. Thompson.

Chairman CHAFFETZ. Would the gentleman yield?

Mr. MULVANEY. I thank the chair.

Chairman CHAFFETZ. It does say ——

Mr. MULVANEY. I yield.

Chairman CHAFFETZ. Does it say that on the envelope or ——

Mr. MULVANEY. It used to at least last time it went out.

Mr. THOMPSON. Right now, it says on the envelope "your response is mandatory and required by law." We are looking at—we are doing research—as we speak, we've done research on looking at changing that message because we've heard of the concerns that have been expressed. So we're actively researching that.

Mr. MULVANEY. Thank you, Mr. Chairman.

Chairman CHAFFETZ. I thank the gentleman.

I now recognize the gentleman from Virginia, Mr. Connolly, for 5 minutes.

Mr. CONNOLLY. Thank you, Mr. Chairman.

And we probably do want to change that language, but on the other hand, I would just counsel you, Mr. Thompson, you know, what some people find intrusive others find a rich trove of necessary data in preparing updated profiles of the country. It may seem silly to ask about, you know, indoor plumbing, but that is actually an important index in terms of progress made or not made in the United States, especially as perhaps one index of poverty.

So there is a lot of data we don't want to lose because some people may find it objectionable. On the other hand, I agree with my friend Mr. Mulvaney. We have got to be careful about being overly intrusive, and there is a fine line there. But I remain concerned that we are not losing rich data that helps put together a fuller profile of the United States at any given period of time.

My friend Mr. Meadows said that if Ms. Harris is unhappy, he is unhappy, you know, sort of like if momma ain't happy, nobody is happy. Mr. Thompson, one of the things I guess that made Ms. Harris unhappy if she was unhappy—she doesn't look like an unhappy person to me but—was she said that it was apples and oranges to compare where you are in preparation to where you were in 2000 or even 2010.

I would like you to comment on that because that suggests that it is misleading to say, well, we are actually ahead of where we were and in 2000, you know, we were on budget, we were on time, everything was fine. So we are at least that good right now. She is saying false comparison.

Mr. THOMPSON. So I really wasn't—let me first say that my staff ——

Mr. CONNOLLY. I should say to you I think diphthongs are good things ——

Mr. THOMPSON. Thank you.

Mr. CONNOLLY.—so it is not a pejorative thing to call you Diphthong John.

Mr. THOMPSON. So let me first say that we respect and value our working relationship with the GAO and with the Office of the Inspector General.

Mr. CONNOLLY. Make you happy, Ms. Harris? He values the relationship?

Ms. HARRIS. Yes, and I ——

Mr. CONNOLLY. See, there is a smile. Mark, it is getting better.

Mr. THOMPSON. No, no, no. I mean, you need—we value input into what we're doing. We value review. We're trying to do this census as open ——

Mr. CONNOLLY. Yes, but I am trying to get at the question ——

Mr. THOMPSON. Okay. So—okay.

Mr. CONNOLLY.—is it apples and oranges ——

Mr. THOMPSON. So ——

Mr. CONNOLLY.—in your point of view?

Mr. THOMPSON. So what I was saying was that—I was saying that is I do have experience in putting together schedules and delivering on schedules. And there are different censuses, but the point is, is that we do have what I believe is a schedule that will lead us to a successful 2020 census.

And I value discussing this with the GAO on a continued basis. I value discussing it with the Office of Inspector General, and ultimately, I would like to agree with Mr. Meadows that everybody is happy about this, including the GAO, including us, and including the Congress. But we're going to continue to do this census in a really open way. We don't—we're not doing it behind closed doors. Every quarter we go out with a detailed project management review that's open to the public to say where we are, what our challenges are, what we've learned, what we still have to do. So we're trying to be very, very open about it, and we're going to continue to do that.

Mr. CONNOLLY. But I think Mr. Meadows was making the point with the best of intentions and conceding we have got a good team and we are all happy and we think we are making benchmarks that are successful, what if we are wrong? What if we got that wrong and with the best of intentions and efforts we have egg on our face is I think what he said? That is what we are trying to avoid, too, I mean, because we have had bad experiences as well as good ones.

Mr. THOMPSON. That is our major goal is to do the census accurately, on time, without having some of the issues that arose in the previous census. And again, that's why we're being so open about what we're doing. And as we make ——

Mr. CONNOLLY. Well ——

Mr. THOMPSON.—decisions going towards the 2018 end-to-end test, they will be out there and people can evaluate ——

Mr. CONNOLLY. Well, speaking of being open, Mr. Cooper, again, my friend from North Carolina pointed out that 6 months ago the committee was promised a document that laid out milestones so we could monitor progress. If we are going to be open and transparent, why don't we have that document? Why has it taken 6 months? When can we expect it?

Mr. COOPER. Unfortunately, it's always embarrassing when one has to admit to a committee like Congress that I missed the date or the deadline that I committed to. Unfortunately, this is actually the second time that that's happened, and both of you gentlemen were there on the first one around, some of the FITARA stuff. I'm not happy about that, so you can put me in the unhappy category.

However, here's what actually is going on. It turned out that even when I made that commitment, there was more detail that I was not fully exposed to yet. My role is an oversight role. I'm not working these programs day-to-day. I wish I were. It's unfortunately just not the way that we're set up, and I'm not sure I'd have the full capacity and bandwidth to do that.

So I will reemphasize my commitment, and I will now ensure that I get the detailed timeline that I committed to. If you'll allow me to maybe say I'll get that as soon as I can, you have my commitment.

What also is going on, we're working to integrate—you've heard Director Harris talk about the fact that we have multiple master schedules. We don't have one integrated master schedule. Harry and I have been talking about how can we work together to actually produce a single automated master schedule. We're not fully there. That's an accurate statement, right?

Mr. LEE. Correct. But we're real close.

Mr. COOPER. But we're working on that. What I had hoped ——

Mr. LEE. Real close.

Mr. COOPER.—to be able to do was to be able to bring back in an automated way to actually see and reveal the significantly large number of decisions, milestones, major events, that type of thing, in a way that people could actually see it and somewhat understand all the complexity. I believe we will absolutely succeed in doing that, and as Harry said, we really are very close. But I missed the timing on it. I apologize for that.

Mr. CONNOLLY. Well, I would just say, Mr. Chairman, on behalf of myself and my friend Mr. Meadows, I think we are going to need a specific event to a deadline.

Mr. COOPER. What's the—if I'm going to commit, can I confer real quick?

Mr. CONNOLLY. Of course.

Mr. COOPER. End of July. Okay.

Chairman CHAFFETZ. I now recognize the gentleman from Georgia, Mr. Hice, for 5 minutes.

Mr. HICE. Thank you, Mr. Chairman.

I am going to piggy-back on Mr. Mulvaney's comments because I share largely the same type of concerns that he brought up. So, Mr. Thompson, let me begin with you. If you would, please, just be as brief initially on some of these answers as possible. Let's just go to the basis. What's the purpose of the census?

Mr. THOMPSON. There are three primary purposes. The first is to reapportion the Congress. The second is to support redistricting efforts at the State level. And the third is to allocate Federal program funds. Then there are other non-Federal uses ——

Mr. HICE. But that last one is really not part of the Constitution. We want to know how many people live here, the bottom line. Is that true?

Mr. THOMPSON. So I am—I am not a constitutional lawyer, and I'm probably not the right person ——

Mr. HICE. Okay. Well, article 1, section 2 just says basically we need to know how many people are in the country. How many questions are on the census?

Mr. THOMPSON. There are 10 questions on the decennial census.

Mr. HICE. Okay. And the census is required for citizens to respond?

