



U.S. CENSUS BUREAU

2020 Census: The Bureau Has Not Reported Test Results and Executed an Inadequately Designed 2015 Test

FINAL REPORT NO. OIG-16-032-A
JUNE 7, 2016

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

FOR PUBLIC RELEASE





June 7, 2016

MEMORANDUM FOR: John H. Thompson
Director
U.S. Census Bureau

Carol N. Rice

FROM: Carol N. Rice
Assistant Inspector General for Economic
and Statistical Program Assessment

SUBJECT: *2020 Census: The Bureau Has Not Reported Test Results
and Executed an Inadequately Designed 2015 Test*
Final Report No. OIG-16-032-A

Attached for your review is our final report on the audit of the 2015 Census Test conducted in portions of Maricopa County, Arizona. Our audit had two objectives: to assess (1) whether the bureau's reengineered and automated operational control system for managing fieldwork functioned as expected, and (2) the bureau's progress for determining whether enumerators are able to use employee-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.

We found that

- despite numerous briefings, the bureau has yet to issue reports detailing the results from its field tests conducted between 2012 and 2015.
- the 2015 Census Test design prevents the bureau from answering its research questions.
- innovative operational control features lacked controls and did not always function properly.
- the bureau did not charge 2015 Census Test contract costs in accordance with cost accounting requirements.

In accordance with Departmental Order 213-5, please submit to us—within 60 calendar days of the date of this memorandum—an action plan that responds to the recommendations of this report.

We appreciate the cooperation and courtesies extended to us by your staff during our audit. If you have any questions or concerns about this report, please contact me at (202) 482-6020 or Terry Storms, Supervisory Auditor, at (202) 482-0055.

Attachment

cc: Colleen T. Holzbach, Program Manager for Oversight Engagement, Census Bureau
Corey J. Kane, Audit Liaison, Census Bureau
Pamela Moulder, Senior Program Analyst, Economics and Statistics Administration



Report in Brief

JUNE 7, 2016

Background

The 2015 Census Test allowed the bureau to begin the process of developing a field operations management approach, which will make data collection operations more efficient and effective. The approach features (1) *planned automation*, such as an operational control system that supports optimized daily assignments, and (2) *available real-time data*, such as system-generated alerts that indicate to a supervisor that an enumerator's performance requires attention and a response. Because there are always households that do not respond via initial decennial census response options, the bureau must test strategies that help it effectively collect information from those households.

Why We Did This Review

We initiated this audit of the 2015 Census Test (conducted in portions of Maricopa County, Arizona) to evaluate whether changes to the bureau's 2020 Census research and testing (R&T) strategy, along with R&T delays, increases the risk that the bureau will not be able to achieve its estimated cost savings goal while maintaining the quality of the 2020 Census.

Our objectives were to assess (1) whether the bureau's reengineered and automated operational control system for managing field-work functioned as expected, and (2) the bureau's progress for determining whether enumerators are able to use employee-owned mobile devices (referred to as "bring your own device" [BYOD]) 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.

U.S. CENSUS BUREAU

2020 Census: The Bureau Has Not Reported Test Results and Executed an Inadequately Designed 2015 Test

OIG-16-032-A

WHAT WE FOUND

With respect to our first objective, we noted that enumerators were able to collect household data and supervisors and managers were able to use many features of the operational control system to manage and monitor workload and enumerators during the 2015 test. However, we continue to identify R&T activity delays, such as the lack of finalized reports for previous decennial census tests, which may negatively impact subsequent tests and the overall assessment of the R&T program. Additionally, the bureau did not design the 2015 test in a manner that allowed it to answer its research questions by isolating the effect of specific nonresponse followup (NRFU) design options. Because some of these new NRFU design options may not be included in the final 2020 Census design, effects on efficiency observed during the 2015 test may not be replicated in 2020. Furthermore, new innovative operational control features, intended to reduce NRFU cost, lacked controls, and did not always function as designed. Finally, as noted during previous audits, the bureau did not charge costs accurately to the 2015 test project code, so we were unable to identify the test's significant contracts. These findings may hinder the bureau's ability to achieve 2020 Census cost and quality goals.

Regarding our second objective: in January 2016, the bureau decided to eliminate BYOD 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. Our test of the BYOD objective was complete and we identified two potential issues. However, we chose not to report any findings on this issue because the bureau will not be pursuing a BYOD strategy. Finally, in the "Other Matters" section, we bring additional observations to the bureau's attention.

