WRITTEN STATEMENT OF
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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.

# John H. Thompson
## Director, U.S. Census Bureau

John H. Thompson was sworn in as the 24th Census Bureau Director on Aug. 8, 2013.

Thompson succeeds Robert Groves, who left the Census Bureau to become provost of Georgetown University in 2012.

A statistician and executive, Thompson had been President and CEO of NORC at the University of Chicago since 2008. He served as the independent research organization's Executive Vice President from 2002 to 2008. NORC, previously known as the National Opinion Research Center, collaborates with government agencies, foundations, education institutions, nonprofit organizations and businesses to provide data and analysis that support informed decision making in key areas including health, education, criminal justice, energy, substance abuse, mental health and the environment.

As Director, Thompson will oversee preparations for the 2020 Census and preside over more than 100 other censuses and surveys, which measure America's people, places and economy and provide the basis for crucial economic indicators such as the unemployment rate.

Upon being confirmed, Thompson said: "As America forges its data-driven future, the Census Bureau must lead the way by tracking emerging trends, developing more efficient processes and embracing new technologies for planning and executing the surveys it conducts that are so important to the nation. A culture of innovation and adaptability will allow the Census Bureau to serve the public's needs and meet the challenges of this dynamic new environment."

Thompson had a distinguished career at the Census Bureau from 1975 to 2002 before joining NORC. As an Associate Director, he was the senior career executive responsible for all aspects of the 2000 Census. Prior to that, Thompson served as Chief of the Decennial Management Division. He worked in the Statistical Support Division from 1987 to 1995 and the Statistical Methods Division from 1975 to 1987.

A longtime leader in the social science research community, Thompson is an elected fellow of the American Statistical Association and past chair of the association's Social Statistics Section and Committee on Fellows. He served as a member of the Committee on National Statistics at the National Academy of Sciences. He participated as a member of the CNSTAT panel on the design of the 2010 Census Program of Evaluations and Experiments and the panel to review the 2010 Census.

He holds bachelor's and master's degrees in mathematics from Virginia Tech.