Mr. THOMPSON. Yes, it's mandatory under title 13.

Mr. HICE. Okay. Then shifting over to the American Community Survey, its purpose is totally different from the census, correct?

Mr. THOMPSON. We consider the American Community Survey to be part of the decennial census program.

Mr. HICE. But it is asking totally different questions, so it has a totally different purpose.

Mr. THOMPSON. It's asking primarily questions for Federal funds allocation.

Mr. HICE. And how many questions are on there?

Mr. THOMPSON. Approximately 70, between 70 and 75. I ——

Mr. HICE. And is it required?

Mr. THOMPSON. Yes, it's mandatory.

Mr. HICE. Okay. But you said a while ago that it is mandatory but fines and jail time don't happen.

Mr. THOMPSON. We have never administered—required that.

Mr. HICE. So are those bogus threats?

Mr. THOMPSON. Excuse me, Congressman?

Mr. HICE. If you have never produced a fine or put anyone in jail and yet you say it is mandatory with the threat of going to jail or being fined, but that has never happened, are they bogus threats? I mean you basically have admitted they are bogus threats.

Mr. THOMPSON. We believe that the best way to get the American public to respond is to explain to them the value of responding to their community ——

Mr. HICE. That is not value of explaining it when you said you are going to go to jail or you are going to have a $5,000 fine. That says nothing about the value of the information. And it is bogus threats. It is putting fear in the American people to fill these things out.

Are both of those, the census and the survey, sent to all American citizens?

Mr. THOMPSON. The decennial census is sent to every American citizen. The American Community Survey is mailed to about 3.5 million households a year.

Mr. HICE. So 1 in 6? Is that approximate?

Mr. THOMPSON. I think it is about 1 in 6 over a 5-year period.

Mr. HICE. Okay. And so we are trying to save money, but we are sending at least to 1 in 5, 1 in 6 two different forms, correct?

Mr. THOMPSON. Exactly, Congressman.

Mr. HICE. And they have two different purposes, and several have discussed, I mean, it is of no concern for census purpose what kind of bathroom people use or how much their salary is or where they work or do they have good hearing or poor hearing or sight. I mean there is just a lot of questions for census purposes that are unnecessary.

And part of my concern is not only the massive intrusion to—in my opinion of government in asking some of these questions, but then it comes to the cybersecurity issues. And particularly now that we are going to more digital, there is a lot of personal information that has nothing to do with the census that could potentially be made insecure. And this becomes a major concern.

Mr. Lee, do you have confidence in the cybersecurity going into the 2020 census?

Mr. LEE. Yes, I do.

Mr. HICE. How in the world can you say that when the systems aren't even in place yet?

Mr. LEE. The cybersecurity controls that we do have across the enterprise—and let me say that I'm confident but we're never too confident. We're always looking to improve our security controls going forward so ——

Mr. HICE. You are confident in something that doesn't even exist yet.

Ms. Harris, what is your assessment, the GAO's assessment of cybersecurity?

Ms. HARRIS. Well, I think it's difficult to effectively identify security measures that need to be in place for 2020 until that final IT solutions architecture is in place. So at this time I can't tell you definitively the IT posture because, again, as you mention, the systems are not in place at this time.

Mr. HICE. So is your confidence—in a scale of 1 to 10, where is your confidence?

Ms. HARRIS. It's probably at a—it's probably at a 5 at this time, and I say that because the Bureau and—with the leadership of Mr. Lee, as well as Mr. Cooper, have been actively addressing the 115 information security recommendations that we have made relative to access controls, for example, configuration management, and other things.

And it was also because of the oversight of this committee where at the time of our November hearing, 66 recommendations were implemented. As of today, about 104 have been implemented, but there is still additional—a significant amount of work that needs to be done to get to that remaining 50 percent, which is because the IT solutions architecture has not yet been fully finalized, and that needs to be done in order to identify the most effective IT security measures to be put in place for 2020.

Mr. HICE. Thank you, Mr. Chairman. We have got a long ways to go to plug the hole, but I appreciate you holding this hearing. Thank you. I yield.

Chairman CHAFFETZ. I thank the gentleman.

I will now recognize the gentlewoman from the Virgin Islands, Ms. Plaskett, for 5 minutes.

Ms. PLASKETT. Thank you. Thank you, Mr. Chairman. Good morning, everyone.

I just wanted to walk through some additional cost estimates that have been discussed here this morning. Mr. Thompson, I know that in November Congress appropriated $1.37 billion for the Census Bureau, and that includes $599 million for the 2020 census. Do you think these funds are an adequate amount to prepare for the 2020 census and conduct its statutorily mandated duties?

Mr. THOMPSON. Yes, Congresswoman.

Ms. PLASKETT. You do at this point. And in 2013 the Census Bureau estimated that the Census Enterprise Data Collection and Processing program, or CEDCaP, would cost $548 million, but in 2015, the Bureau increased the projection to $1.14 billion. Why did that estimate double?

Mr. THOMPSON. So there's actually two estimates. There is the estimate we made for the CEDCaP program. The Census Bureau also established—and this is based on a recommendation that we received from the GAO—an office of—an independent cost-estimation office. And they prepared an independent cost estimate of the CEDCaP program.

Ms. PLASKETT. And what is the name of that group again?

Mr. THOMPSON. Cost estimation group.

Ms. PLASKETT. And where are they—are they part of the ——

Mr. THOMPSON. They're part of the Census Bureau, but they ——

Ms. PLASKETT. Okay.

Mr. THOMPSON.—report to the deputy director of the Census Bureau, so they don't sit in any program areas. So they maintain independence over the programs.

So where we are now is we have made a major decision on the CEDCaP program, and that is we've made our build-versus-buy decision, so now we're going to prepare a new cost estimate for the price of CEDCaP going forward, and we're also going to do a new independent cost estimate that we will of course provide to the committee and all of our other stakeholders regarding the CEDCaP program and the 2020 census program.

Ms. PLASKETT. So is the $1.14 billion build or buy?

Mr. THOMPSON. That was basically made when we were determining we would build the whole thing.

Ms. PLASKETT. And is that still what the determination is? Don't turn it off because we are going to talk for a little bit it seems like.

Mr. THOMPSON. So as I said, we have just in May reached a major milestone in the CEDCaP program. We were analyzing should we build the whole system or should we buy some COTS services. After a very rigorous analysis, we decided that we would buy a significant amount of COTS services to support the CEDCaP.

The next step now is to determine exactly what that will cost on a go-forward basis, and we're working on that as fast as we can and then we will provide that information to the Congress but ——

Ms. PLASKETT. Okay. And you used the term "independent." That's a very subjective term because when I think of independent, I think of something that you have contracted to come and work. But you are saying independent and it is still part of the Census Bureau, right? How do they then become independent if they are still part of the Census Bureau?

Mr. THOMPSON. So they report to the deputy director. Part of what we want to do at the Census Bureau is we do want to do independent cost estimates, which we do on all of our programs. We're also doing one on the 2020 census that will be available very soon, which we'll be happy to provide. But it's really based on what we want to do. We want to do independent reviews ourselves. We want to understand our costs and we want to have them looked at using best practices and validated.

Ms. PLASKETT. So it is independent of what?

Mr. THOMPSON. It's independent of the people that are responsible for delivering ——

Ms. PLASKETT. Okay.

Mr. THOMPSON.—the program.

Ms. PLASKETT. Got you. Okay. And, Ms. Harris, the cost estimate, the cuts of the cost of the 2020 census by $5.2 billion, you have questioned the validity of those savings. What do you believe is a more realistic number or figure for that?