WHAT WE RECOMMEND

We recommend that the Director of the U.S. Census Bureau

1. analyze and document test results in a timely manner, to inform subsequent tests and ensure transparency;
2. utilize existing controls, such as oversight by the Research and Methodology Directorate, or implement new controls, to ensure that projects and tests are designed to enable the bureau to answer research questions using test results;
3. analyze (a) internal control weaknesses and (b) performance limitations of operational control system features, and make improvements during remaining 2020 Census testing activities; and
4. ensure that all contract costs are charged in accordance with cost accounting requirements, so all test costs can be correctly reported.

Contents

Introduction	2
Objectives, Findings, and Recommendations	4
I. Despite Numerous Briefings, the Bureau Has Yet to Issue Reports Detailing the Results from Its Field Tests Conducted Between Calendar Years 2012 and 2015.....	5
II. The 2015 Census Test Design Prevents the Bureau from Answering Its Research Questions	6
A. The 2015 Census Test experimental panels included too many variables	6
B. The bureau did not differentiate between administrative and enumeration costs.....	7
III. Innovative Operational Control Features Lacked Controls and Did Not Always Function Properly	8
IV. The Bureau Did Not Charge 2015 Census Test Contract Costs in Accordance with Cost Accounting Requirements	9
Recommendations	11
Other Matters	12
Summary of Agency Response and OIG Comments.....	13
Appendix A: Objectives, Scope, and Methodology	14
Appendix B: 2015 Census Test Projects and Objectives	16
Appendix C: Planned 2020 Census Test Reports	17
Appendix D: 2015 Census Test NRFU Design Options and Research Panels.....	20
Appendix E: Agency Response	21

Introduction

The Census Bureau recognizes that fundamental changes to the design, implementation, and management of the 2020 Census must occur in order to conduct the next decennial census at a lower cost (per household and adjusted for inflation) than the 2010 Census. The bureau is targeting major design changes in four key areas:

- new methodologies to conduct address canvassing;
- options to increase household self-response;
- the use of administrative records to reduce the nonresponse followup (NRFU) workload; and
- reengineering field operations through the use of technology to replace intensive paper processes (such as enumeration, payroll, and training), realigning staff, and reducing the number of field offices.

Design changes associated with the NRFU operation are expected to account for a large portion of the savings.

In 2011, the bureau outlined its plan to use an iterative research and testing (R&T) strategy, which would allow flexible planning, design and informed decision-making based on empirical evidence. Originally, the bureau planned to conduct 24 small, medium, and large field tests that gradually mature the innovations, and then conduct a large integration field test in fiscal year (FY) 2014. In 2013, the bureau revised its testing strategy to include only 11 field tests, along with the large 2014 integration test.¹ The bureau's original testing strategy was to utilize empirical evidence collected over the course of many field tests, as well as through the American Community Survey, to (1) minimize operational costs later in the decade without compromising quality; (2) reduce planning costs and manage risk; and (3) analyze trade-offs among various sets of recommended decennial design options to ultimately choose the 2020 Census design that achieves cost and quality goals.² However, fewer testing opportunities reduces the bureau's ability to refine and mature innovations that will help it meet its 2020 decennial census goals.

The 2015 Census Test allowed the bureau to begin the process of developing a field operations management approach, which will make data collection operations more efficient and effective. The approach features (1) *planned automation*, such as an operational control system that supports optimized daily assignments; and (2) *available real-time data*, such as system-generated alerts that indicate to a supervisor that an enumerator's performance requires attention and a response. Because there are always households that do not respond via initial decennial census

¹ Currently the bureau's R&T results will be determined by a small number of field tests conducted between 2012 and 2017, with an "End-to-End" field test in 2018.

² The American Community Survey is an ongoing household survey, which includes approximately 3.5 million households each year; it collects data about jobs and occupations, educational attainment, veterans, whether people own or rent their home, as well as other topics.

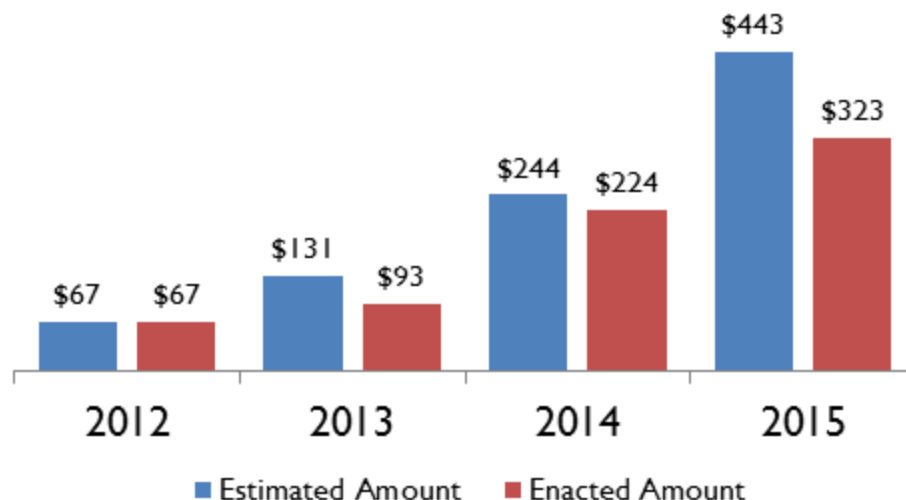
response options, the bureau must test strategies that help it effectively and efficiently collect information from those households.