Ms. HARRIS. I'm sorry, Ms. Plaskett. We've not done work to identify what the most accurate number would be in terms of a cost-savings goal. We do have work underway to evaluate the current 2020 cost estimate itself, but in terms of the benefits and quantifying those benefits, we haven't yet validated that $5.2 billion number.

Ms. PLASKETT. And that is what you are trying to do right now is a validation of it?

Ms. HARRIS. That is something that we will be looking into moving forward. However, at this time what I can say definitively is that based on the operational plans for 2020, CEDCaP plays a major role in that $5.2 billion savings based on the assumptions that the Bureau is making.

Ms. PLASKETT. Okay. Thank you. Thank you, sir.

Chairman CHAFFETZ. I now recognize the gentleman from Tennessee, Mr. Duncan, for 5 minutes.

Mr. DUNCAN. Well, thank you, Mr. Chairman, and thank you for calling this very important hearing.

And, Director Thompson, a few years ago someone told me that one of the departments had two thick books with biographical sketches of all the Members of Congress, and one of the things it had at the bottom was questions typically asked at hearings. And I was told that on my section that they said I commonly ask how much will it cost. And I got a kick out of that. I was surprised that they had picked that up. But I think sometimes we haven't asked that question enough.

And so I was very interested in the questions of the gentlelady from the Virgin Islands because I was going to ask very similar questions. And I have taken with a big grain of salt all these cost estimates when we get into the billions, but the staff told me just a few minutes ago that the total cost of the 2010 census was $17.8 billion. Is that any place close to being correct?

Mr. THOMPSON. Congressman—sorry. Congressman, the number I've been working with for the cost of the 2010 census was $12.3 billion.

Mr. DUNCAN. Twelve point three billion?

Mr. THOMPSON. Yes.

Mr. DUNCAN. Well, then, they told me they said $17.8 billion, and then they took the $5.2 billion off and hit me with a $12 billion figure for the 2020 census. But I would assume that—let's just say if the total cost of the 2010 census was a little over $12 billion, then I am assuming that you were estimating that the costs were going to go up in 2020. So what are your guesses or estimates of what the total cost of the 2020 census is going to be right now and then where does the $5.2 billion come in?

Mr. THOMPSON. Congressman, I think I see what's happening. So we estimated that if we repeated the 2010 census process in 2020 that it would cost over $17 billion.

Mr. DUNCAN. Okay. So that is where they are getting the ——

Mr. THOMPSON. But if we reengineer the process using technology and other modern geospatial techniques that it would come in about $12.5. So that's where the $5.2 is coming from.

Mr. DUNCAN. And I was going to ask about this $548 million to upgrade the system, your estimate, and the $1.14 billion estimate, but you have gotten into that. You know, I will tell you, over the years it seems to me that we have turned the top people in these technology companies not only into multimillionaires but many of them into multibillionaires. And all these estimates on technology, the history for many years now has been that we have always lowballed all these estimates and all these costs.

And you talk about saving $5.2 billion, and my guess is or my bet is that, you know, we are sitting here now in 2016, and by the time we get to 2020, which is what we are talking about that these cost estimates on all this technology is going to go way up. Then they tell us that all the computers and all these things, they are obsolete almost as soon as they are taken out of the box.

So how confident or how good do you feel, how certain are you about this—I am just curious. I am going to be real interested in looking at the costs in 2020 and thinking back to your 12 point whatever billion—what was it, 12 point what, $12.5 billion for the total cost of the 2020 census. Well, I tell you this. I hope that comes about. I mean, I hope that you reach these $5.2 billion in savings, but I tell you, I am very, very skeptical that that is going to happen. But I wish you the best.

Thank you, Mr. Chairman.

Chairman CHAFFETZ. The gentleman yields back.

I will now recognize the gentleman from Colorado, Mr. Buck, for 5 minutes.

Mr. BUCK. Thank you, Mr. Chairman.

Director Thompson, just hit that speak button. You and I are going to have a conversation if that is all right. I am really interested in this whole process. And you mentioned to Congressman Hice that there are three purposes for the census. And many of the constituents I talk to there is really two reasons we have a census. One is determine how many people are in America, and then two, where they live. And is that a fair summary of the primary purpose of the census?

Mr. THOMPSON. So as I said before, the first purpose of the census—well, first off, our goal is to count everybody in the United States once and only once and in the right place. Then, the first major use of the census is by December 31 of the census year,

which would be 2020 in this case, we provide 50 numbers that are used to reapportion the Congress of the United States. The next major deliverable for the census is between January and the end of March. We work with the States to provide them the data that they need to do redistricting. And then the next purpose is we conduct the American Community Survey, which is part of the decennial census. And that is used to allocate Federal program dollars.

Mr. BUCK. Okay. And that last purpose is not in the Constitution? That is a statutory purpose? I told you just leave that button on. We are going to have a nice conversation. But that is a statutory purpose?

Mr. THOMPSON. Yes, it's statutory in our title 13, which directs the Census Bureau how to collect information ——

Mr. BUCK. Okay.

Mr. THOMPSON.—for the census.

Mr. BUCK. And that survey asks a lot of questions that most of us would consider personal questions. You try to determine wealth, you try to determine ethnicity and race and many things about us as individuals.

Mr. THOMPSON. Yes, Congressman, we do. We believe that the American Community Survey is one very necessary to the Federal Government to allocate over $400 billion of funds on an annual basis, and it's also used by businesses, it's used by community planners to make more ——

Mr. BUCK. That has nothing to do with my question.

Mr. THOMPSON.—informed decisions.

Mr. BUCK. My question was real simple. It asks personal questions?

Mr. THOMPSON. It asks questions to support Federal programs, yes. Yes.

Mr. BUCK. Okay. I am not going to get—I was trying to be civil about this but—okay. It asks questions—I didn't ask you what the purpose of them was. It asks questions about individuals and their personal characteristics. And many of my constituents find that offensive. And I am wondering is that the first time you have ever heard that?

Mr. THOMPSON. Congressman, we heard—I've got to—let me back up. So over a year ago we had heard great concerns from the Congress, so I tried to visit with every Member House and Senate Appropriations and Oversight to understand the concerns about the survey. And as a result of that, we are doing a lot of work to try to address those concerns.

Mr. BUCK. So you have also heard that people find those invasive and some people find those to be offensive?

Mr. THOMPSON. I've ——

Mr. BUCK. And I am not going to ——

Mr. THOMPSON. Yes.

Mr. BUCK. I heard your answer.

Mr. THOMPSON. Yes.

Mr. BUCK. And, you know, for example, I have a good friend who did a DNA check for some reason and found out that he is not who he thought he was. In fact, I have seen commercials on TV for Ancestry.com. I am not doing a commercial for them, but they talk about people that have done ancestry checks. You are not sug-

gesting that someone is giving a false statement to the government because they didn't do a DNA check and they don't really know who they are; they just know what their parents told them? That would not be something that the Census Bureau is interested in doing?

Mr. THOMPSON. No, we believe in self-response.

Mr. BUCK. Right. And that ——

Mr. THOMPSON. Yes.

Mr. BUCK.—is a perception. I mean, we have perceptions now about gender identity. We have perceptions about all sorts of issues that are personal on the census. And my question, I guess, and my point is, is it not counterproductive to ask people questions that they consider offensive, that they consider invasive and at the same time try to gather the data that is constitutionally required, and that is how many people live in this country and where do they live?

Mr. THOMPSON. So we work very hard to explain to the people that respond to both the census, the American Community Survey, and all of our surveys that we do the importance of responding, why—how the data are used, why it's so vital to our country.

Mr. BUCK. And it is vital to our country because the Federal Government has decided that it is going to get into education and transportation and all sorts of issues through the allocation of money and control those issues. And many people find that offensive that the Federal Government does that. And what I am suggesting to you is that the breadth of this survey that you are giving undermines the constitutional requirement that we know how many people live in this country and where they live so that we can have a political system that fairly reflects the one man, one vote, or one person, one vote standard that we all consider so important.

You and I haven't had this conversation or I haven't had a conversation with your staff, but I have great concerns about the intrusiveness of the census that is taken in this country, and I yield back.

Chairman CHAFFETZ. I thank the gentleman.

I will now recognize the gentleman from Alabama, Mr. Palmer, for 5 minutes.

Mr. PALMER. Thank you, Mr. Chairman.

You can keep your microphone on, Director Thompson.

The Census Bureau 2020 report on program management planning states that the Bureau will offer and encourage people to respond via the Internet and will not require, will not require people to enter a unique census identification with their response. Instead, they can provide their address. Forgive me if I come across as a bit skeptical, but how would the Census Bureau verify that an individual respond and isn't providing incorrect addresses that would skew the findings of the survey?

Mr. THOMPSON. So, Congressman, this is the 2020 census version of a program that we have had for a number of censuses, which

——

Mr. PALMER. I am not asking you about ——

Mr. THOMPSON. So ——

Mr. PALMER.—describe the program. I just want to know ——

Mr. THOMPSON. Okay. So what the—what I'm trying—what I'm getting at is that the Census Bureau has a lot of experience in accepting information that comes in but just an address. We used to call that our Be Counted program where we put forms out so people could fill them out if they thought they might not have been counted. What this is doing is allowing people to use the Internet and respond if they haven't been counted.

We've done a number of—we—as a result of this process that we've built up a number of checks and balances on how to deal with responses that come in without an ID, and we're going to continue to do that for 2020.

Mr. PALMER. Ms. Harris, given the previous testimony about the potential risk with reliance on the Census Enterprise Data Collection and Processing, what are some specific steps that could be taken to de-scope CEDCaP and make it more manageable to achieve and time for the census 2018 ——

Ms. HARRIS. I think, Mr. Palmer, one such step that can be taken is the removal of the known ID processing in the automated environment. I do agree with Director Thompson in that they have had significant amount of experience over multiple decennials in how to process non-ID in paper format, but in an electronic environment, I would question the Bureau's level of experience to prevent fraudulent responses.

In addition to that, the current ability to validate the volume of responses that they would get from these—from respondents using just an address is something that I would also question. And given the fact that the requirements associated was—with this particular component is still in the exploratory phase. Given that we are in year 6 with only a year-and-a-half remaining before this end-to-end test, I think it would behoove them to take this off the table. I think in this case the juice isn't worth the squeeze. And so that would be one of the key things that I would suggest that the Bureau take off the table to reduce the complexity and scope of CEDCaP.

Mr. PALMER. I think you just answered my next question, but I want to make sure that we have this for the record. Should the Bureau reconsider using administrative records to replace the unique ID code, and if so, why?

Ms. HARRIS. Well, that, Mr. Palmer, is something that is out of the scope of the review of the work that we've done. With regards to administrative records, the key point there is to ensure that those records that they do use are adequately secure. And so in terms of whether or not they should be replacing or using administrative records to either supplement or replace a non-response follow-up work, that's something that is an operational decision that is something out of the scope of what I can tell you from an IT professional's perspective.

But from a cybersecurity perspective, that is absolutely something that they need to be mindful of. As they develop and define and finalize this IT solutions architecture, they have to be looking at the IT measures that—or, I'm sorry, the IT security measures that need to be in place to adequately protect this information.

Mr. PALMER. My concern about it is—and I think it has been discussed in this hearing to a certain extent is that the census is so

important in the context of redrawing congressional districts and determining the number of eligible voters. And there are some who, I think, would like to add people who are not eligible to be counted in a congressional district or eligible to be counted as eligible voters. And I think it is important that we are able to identify people who are legitimate citizens. And that is part of what concerns me about this is that you are not able to accurately identify who is responding online.

Thank you, Mr. Chairman. I yield back.

Chairman CHAFFETZ. I thank the gentleman.

I will now recognize Mr. Clay ——

Mr. CLAY. Thank you, Mr. Chairman.

Chairman CHAFFETZ.—for 5 minutes.

Mr. CLAY. One of the major themes of GAO's work on the Census Bureau is that the Bureau has many important decisions that need to be made in a timely manner in order to meet the IT modernization goals for the 2020 census. One example of such a decision is how to equip census enumerators with handheld devices for the 2020 census. The final decision was made this January significantly ahead of schedule. I would like to walk through this particular decision in order to get a better sense of the decision-making process at the Bureau.

Director Thompson, when did the Bureau first start considering the possibility of wide-scale usage of handheld devices for 2020?

Mr. THOMPSON. That's a good question. I think—I know—so I came to the Bureau in August of 2013.

Mr. CLAY. Okay.

Mr. THOMPSON. At that time, the Bureau was planning to use handheld devices, smartphones, to collect the information—in 2012. So in 2012.

Mr. CLAY. Okay. Okay. And then can you describe one of the benefits of having enumerators or canvassers with handheld devices?

Mr. THOMPSON. Yes. So the most important thing is, is that we have in most parts of the country a mobile connection with our enumerators, which means that we can, one, make sure that we get the information off their machines in a timely basis, in a secure way. We can also do things like give them optimal root assignments on a daily basis, which tells them what time to go visit housing units and the path they should follow. More importantly, it gives us information that we can feed to their supervisors that allows for very efficient management of these enumerators. And it's allowed us to increase the ratio of supervisor to enumerator. This is what's resulting in significant inefficiencies ——

Mr. CLAY. Correct.

Mr. THOMPSON.—in the operation we use to collect, you know, the data from those households that don't respond.

Mr. CLAY. And there will be a test as far as the equipment is concerned?

Mr. THOMPSON. So, Congressman, we have been testing handhelds, smartphones in 2014, 2015, and now we're in the field in 2016 testing these devices.

Mr. CLAY. Yes. And having made a decision to use handheld devices for the census, the Bureau then had to decide how to source those devices and provision them to enumerators. Can you describe

for us the different options that you considered for providing handheld devices to enumerators?

Mr. THOMPSON. Yes, Congressman. Essentially, we considered two themes. One theme was bring your own device ——

Mr. CLAY. Okay.

Mr. THOMPSON.—and the other theme was the government provides equipment, and under this the government provides equipment by allowing a contract ——

Mr. CLAY. Okay.

Mr. THOMPSON.—to a vendor who can provide the devices and the IT service contracts. So we made the decision in January, which was earlier, to go with a device as a service in part because the GAO at a hearing and, in fact, in recommendations said we ought to look at—can we expedite our decision-making. And so we did, and it turned out that was one decision that we thought that we could expedite based on the information we had received. And so we expedited that decision based on, you know, our testing.

Mr. CLAY. Okay. And will the information—do you feel pretty good that it will be protected if it is sensitive information?

Mr. THOMPSON. I do, but I'll let Harry talk about the methods we'll use.

Mr. CLAY. Go right ahead.

Mr. LEE. Congressman Clay, thank you for the question. Yes, we feel comfortable and confident with the security of the device, and it's not just the device itself. We do have controls and ways to monitor the device. We also encrypt the data that the device collects and it transmits.

We also have ways to authenticate the user when they're using the device. There are a number of ways. First is a PIN to get access to the device itself, and then user name and password to actually access the applications. So again, we have multiple levels of security on that device.

Mr. CLAY. And beyond simply providing the devices, what other services do you anticipate the contractors will provide?