The bureau used the 2015 test to

- evaluate the feasibility of transforming the efficiency and effectiveness of data collection with the help of real-time data and handheld devices;
- examine the effect on cost and data-quality of (a) reducing the total number of contacts and (b) adapting the type of contacts (personal visit or telephone) during NRFU, based on information the bureau already has about households from administrative records;
- test an enhanced operational control system that will optimize workload assignments (including case routing) and enumerator monitoring;
- test a new field management structure above the enumerator data collection level; and
- determine to what extent using administrative records information to remove NRFU cases from the workload can reduce costs.

The bureau made preliminary 2020 Census design decisions in October 2015—a year after the original target date. Program managers claim that budget shortfalls have left them with insufficient resources (see figure 1, below), requiring changes to its R&T strategy, as well as documentation and reporting delays. Preliminary results from the 2015 test indicate that the bureau may be starting to realize its goal of automating field activities. However—considering the delayed preliminary design decisions, as well as other delays noted in this report—there is still a risk that the bureau will not be fully able to test, analyze, or utilize the new technology upon which 2020 Census success relies.

Figure 1. 2020 Decennial Census Program Funding (\$ in Millions)



Source: OIG analysis of Departmental data

Objectives, Findings, and Recommendations

We initiated this audit of the 2015 Census Test (conducted in portions of Maricopa County, Arizona) to evaluate whether changes to the bureau's 2020 Census R&T strategy, along with R&T delays, increases the risk that the bureau will not be able to achieve its estimated cost savings goal of \$5.2 billion, while maintaining the quality of the 2020 Census.³ Our objectives were to assess

- (1) whether the bureau's reengineered and automated operational control system for managing fieldwork functioned as expected and
- (2) the bureau's progress for determining whether enumerators are able to use employee-owned mobile devices (referred to as "bring your own device" [BYOD]) 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.

For a further discussion regarding our scope and methodology, see appendix A. For a full list of 2015 test projects and objectives, see appendix B.

With respect to our first objective, we noted that enumerators were able to collect household data and supervisors and managers were able to use many features of the operational control system to manage and monitor workload and enumerators during the 2015 test. However, we continue to identify R&T activity delays, such as the lack of finalized reports for previous decennial census tests, which may negatively impact subsequent tests and the overall assessment of the R&T program. Additionally, the bureau did not design the 2015 test in a manner that allowed it to answer its research questions by isolating the effect of specific NRFU design options. Because some of these new NRFU design options may not be included in the final 2020 Census design, effects on efficiency observed during the 2015 test may not be replicated in 2020. Furthermore, new innovative techniques to reduce NRFU cost lack controls, and do not always function as designed. Finally, as noted during previous audits, the bureau did not charge costs accurately to the 2015 test project code, so we were unable to identify the test's significant contracts. These findings may hinder the bureau's ability to achieve 2020 Census cost and quality goals.

Regarding our second objective: in January 2016, the bureau decided to eliminate BYOD 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. Our test of the BYOD objective was complete and we identified two potential issues.⁴ However, we chose not to report any findings on this issue because the

³ The bureau estimates that it can conduct the 2020 Census—using the major cost-saving innovations, which it is currently testing—for \$5.2 billion less than it would cost to repeat the design and approach used during the 2010 Census.

⁴ First, no BYOD enumerators submitted a reimbursement claim during the test, so the bureau was neither able to assess the effectiveness of its reimbursement policy nor was it able to determine whether BYOD costs were less

bureau will not be pursuing a BYOD strategy. Finally, in the “Other Matters” section, we bring additional observations to the bureau’s attention.