Mr. LEE. The service that the device will use to communicate with the Census Bureau, also we will be working with them to provide the software that they will load on the device ——

Mr. CLAY. All right.

Mr. LEE.—to control and monitor the device. And they will also wipe the device when it's returned, and we will actually provide oversight for the wiping of that device to make sure it's been wiped.

Mr. CLAY. Thank you for your responses. Mr. Chairman, my time is up.

Chairman CHAFFETZ. Thank you. I will now recognize myself.

Mr. Cooper, on October 22 of 2015, Congress enacted what is called the Quarterly Financial Report Reauthorization Act, which requires the Secretary of Commerce to submit a report to Congress on data security procedures at the Census Bureau by January 20 of 2016. The Bureau has yet to provide Congress this report. What is the status, and why is it so late?

Mr. COOPER. I have to admit that I can't speak to exactly why it's late other than I will take responsibility for that. And ——

Chairman CHAFFETZ. Is it done?

Mr. COOPER. It is being completed as we speak. It came to my attention more recently that we had missed the deadline. My staff is now working to complete that report. I've seen a draft. It should be moving forward probably no later than the end of this month.

Chairman CHAFFETZ. It is Federal law that you are supposed to report—you were supposed to give this to us on January 20, so when did you become aware that it was late? No, I ——

Mr. COOPER. I became aware last month.

Chairman CHAFFETZ. So it is due in January and you didn't know until May that it was late?

Mr. COOPER. That is correct.

Chairman CHAFFETZ. And you think we are going to have this by the end of June?

Mr. COOPER. Yes, sir.

Chairman CHAFFETZ. It is terribly frustrating. You know, constituents get frustrated with us because—anyway it is Federal law. I don't know how you miss things like that. It gives me no confidence when you come and testify and say, oh, but we are going to get the census on time, on budget.

Mr. COOPER. I understand, Congressman. I apologize. I missed this one. I'll take ——

Chairman CHAFFETZ. Well, you missed the other two ——

Mr. COOPER.—full responsibility.

Chairman CHAFFETZ.—reports as well to Congress. The other promises you made, you came and testified before Congress, you missed those as well.

Mr. COOPER. I did. I can absolutely understand how it doesn't instill confidence.

Chairman CHAFFETZ. All right.

Mr. COOPER. I'm working to correct that as best I can.

Chairman CHAFFETZ. Mr. Thompson, help me understand. Will every American or every household—I don't know how to qualify it—get a census in the mail? Will you be mailing to every household, every ——

Mr. THOMPSON. So we will mail an invitation to every household to respond by the Internet except for about 20 percent, which will get a questionnaire.

Chairman CHAFFETZ. How do you determine which 20 percent?

Mr. THOMPSON. So there's a number of data sources we look at. One of them is the American Community Survey. Some of them are some data that the Department of Commerce has on broadband proliferation, and we put that together and determine areas in the country where we don't anticipate either high Internet response—where there's no Internet or where there's a proclivity not to respond by the Internet.

Chairman CHAFFETZ. So you said earlier it was going to be 55 percent on the Internet. What are the other—you think 20 percent by mail. Am I getting those numbers right?

Mr. THOMPSON. Well, we're going to mail out 20 percent. We expect we'll get about 10 or 11 percent back from the mail.

Chairman CHAFFETZ. Okay. So you are getting 10 to 11 percent by mail, 55 percent on the Internet. How are you getting the rest of them? Your microphone ——

Mr. THOMPSON. Sorry. So we also are going to allow people to call in and be counted.

Chairman CHAFFETZ. You are going to dial it in?

Mr. THOMPSON. No, no, no, they can call in. In previous censuses, some ——

Chairman CHAFFETZ. They are going to talk to a live person?

Mr. THOMPSON. Yes. Yes. Yes, sir.

Chairman CHAFFETZ. Have you done that in the past?

Mr. THOMPSON. In the past what we've done is we've provided what's called questionnaire assistance, so individuals could call in and we give them advice over how to fill out their form or we would mail them a form. This time, what we've found is that we might as well—because there was great frustration in the past when people would call in, they'd say, well, I want to give my interview, and we'd say no. So this time we're going to let them give their interview.

Chairman CHAFFETZ. How do you verify that? Like how do you know where they are?

Mr. THOMPSON. Well, for starters, we ask them for the ID number that they have on their material that they get, and we also ask them what their address is.

Chairman CHAFFETZ. What percentage of the response do you think is going to happen via calls?

Mr. THOMPSON. About 5.5 percent.

Chairman CHAFFETZ. What about the rest? How are the rest of them going to be done?

Mr. THOMPSON. So there's a strategy to collect the information from those that don't self-respond, which involves the usage of administrative records and third-party data. So we estimate that we will start our non-response follow-up with, say, about 52 million. Don't quote me on these because I'm getting old and the numbers are close but won't be exact and my ——

Chairman CHAFFETZ. When you leave the Census Bureau and you don't want us to quote you on the numbers, that scares me so ——

Mr. THOMPSON. All right. All right.

Chairman CHAFFETZ.—I know ——

Mr. THOMPSON. All right. All right. All right. All right. So we're going to start the non-response follow-up with 56 million households, okay? We expect that we'll get about 1.3 million of those back after—as a late mail return. People tend to mail in as the operation goes on.

Chairman CHAFFETZ. Sorry. I am trying to get a breakdown on the percentages. I don't know exactly how many people we are going to end up counting. As I recall, it is 330 million or so.

Mr. THOMPSON. So we expect that there's going to be about 143 million housing units total in 2020 for the United States and Puerto Rico. We estimate that the self-response rate will be about 63.5 percent after 6 weeks. We estimate that the Internet response rate will be 47 percent after 6 weeks. We estimate that the telephone response rate will be 5.3 percent after 6 weeks. And we estimate that the paper response rate will be 11.2 percent after 6 weeks. And then for the remaining we're going to have to go out and col-

lect the information either in person or by using administrative records.

Chairman CHAFFETZ. Explain administrative records to me.

Mr. THOMPSON. So there are two ways we plan to use administrative records to save money in this operation. The first way is that we intend to identify units that are vacant—vacant units don't mail back obviously—and count them using administrative records. So we're going to take them out of the non-response follow-up workload, and we estimate that'll be about 6 million. We then are going to ——

Chairman CHAFFETZ. Well, if it is vacant, isn't that number zero?

Mr. THOMPSON. Well, yes, we have to visit—that's ——

Chairman CHAFFETZ. You have to visit it ——

Mr. THOMPSON. That's ——

Chairman CHAFFETZ.—but the number ultimately is ——

Mr. THOMPSON. Well, the number of vacant we'll take out will be 6 million vacant housing units.

Chairman CHAFFETZ. Right.

Mr. THOMPSON. Okay. We have to go visit them ——

Chairman CHAFFETZ. Right.

Mr. THOMPSON.—but these will reduce our workload by 6 million that we don't have to visit. Then, we're going to visit every household once, and we estimate that we'll get about 11 million of those households enumerated. That's households and they'll have people in them which we ——

Chairman CHAFFETZ. As I try to break down the percentage, when you do 11 million of a universe of roughly ——

Mr. THOMPSON. Of 56 million.

Chairman CHAFFETZ.—how many people?

Mr. THOMPSON. So 11 million will be about 22 percent of the workload for non-response follow-up.

Chairman CHAFFETZ. All right. This is going to take a while, these percentages as they skew over the course of time. Can you help me break that down in terms of mail, phone, Internet ——

Mr. THOMPSON. So I'd be happy to send you the whole—a really nice chart.

Chairman CHAFFETZ. That is what I mean.

Mr. THOMPSON. But let me get to one important point that I want to make sure you understand we're going to do so if you have problems with it, you can voice those problems. The next thing we're going to do after we visit every household once is we want to enumerate—we believe we can enumerate about 6 million housing units using administrative records. And these would be tax data, Social Security data, data from Medicare and Medicaid, Indian Health Service, but we estimate we can enumerate about 6 million. Where we'll be really confident the administrative records represent the housing unit, and then we will go back out and enumerate the rest in person, you know, doing door-to-door techniques. But I want to make sure you understand that our current plan includes a provision to estimate some occupied housing units using administrative records.

Chairman CHAFFETZ. I guess what scares me—and I will come back to this—is, you know, using the Internet, oh, you know, what could go wrong? Allowing people to just call it in, I worry about

that as well. I get, you know, solicitations on my phone all the time. I have no idea where these yahoos are. They could be overseas for goodness sake. But we will have to explore that further.

Let me now recognize the gentleman from Wisconsin, Mr. Grothman, for 5 minutes.

Mr. GROTHMAN. Mr. Chairman, I am sorry I wasn't here for most of the rest. I had another hearing. But I suppose I will ask Mr. Thompson a couple questions.

In something a little unrelated to maybe some of the past questions, there has been a lot of discussion as far as the number of illegal immigrants in the country and people throw around the 11 million figure all the time. A lot of people feel that number was generated by the census. Do you collect data on people who are here illegally?

Mr. THOMPSON. No, Congressman, we don't. I mean, we include them in the decennial census. We—our mandate is to count every inhabitant of the United States. I mean, we include them. We do not break it out by legal, illegal, or ——

Mr. GROTHMAN. Is it possible going through the census data people can make an estimate on the number of people who are here illegally?

Mr. THOMPSON. I'm not a really good expert on how estimates of the illegal population are made. I know there's a number of estimates and they use—certain uses of the American Community Survey come into that, but they—it's a very—it's a much more sophisticated process. So, I mean, it's not—it's just not apparent from the census data.

Mr. GROTHMAN. Okay. Hypothetically, if there are people living in a house and some people are illegal and some people are legal or even if a house is filled with people who are here illegally, do you believe you are accurately counting those people?

Mr. THOMPSON. We believe we're counting them as accurately as we possibly can. Now—and the reason I say that is we've done studies before that shows that there are some issues with counting certain populations, and we do have some undercounts, and we're working to rectify those and count everyone, but our goal is to count everyone.

Mr. GROTHMAN. Okay. I realize it is, but let's say we have a family of six people who are here illegally and they live in a house. How do we know that they are being counted? I mean, first of all, I would suppose—and this is a controversial issue, obviously, or an issue of some debate. I would suppose that if I was here illegally, I might not advertise that I was here. So if there is a house here and six people are living in that house and they are here illegally, how do you know that you are counting them?

Mr. THOMPSON. So we do everything we can to count that household. In particular, we have programs that we run that are local partnership programs where we work with community leaders to get the word out that, one, the Census Bureau—it's very important to answer the census; and two, your data are protected and confidential. And so by working at a community level, we hope and believe that we encourage a high level of participation in the census.

Mr. GROTHMAN. Okay. Well, let's deal with some common sense here. If I was here illegally, even if a nice social work-type person

showed up at my door and said I should answer the census legally, I might not want people to know that I am here or want to know what my name is even if the government person says your name is confidential and it is only being kept with the census or what have you. What are you doing to make sure—and to be honest I believe maybe there is nothing you can do, but could you comment on your ability to include the names of all those six people on the census?

Mr. THOMPSON. So you're hitting at something that's really important ——

Mr. GROTHMAN. Right. Right.

Mr. THOMPSON.—in taking the census. And it's really important that we hire locally. So we hire members of the community to work for the census because we really have found—and I just saw this in Los Angeles—that when you have members of the community working for you and collecting the information, there's much more of a rapport and there's much more of a trust that's built up between the respondent and our workers.

Mr. GROTHMAN. I am sure all that is true. The point is if I was somewhere where I shouldn't be, I might not want to tell the government that. It doesn't matter how nice the person is. Could you comment on your ability, again, if there was a family of six people or maybe two families of a total of six people living in a house or an apartment do you feel that your numbers would be accurate with regard to those six people given the overwhelmingly human predisposition, I suppose, not to want to admit that you are breaking the law?

Mr. THOMPSON. I'm reasonably confident that we would count that household.

Mr. GROTHMAN. Why? Why wouldn't somebody not say you are here? Why would you fill out a form?

Mr. THOMPSON. Well, because what we've found—and this started in the 2000 census—was that when we started working and putting our people out and working with local community leaders, we saw that we got, one, higher response; and two, we started seeing dramatic reductions in the differential undercount between a minority/non-minority populations. And so by continuing to—and we expanded that program in the 2010 census, and we saw the undercounts further reduced. And so we believe that we've found that by working at community levels we can encourage people to participate.

Mr. GROTHMAN. Can I have one more question ——

Chairman CHAFFETZ. Sure, go ahead. Go ahead.

Mr. GROTHMAN.—just for waiting around?

Chairman CHAFFETZ. Sure.

Mr. GROTHMAN. Thank you, Mr. Chairman.

If I am living in a house, maybe a house with more than one family or three families together and I do not respond to the survey because, of course, I don't want to admit I am breaking the law, how do you know you are undercounting?

Mr. THOMPSON. So the Census Bureau believes that evaluating the work we do is very important. So we use a number of methods to evaluate the accuracy of the census. We use one method called demographic analysis, which uses birth records, death records, im-

migration, and measurements of what the undocumented population would be as one vehicle. We also do a survey that we use to measure the accuracy of the census. And we—and based on those things, we have information that we made available that shows how accurate we believe the census is.

Mr. GROTHMAN. Just because your question just begs another. You say you use immigration records. If people come here illegally, what sort of immigration records do you use to know that they are there?

Mr. THOMPSON. We don't. We use estimates of what the population might be. But we don't use—obviously, we don't use immigration records.

Mr. GROTHMAN. Thank you for the extra time.

Chairman CHAFFETZ. I don't understand that either so—I will now recognize—what are you knocking about?

Mrs. MALONEY. I thought he was waiting but he is not.

Chairman CHAFFETZ. Oh. I will now recognize Mrs. Maloney ——

Mrs. MALONEY. Okay.

Chairman CHAFFETZ.—for 5 minutes.

Mrs. MALONEY. Okay. Thank you. Thank you. This has been a very informative session. I just would like to briefly speak in support of the American Community Survey and really the census in general. It is the only source of consistent, timely, and high-quality demographic and socioeconomic data for all of our communities in America. And we allocate, as was mentioned, well over $400 billion annually to States and local governments based on this American Community Survey data. And there is absolutely no other source for that data. So without the American Community Survey, the government would not know how to allocate literally billions of Federal dollars to State and local governments in a fair process.

The American Community Survey also gives businesses—it is valued very much by private business. It gives them critical tools to help guide capital investment, location of facilities, hiring, service decisions. And then also State and local officials also use the data for prudent allocations of their own funds such as where to build roads, hospitals, schools, senior centers, and other basic services.

So without this, we would be really flying blind on allocating well over $400 billion, which then goes to a question I have about the Consolidated Federal Funds report, which was in existence between 1995 and 2010, which presented data on Federal Government and State and local governments. And this showed where the Federal money was being spent. You know, where is the money going? That is the first step for oversight and whether it was competitively bid or what was the process that made this decision.