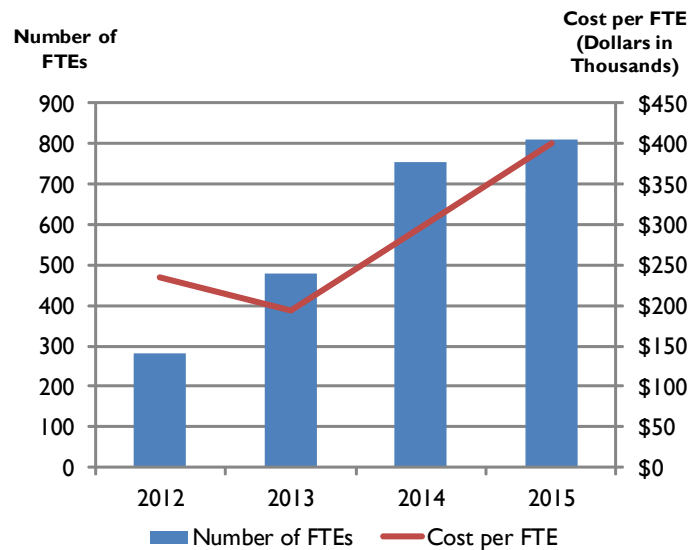
I. Despite Numerous Briefings, the Bureau Has Yet to Issue Reports Detailing the Results from Its Field Tests Conducted Between Calendar Years 2012 and 2015

From FYs 2012 through 2015, the bureau spent \$707 million on the 2020 Decennial Census Program and dedicated hundreds of employees to the program’s activities each year (see figure 2 for a breakdown of FYs 2012–2015). However, the bureau has not released any of its 43 planned reports for decennial census tests conducted between 2012 and 2015 (see appendix C for the planned 2020 Census reports).

In 2012, the bureau began holding quarterly program management review (PMR) meetings to share information—in an interactive manner—with stakeholders about 2020 Census planning and design decisions. In addition to the PMRs, bureau staff frequently met with various stakeholders about its preliminary research results and upcoming test plans.⁵ Some test result information has also been summarized in 2020 Census plans—most notably the 2020 Census Operational Plan and the Address Canvassing Plan.

However, the bureau has not prepared and provided formal reports, as required by the bureau’s Document Management Plan. These reports should detail how each project or test

Figure 2. Number of 2020 Decennial Program FTE and Cost per FTE



Source: OIG analysis of Departmental data

than the cost of providing staff with government-furnished devices. Second, the method that the bureau used to select BYOD enumerators precluded it from answering BYOD research questions about efficiency because every BYOD enumerator worked previously as a control panel enumerator during the 2015 test. Experience using the Census Operations Mobile Platform for Adaptive Services and Solutions (COMPASS) application and enumerating households almost certainly increased BYOD enumerator efficiency. Therefore, even if the bureau had found that BYOD enumerators were more efficient than government-furnished device equipped enumerators, this limitation in the bureau’s approach would not allow the bureau to conclude that BYOD enumerators were more efficient because they used their own personal devices, and not simply due to an unintended practice effect.

⁵ Since 2014, PMRs have been telecast and the documents presented are archived on the bureau’s public website. Bureau staff has regularly met with a number of internal and external groups, such as the 2020 Census Executive Steering Committee, the Census National Advisory Committee, the Census Scientific Advisory Committee, and the National Academy of Sciences.

will help the bureau meet the strategic goals and objectives of the 2020 Census by documenting (1) the purpose of the project or test, (2) the methodology employed, (3) any limitations to the project or test, and (4) evidence and results obtained. According to the bureau, employees responsible for documenting 2014 Census Test results were reassigned to “critical 2015 Census Test operations and 2016 Census Test planning activities,” which has prevented proper documentation. The bureau relies on test results to answer specific research questions and inform subsequent projects and tests. The 2015 test was the last major field test before preliminary 2020 Census design decisions were announced in October 2015. As a result, these decisions were made without the benefit of formal, documented test results.

Project managers and executives at the bureau claim that staff who worked on previous tests can apply that knowledge to subsequent tests, such as the 2016 test. Although test results may be informally known by project team members, the lack of formal, documented results increases the risk that subsequent tests will not be designed to continue to refine 2020 Census design decisions in the iterative manner that the bureau committed to. For example, the 2016 test started in March 2016 and was based on preliminary results from previous tests. Formal, documented results would have benefited from additional input and review. Documentation also provides historical reference and increases transparency. Lack of sufficiently reviewed and documented project-level results increases the risk that subsequent tests, as well as 2020 Census design decisions, will not be based on lessons learned from accurate empirical data collected during prior tests. Without formal documented results, the bureau’s testing results and subsequent decision making is not fully apparent to all stakeholders, which increases the risk for unexpected future challenges to the design.