But due to budget cuts, the Census Bureau no longer publishes this report. So I would like to know how much did this report cost and what is the damage that has been done because we no longer have the report? It seems that the government does not have enough Federal money to find out where its $400 billion is being spent. That seems like a gross oversight, and I would like to request a GAO report on what this means, that we are spending $400 billion and not even knowing where it is going without the oversight on it.

So, Mr. Thompson, can you respond on the Federal Funds report and why it was stopped and the uses of it? And how can we track these Federal dollars without it?

Mr. THOMPSON. So, Congresswoman, I know that we stopped issuing the report, as you said, due to budget issues.

Mrs. MALONEY. Well, how much did it cost?

Mr. THOMPSON. I—I'm not prepared to answer that. I'd be happy to find out what it cost and send that to you, and I'll be happy to say what it was used for and provide the rationale for—more details on how we reached the decision to drop that and not something else. But I just didn't come prepared to talk about that.

Mrs. MALONEY. Well, we allocate, according to your testimony, $415 billion a year in Federal funds. And where is that money going? Where is the oversight on where that money is going? Maybe you could send me or somebody else a couple of billion and no one even knows about it. So where is the oversight on where those dollars are going? If you don't have an oversight system—this was the system that tracked where the Federal dollars went and if it was honest and fairly done.

You know, you could give a contract to build a recycling plant—this actually is a true story; it happened in New York. They built a recycling plant, and then they opened it, and then they closed it down. And I called for an investigation and they said it was appropriately spent because they opened it for one day. Well, I would like that recycling plant to be helping the people of America, not wasting taxpayer money.

So if we don't have oversight of where our Federal dollars are going, I mean, I just have to say how dumb can we be? We are blind. We don't know where anything is going. And seriously, I think we should have a joint Federal GAO report on where is all this money going. Where is the oversight on $415 billion? I am shocked to find out that this is now—we are not even looking at it. We are totally blind on where this money is going. This is incredible. No response?

Mr. THOMPSON. Congresswoman, just—it's—the question is sort of out of the realm of the Census Bureau, and the reason it's out of the realm is the Census Bureau is a statistical agency, which means our mission is to provide objective, nonpartisan ——

Mrs. MALONEY. Well, I would say ——

Mr. THOMPSON.—high-quality data ——

Mrs. MALONEY.—it is not out of the realm ——

Mr. THOMPSON.—but we don't ——

Mrs. MALONEY. May I speak?

Mr. THOMPSON. We don't ——

Mrs. MALONEY. I would say it may officially be out of your realm, but it is not out of the realm of common sense and government oversight and accountability. We need to know where these dollars are going.

Now, you very appropriately—and I noticed how in many of your testimonies many of you said and we are spending X, Y, Z, and we are competitively bidding that. And I was thinking, good, they are being good managers. But how do we know that if we don't know where this money is going? Maybe $100 billion is competitive bid and the rest of it is a private contract. We don't know that.

So I would like an accounting of where this money is going. I think that is a reasonable thing not only of the Census Bureau's $17 billion, which is an astronomical amount of money; I am glad you are going to save $5.2 billion with this new automation that shows great progress and I hope you stay on record and meet your guidelines. But it is beyond the pale that we have $415 billion in Federal funds going down to the States and cities and every place else and the accountability report was terminated. So I would like you to get back to the chairman as quickly as possible how much that report cost, can we implement it in this current census, and how is this oversight taking place now?

I would like to ask Mrs. Harris, who has a lot of oversight answers, do you know where the $415 billion is being spent in the Federal Government? Is there an oversight of where those dollars are going and if it is competitively bid or not?

Ms. HARRIS. Ma'am, that would be out of the scope of the work that I do at GAO, but I can certainly take that back to my colleagues.

Mrs. MALONEY. Can you find out who is looking at where this is going? I mean, I find this astonishing, quite frankly, and it is out of the realm of everybody's oversight. But, I mean, where do you think it is going? Who has the oversight on it? Do any of you have an idea where all this information could be compiled? Ms. Harris, can you get back to us, to the chairman? I think the chairman is always talking about saving money. This is certainly the best way to save money is to know whether it is spent or not, and if it is spent fairly. I would like to know if it was spent on the contract that it was contracted for and to a reliable contractor and not a crony. I think this is astonishing and deplorable and terrible.

Chairman CHAFFETZ. The gentlewoman yields back.

I have a few more questions as we wrap up here.

Mr. Thompson, I would encourage you as much as I can possibly encourage you on these enumerators to pay special attention to this. I believe you said there would be about 300,000 people that will be hired. We have hundreds of thousands of people that have been vetted that do know these communities, and they are the United States postal workers. And I don't know if we have to push it through in legislation, but I know there are good, broad bipartisan support for the idea that rather than having to start from scratch, find somebody, vet somebody, teach somebody, your postal worker has been vetted. They are one of the most trusted people in all of government.

And I know the unions and the postal workers themselves—not every single one of them obviously—but would love this opportunity. They already do know these neighborhoods. They have walked, they do generally understand. And I think it would be a great deal of money that could be saved by using the Postal Service as widely as possible to be these enumerators. It makes a great deal of sense to me, and I just—between the vetting and the execution, the understanding of these neighborhoods, every address already has somebody that goes there.

And as you look towards other systems and mapping and everything else, the Postal Service deals with this right now. And anything that you could do, we will work with you between the com-

mittee and your staff, but this is a passion of mine personally. And I know I have talked to Mr. Cummings and others. This is a great resource that is probably underused every time we go into these censuses.

So that was more of a speech than a comment, but if you want to care to comment, feel free.

Mr. THOMPSON. No, we agree that the Postal Service has potential and—not has potential—is a very valuable partner right now in how we prepare to take the census. We work with them very closely to build our address list. We would certainly be more than happy to hire postal workers to go collect the information for us. We meet with the post office on a very regular basis to look for opportunities to work together. So like, for example, in 2015 we used their facilities as places in our testing where we could, you know, vet that employee and things like that. So we view the post office as a very valuable resource.

Chairman CHAFFETZ. And again, we are going to work closely with you, but you don't need to go vet people if they are already hired as a postal worker. So we don't need extra space and time and money and resources. And my guess is that would be substantial savings and a much more secure way to do it than before.

I still have deep concerns about the use of the Internet. Our staff will work with you in just understanding the security and complexity of that, what that budget looks like.

Mr. Lee, you have been either the acting CIO or the deputy CIO for the last 2 years. How many people work for you in that department?

Mr. LEE. Right now, there's about 1,250 employees in the IT directorate, about half contractors, half Federal staff.

Chairman CHAFFETZ. And if I were to walk over there and you were to walk me around and look at all these employees and what they are doing, that is just in the IT sector, right?

Mr. LEE. That's the IT directorate, yes, sir.

Chairman CHAFFETZ. And like what kind of operating systems are you using right now? At their desktop, what is the average person going to have?

Mr. LEE. Windows operating system at their desktop.

Chairman CHAFFETZ. Like what version?

Mr. LEE. Right now, we're at 7 and we're looking at testing out Windows 10.

Chairman CHAFFETZ. It has been pretty tested. It works. I can tell you that.

Mr. LEE. Yes, well, internally ——

Chairman CHAFFETZ. Two thousand seven, is that even supported by Microsoft anymore?

Mr. LEE. No, actually 2007—we're retiring 2008 and we're testing 2010. I apologize, Chairman.

Chairman CHAFFETZ. Okay. All right. We will deal more with that. During your time there the last 2 years have there been any data breaches?

Mr. LEE. Yes, sir. We have had two breaches, July of 2015 and February of 2016. But they were all on our external-facing sites and with—segmented off from our production environment.

Chairman CHAFFETZ. Was there any data that was exfiltrated?