II. The 2015 Census Test Design Prevents the Bureau from Answering Its Research Questions

The bureau estimates that it can save \$2.5 billion (48 percent of its total estimated savings of \$5.2 billion)—by reengineering its field operations, to improve efficiency—during the 2020 Census. However, the manner in which the 2015 Census Test was designed does not permit the bureau to answer a number of research questions relevant to new NRFU design options, which are expected to improve efficiency.

The bureau planned to use 2015 test results to measure the distinct effect of several new decennial census NRFU design options (e.g., reduced contact attempts) on the NRFU operation. The bureau planned to compare the difference, on some measure of enumerator performance (e.g., hours per case), between a control panel of enumerators who conducted NRFU similar to the 2010 Census and two experimental panels that used a variety of new NRFU design options.

A. *The 2015 Census Test experimental panels included too many variables*

Both experimental panels included *all* of the new NRFU design options (see appendix D for a comparison of the three research panels included in the 2015 test). As a result,

researchers are unable to isolate the effect of any one NRFU design option on enumerator performance. Consequently, the bureau may not be able to measure the effect, and therefore the potential cost savings, of one, or even a few, of the new NRFU design options on enumerator performance (e.g., miles per case, hours per case and data quality). Instead, the bureau can only answer a single research question: do NRFU staff who utilize *all* of the new NRFU design options perform better than enumerators who conduct NRFU operations similar to the 2010 Census?

B. The bureau did not differentiate between administrative and enumeration costs

After analyzing 2015 test data, the bureau concluded that experimental panel enumerators were more efficient because they made more attempts per hour and completed more cases per hour than control panel enumerators. However, this initial analysis only included a portion of the cases worked by experimental panel enumerators; the bureau's initial analysis considered only 37,573 contact attempts, but data that the bureau provided to us indicate that experimental panel enumerators made 92,108 attempts during the 2015 test. The bureau has not yet completed a final, complete, analysis of experimental panel enumerator performance. Furthermore, the bureau is unable to isolate enumeration activities from administrative tasks (such as documenting, collecting, and submitting paper timesheets), because separate task codes for administrative activities and enumeration activities were not available. Control panel enumerators—who utilized the paper payroll procedures and had frequent face-to-face contact with a supervisor—presumably incurred significant non-enumeration hours and miles compared to the experimental panel enumerators.⁶ Because the bureau is unable to differentiate between administrative and enumeration costs, it also cannot accurately compare experimental panel enumerator performance to control panel enumerator performance to confirm that the reengineered field procedures resulted in increased efficiency.

These design constraints are due, at least in part, to a lack of program-level involvement by the Research and Methodology Directorate during the development of the 2015 test.⁷ As a result, the bureau is unable to use 2015 test results to assess the effectiveness of each new NRFU design option and assess whether the reengineered field operations actually resulted in increased efficiency.

⁶ All field staff (control panel and experimental panels), who worked on the 2015 Census Test were provided with only one task code for submitting time and mileage claims during the 2015 Census Test.

⁷ According to the bureau's Program-level R&T management plan, program management reviews—involving the Research and Methodology Directorate—are part of the oversight needed to ensure that projects maintain focus on the key research questions; meet research goals and objectives; and adhere to the appropriate standards and methodologies “required of Census Bureau research.”

III. Innovative Operational Control Features Lacked Controls and Did Not Always Function Properly

The new automated operational control system manages the NRFU workload and monitors enumerator performance in near real-time. One feature of the system is a collection of “alerts,” or system-generated notifications that bring attention to situations that require supervisory follow-up. Most alerts were designed to notify a supervisor that an enumerator’s performance varied from what was expected. The 2015 Census Test was the bureau’s first opportunity to utilize and assess these alerts.

Although the system was able to generate alerts, we noted several control deficiencies and observed that some alerts did not function as designed. The bureau should address these limitations in order to maximize the effectiveness of the alerts and produce the greatest cost savings.

- ***The operational control system was not programmed to require supervisors to act upon alerts.*** Although the operational control system did generate alerts during the 2015 test, our analysis of the alerts indicates that supervisors failed to take action on 483 (15 percent) of the 3,329 alerts. The bureau did not have a process in place to ensure that supervisors responded to an alert before it expired.
- ***The operational control system did not remove some cases from the workload after maximum attempts were made.*** Reducing the number of visits to nonresponding households was a key objective of the 2015 test. For this test, the bureau limited one set of cases to a single contact attempt and tested a variety of contact attempt limits for the remaining cases. The bureau developed “stopwork” business rules, which limited the maximum number of contact attempts that an enumerator could make at a household. Our analysis found that 15 percent of NRFU cases received more contact attempts than were allowed by the operational control system’s business rules (see table I). We estimated that these enumerators spent just over 10 minutes, and logged just under one mile per attempt.⁸ One of the key cost drivers for decennial census operations is the number of contact attempts required to complete a NRFU case. Improved enumerator training and improved controls over the “stopwork” processes could help reduce 2020 Census costs.

⁸ The bureau could not provide the time or mileage per attempt. Thus, to estimate these values, we merged case attempt data with enumerator payroll data containing hours and mileage and summed the total number of attempts, miles, and work hours claimed. We then divided both claimed hours and miles by attempts and calculated results of 0.88 miles per attempt and 10 minutes per attempt.

Table I. NRFU Cases That Received More Contact Attempts Than Were Allowed by the Operational Control System Business Rules

	Workload	Cases that Received More than the Maximum Attempts	Percentage of Workload
Cases with a Maximum of One Attempt	4,631	403	8.7
Cases with Variable Maximum Attempts	39,796	6,248	15.7
Total	44,427	6,651	15.0

Source: OIG analysis of U.S. Census Bureau data

- **The operational control system did not notify supervisors if an enumerator failed to make contact attempts in the order determined by the operational control system.** Another new NRFU design option, expected to reduce the cost of NRFU operations, was optimized routing for daily assignments. Each daily assignment included a sequence of cases that the operational control system predetermined to be most efficient. Enumerators were trained to visit cases in the prescribed order; however, we found that enumerators visited the next case in the predetermined sequence only 67 percent of the time.

New technology available to the bureau appears to offer substantial potential for increased efficiency, monitoring capability, and cost savings. But the bureau, which must prove that the technology functions in a field environment, must also improve controls to enhance the effectiveness of the new technology to ensure maximum cost savings.

- **The bureau did not evaluate the effectiveness of alerts; and some alerts did not function as designed.** The bureau has not conducted its own analysis to determine the success of its alerts or refine the alerts for the 2016 Census Test. The bureau interviewed supervisors but did not conduct an analysis to confirm that alerts functioned as expected. We analyzed the bureau's data to determine whether alerts functioned properly according to the business rules provided to us by the bureau. *Claimed versus calculated hours* alerts and *claimed versus calculated miles* alerts, which were intended to monitor enumerator performance, did not function as intended; they failed to generate alerts in some instances when they should have, according to the business rules. In these instances, supervisors did not receive alerts when an enumerator drove more miles, or worked more hours, than expected.

IV. The Bureau Did Not Charge 2015 Census Test Contract Costs in Accordance with Cost Accounting Requirements

The bureau is unable to correctly report the cost of the 2015 Census Test, because it does not accurately charge contract costs to their corresponding activities. The Department's *Accounting Principles and Standards Handbook* requires that costs either be (a) assigned directly, when feasible and economically practical, (b) assigned on a cause-and-effect basis,

or (c) allocated on a reasonable and consistent basis in order to report the full cost of resources used in the production of outputs.⁹ However, our review of contract costs associated with the 2015 test indicates that this is not occurring.

Specifically, the bureau did not charge contractor costs associated with the 2015 test in a consistent manner that allows for a complete accounting of all associated costs. When we attempted to identify 2015 test contract costs, we identified the following discrepancies:

- **Contracts recorded in the 2015 Census Test projects are incomplete.** We requested a list of all contracts associated with and charged to the 2015 test. The bureau provided us a list of 17 contracts with obligations totaling \$66 million. In order to verify the completeness of the list, we extracted 2015 test contract costs from the bureau's accounting system using project and task codes provided by the bureau. We found that the bureau only recorded obligations totaling \$5.2 million rather than \$66 million.
- **The bureau recorded obligations to the 2015 Census Test project code that do not appear to be related to 2015 test activities.** Based on the bureau's accounting records, we determined that the bureau obligated \$5.2 million in contract awards against 2015 test projects during FY 2015. We reviewed the contract document to verify that the line items charged to the 2015 test appeared to be related to 2015 test activities. Our review of the contract service description (see table 2) indicates that obligations totaling \$3.8 million were for projects and tasks that may not be associated with the 2015 test.

The bureau spends a significant amount of funding to test innovations intended to reduce the cost of the 2020 decennial census. At the conclusion of each test—in addition to preparing test reports—the bureau should evaluate test costs and conduct a cost-benefit analysis, to ensure that the bureau is achieving R&T goals and effectively spending public funds. Without accurate test costs, the bureau is not able to conduct this analysis.