Mr. LEE. There was some data that was exfiltrated that was considered as being low sensitivity, publicly available data, but it was queried, and we have since corrected any vulnerabilities ——

Chairman CHAFFETZ. Is there any ——

Mr. LEE.—in those things.

Chairman CHAFFETZ.—personally identifiable information that was extracted?

Mr. LEE. There was some email addresses and some names.

Chairman CHAFFETZ. Do you know how many?

Mr. LEE. We have the details. I do not have them with me right now.

Chairman CHAFFETZ. But off the top ——

Mr. LEE. We did report them up through the DOC cyber incident response team process.

Chairman CHAFFETZ. You don't know off the top of your head how many that was?

Mr. LEE. There was a handful of notices that went to the individuals whose information was made available.

Chairman CHAFFETZ. Ms. Rice, are you familiar with these data breaches?

Ms. RICE. I personally am not aware of them, but somebody in my office likely was.

Chairman CHAFFETZ. Would you get back to us and let us know ——

Ms. RICE. Sure.

Chairman CHAFFETZ.—if you got that notification?

Ms. RICE. Yes.

Chairman CHAFFETZ. I would appreciate that. Help me understand the role of the CIO for census and the role that Mr. Cooper plays as the CIO for the Department of Commerce. Who does what? Who is responsible?

Mr. COOPER. Okay. The—my role as the Department of Commerce CIO related to the Census Bureau, and a lot of what we've been talking about today is a governance and oversight role. I am responsible for ensuring the accuracy, the integrity, and the security of predominantly all of the systems that support the 2020 decennial and support the operations that then either feed or carry out what will become the final integrated environment for conducting the 2020 census.

The Census Bureau CIO has day-to-day operational responsibility for all things IT resources and to advise Director Thompson and Deputy Director Potok in all matters related too much of what our discussion has been today.

Chairman CHAFFETZ. Okay. Anything else, Mr. Thompson, that you would add to that? It seems like a good explanation to me, but I didn't know if you wanted to add anything to that?

Mr. THOMPSON. No, I think Mr. Cooper did a great job of describing ——

Chairman CHAFFETZ. Okay. As we wrap up here, Ms. Rice and Ms. Harris, go back for us—now we have had a good discussion for a couple hours—what are your biggest concerns? Go ahead, Ms. Harris, you can start first, yes.

Ms. HARRIS. Mr. Chairman, I appreciate the question. The greatest concern that we have at this time is the risk and complexity—

or, I'm sorry, the scope and complexity of CEDCaP and the risk that it presents given the fact that there is only one-and-a-half years remaining until the 2018 end-to-end test.

So the top priority that I would suggest the new CIO that's coming into the Census Bureau really consider is identifying ways to reduce that complexity and scope because, again, when you look across the Federal Government and you look at these similar types of major IT investments, the complexity is something that consistently is something that gets agencies every time and will lead to cost overruns, schedule delays, and given the fact that the Bureau has an immutable deadline, in order to set themselves up for success, they should be reducing that scope and simplifying the design itself.

Chairman CHAFFETZ. Care to add anything, Ms. Rice?

Ms. RICE. No. I will piggyback on what Ms. Harris said. But I guess one of the things to consider is that all of the testing is being done in—you know, with a sample of 40,000 households, and when you think of the scalability, I think that's what's frightening. It'll be 140 million households, so it's just the massive size of the ——

Chairman CHAFFETZ. The enormity of it all.

I now recognize Mrs. Maloney.

Mrs. MALONEY. Just in conclusion, I want to thank all of you for your important work. Many people find it boring, but I think it is incredibly important. It may be boring, but it is incredibly important. And quite frankly, I find it exciting because it tells us who we are as a nation, and that is why it is so important to get an accurate census so that we can then use that data to make accurate decisions of where we should be investing in education, in job growth, in so many ways.

And I will tell you, it is such an important tool not only for scientists and program people and businesses that helps them plan and plot and move forward. And just like the Federal Government really does most of the research, the initial research funding because private sector really will not put the money into it that has led us to be the innovators and really the business leaders of the world.

And a lot of this data that you provide is really the basis that every planner, every scientist, everyone uses it. And it is so important to continue. So I was concerned at so many questions about people questioning whether or not we need the American Community Survey. Of course we need it. That survey tells us who we are. And you have the responsibility to get it as accurate as possible, and I am counting on you. You have got a big challenge ahead.

Mrs. Harris pointed out a lot of obstacles that you are not really on track completely, and so I really want to thank everybody for their role in doing this.

But I must tell you I am astonished to find out that the very critical part of knowing where our money is going is no longer being tracked. Now, I will say that I have really respected—and I mean this sincerely in a bipartisan American spirit—the chairman's focus on taxpayer money. Practically every hearing he says we are the stewards of the taxpayers' money. Well, we are not the stewards when we cut out the survey that tells us where the money is going.

So I hope you will join with me in not only calling on a GAO report on where is this money going but in getting this very important survey back into the budget. If we are spending zillions of dollars all over the place, including over $400 billion in private contracts, we should certainly know where that money is going and to make sure that it is spent for the purposes that it is directed for and that the American people are getting the support and the money that is supposed to be directed to them. That is their money. That is money going into their communities, into their lives, their health care, the defense of our country and everything else. It is important to know where these dollars are.

So I look forward to hearing from you, Mrs. Harris, just as soon as possible on that and also Mr. Thompson because I am really, really disturbed that we don't have that particular aspect of it.

But I do want to compliment you. I know that it has been a real trial to get a handheld that worked. Congratulations on getting one that is now working in the field. I think that is a tremendous step forward, and I think it is a tremendous step forward to be going to the Internet. I know my daughters don't even communicate any way except for on the Internet. There is whole new type of people. You know, I used to only need a pencil. Now, you need the Internet and the computers and everything else, but that is how they communicate. So I think is a great stride forward. It is going to be cost-effective, too. But I also think we need to work on getting the Internet out to everybody in America so that they can be part of this system that was pointed out by Mrs. Kelly that many of her constituents don't have it.

But in any event, I think this was a very important effort that we all have. It is the biggest peacetime endeavor that we do as a nation. And I just want to thank you for doing critically important work for our nation.

And thank you very much, and I yield back.

Chairman CHAFFETZ. I thank the gentlewoman. I have got to tell you, I am as big a proponent of technology as you can be, but it scares the living daylights out of me, too. The ability to manipulate, to change, alter, scam, I really do worry about it. And the overreliance on technology to do the census is something that is of deep concern, and we will be watching, working with you closely, but in many ways I don't like it. And I think it has the potential to be ripe with fraud and that is of deep, deep concern. And so the safety, the protocol, it really does scare me.

And you need to have a backup. You better have a backup because it is going to take Mr. Cooper, according to his estimate, another 2 months just to get a schedule for the schedule. So we talked about 18 months; now, we are down to 16 months and that is just to get a schedule. So we are raising the red flag. We are, you know, sending up every warning flare we can have, and I know you feel the pressure, but, you know, we are 6 years into the planning and we still don't have this basic information.

So I thank you all for the work you do. You represent a lot of people who are doing a lot of good, hard, patriotic work. Ms. Harris and Ms. Rice and your organizations, between the OIG and the GAO, we rely heavily on your expertise and your day-to-day watching of this. We look forward to having very regular hearings on

this. I think we will try to have quarterly hearings as we turn the corner in the next year, and you ought to be prepared for that. As the primary jurisdiction here, we need to keep a watchful eye on it.

And we thank you. It has been a long hearing. And the committee stands adjourned.

[Whereupon, at 11:47 a.m., the committee was adjourned.]