Table 2. 2015 Census Test Obligations

Item Number	Supplies/Services Description	Amount
0009	Add funding to option period I for 2015 Census Test	\$1,400,000
0010	Add funding to steady state Initial activities for the 2016 Field Ops Test, 2017 Early Ops Test, and 2020 Census	\$963,395
0011	Add funding to steady state (in addition to funds from 0010)	\$2,850,000
	Total	\$5,213,395

Source: OIG analysis of U.S. Census Bureau documents

⁹ See *Department of Commerce Accounting Principles and Standards Handbook*, chapter 12, section 4.0.

Recommendations

We recommend that the Director of the U.S. Census Bureau do the following:

1. Analyze and document test results in a timely manner, to inform subsequent tests and ensure transparency.
2. Utilize existing controls, such as oversight by the Research and Methodology Directorate, or implement new controls, to ensure that projects and tests are designed to enable the bureau to answer research questions using test results.
3. Analyze (a) internal control weaknesses and (b) performance limitations of operational control system features, and make improvements during remaining 2020 Census testing activities.
4. Ensure that all contract costs are charged in accordance with cost accounting requirements, so all test costs can be correctly reported.

Other Matters

In addition to the findings and recommendations included in this audit report, we made several other observations, which should be considered by the bureau:

The bureau began the 2016 Census Test in March, before it had an approved, finalized test plan. The final version of the 2016 test plan was not approved and signed until March 15, 2016. In order to ensure that knowledge gained from prior tests is used to inform the 2016 test—and that proposed test activities meet management expectations—bureau managers should have sufficient opportunity to review and approve test plans, request clarification, and make any necessary changes prior to the start of the test.

During the 2015 Census Test, the bureau did not disable certain device functionalities—which hindered its ability to safeguard sensitive data and enabled potential distractions. Both the Department and the National Institute of Standards and Technology require minimum security controls to protect all non-public information. However, more sensitive data, such as personally identifiable information (PII) and other data such as Title 13 data collected during decennial census operations, require more stringent security controls. An agency may establish more restrictive security requirements based on its unique mission and sensitivity of the information that it collects.

During this audit, we found that enumerators and supervisors could have sent Title 13 data and PII via messaging applications (text, or email) included on their smartphones and tablets. Screenshots of Title 13 data and PII could also be posted online via the internet browser applications included on the devices. These threats could have been prevented with stricter controls over the functionality of handheld devices. According to the bureau, these functions were not disabled because (1) programmers were not given requirements to do so, (2) the bureau did not want to discourage potential enumerators from participating in the test, and (3) all field staff were required to complete data stewardship training.

Additionally, neither government-furnished equipment nor BYOD smartphones were programmed to disable incoming and outgoing calls, text messages, or other existing messaging applications already installed on BYOD devices while the COMPASS application was in use. Incoming calls and messages during COMPASS interviews, or other NRFU activities, could interfere with enumerators' and supervisors' work and individual duties, and potentially increase respondent burden—as well as costs to the government.

Summary of Agency Response and OIG Comments

We reviewed the bureau's response, included in appendix E. The bureau concurred with the findings and recommendations in the report.

The bureau mentioned the "Research and Testing Strategies Group" in its response to both recommendations 1 and 2. In its response to recommendation 2, the bureau stated that the Research and Testing Strategies Group reviewed the 2015 Census Test panel design on July 30, 2014. However, in our discussion with Research and Methodology Directorate and Decennial Directorate officials, we were informed that the group played an "informal role" and was "defunct" during the planning of the 2015 test.

Finally, in its response, the bureau took exception to the statement that the preliminary 2020 design decision was delayed a year and that there is a risk that it will not be fully able to test, analyze, or utilize the new technology upon which 2020 Census success relies. Its response noted that the 2013 budget cuts and sequestration necessitated re-planning the 2020 Census Research and Testing program and reiterated that it is on schedule to conduct a successful 2020 Census. Although the bureau decided to re-plan, the year-long delay increased risks that the bureau cannot execute a decennial census that meets its cost and accuracy goals.

We look forward to reviewing the bureau's corrective action plan.

Appendix A: Objectives, Scope, and Methodology

As part of our ongoing oversight of the U.S. Census Bureau's preparations for the 2020 Census, we conducted this audit to assess (1) whether the bureau's reengineered and automated operational control system for managing fieldwork functioned as expected; and (2) the bureau's progress for determining whether enumerators are able to use employee-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.

We conducted audit fieldwork from April 2015 to February 2016. Our methodology for responding to audit objectives was to interview program and project management and review documentation to confirm their statements. We also travelled to Maricopa County, Arizona, and observed enumerators using government-furnished as well as employee-owned devices to enumerate households. We observed project staff utilizing the operational control system and using the operational control system to manage field work.

Additionally, to satisfy our audit objectives, we used computer-processed data to evaluate supervisory alerts, automated routing, and the number of contact attempts made by enumerators. To complete these tests, we combined data about the alerts with data about enumerator contact attempts, enumerator assignments, and enumerator payroll and mileage claims. In order to assess whether the data were sufficiently reliable to conduct this analysis, we performed reasonableness tests, looking for missing data, calculation errors, data outside of valid time frames, data out of designated ranges, negative values in positive-only fields, and duplicate records. Additionally, we compared payroll for days claimed against cases reviewed on days worked. We did not identify any issues, and we consider the data to be sufficiently reliable for conducting this analysis. However, we did not assess the information technology systems used to generate the data.

During the course of this audit, we received 2015 Census Test and 2016 Census Test documentation, including Office of Management and Budget approval documents, test plans and schedules, training materials. We also received 2015 test analyses documents, including: training knowledge checks, debriefing notes from sessions conducted with enumerators, supervisors and other test staff. Additionally, we received documents, which describe procedures used in the Local Census Office and Area Operations Support Center to process payroll. Related to the test's assessment of BYOD, we received focus group notes, mobile computing strategy documents, the enterprise systems development life-cycle project charter, BYOD privacy policies, privacy and policy research committee meeting notes, BYOD acceptable use policy, BYOD reimbursement policy, and Office of General Counsel BYOD advice. Related to the programming of electronic devices used during the 2015 test, we received programming requirements and a waiver, which the bureau used to authorize the collection of PII on those devices. We also received business rules, which the bureau designed and used to utilize features of its operational control system. In addition, we received initial analysis documents regarding the effect of new NRFU design options.

We gained an understanding of research project controls by reviewing bureau guidance, interviewing project managers, and reviewing supporting documentation (when available). Based on this understanding, we identified internal control weaknesses that are discussed in this report.

We conducted this audit from April 2015 to February 2016, under the authority of the Inspector General Act of 1978, as amended, and Department Organization Order 10-13, dated April 26, 2013, at the Department's offices in Washington, DC, metropolitan area. We conducted this performance audit 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.

Appendix B: 2015 Census Test Projects and Objectives

Project	Objectives
Automated Field Activities	Automate payroll functions and provide near real-time operations monitoring and management
Field Re-Engineering Team	Evaluate the feasibility of utilizing the advantages of planned automation and real-time data to transform the efficiency and effectiveness of data collection operations
NRFU Design and Operations Project	Test methods of removing cases with administrative records; use adaptive design principles of variable housing unit visits; test the dynamic case assignments and optimization of case assignments against a traditional approach to NRFU; test a new field management structure against a traditional approach to NRFU; conduct in-depth evaluation of quality of administrative records for the site and their use to replace enumeration
Privacy and Confidentiality	Assess a focus group of respondents and nonrespondents concerning privacy and confidentiality
Administrative Records Modeling	Compare cases identified as vacant or non-existent by the administrative record sources to the results of the field enumeration; compare the cases identified as occupied with a household population based on administrative record sources to the field enumeration results; conduct an evaluation interview to provide information to explain differences seen between administrative record determinations and NRFU field results; assess how imputation procedures can account for unresolved housing unit and personal information
Census Commercial Mobile Device/Bring Your Own Device (BYOD)	Develop BYOD related policies that enable three out of four individuals hired for the 2015 Census Test to utilize BYOD. Determine if the costs of acquiring, kitting and deploying mobile data collection equipment can be reduced if enumerators use their own equipment. Prove the technical capability to protect respondents' data collected using personal mobile devices.

Source: U.S. Census Bureau

Appendix C: Planned 2020 Census Test Reports

Test	Planned Report	Status
2012 National Census Test	Contact Strategy and Optimizing Self Response	<i>Not Released</i> —awaiting cover sheet language
	Coverage of 2012 National Census Test Email Addresses and Telephone Numbers in the Contact Frame	<i>Not Released</i> —in review process
2013 Census Test	2013 Census Test Assessment	<i>Not Released</i> —in review process, awaiting management clearance
2013 National Census Contact Test	Analysis of Non-ID Processing Results	<i>Not Released</i> —in review process, awaiting management clearance
	2013 National Census Contact Test - Research Results Report: Contact Frame	<i>Not Released</i> —awaiting management briefing scheduling
Public Opinion Polling/Continuous Small Scale Testing	2013 Report on 2020 Privacy and Confidentiality	Final report dated January 1, 2013, but not reviewed by management
2014 Human-In-The-Loop	Census Simulation Experiment	<i>Not Released</i> —awaiting cover sheet language
2014 Census Test	Analysis of Administrative Record Usage for Nonresponse Followup	<i>Not Released</i> —final report cleared review process on February 3, 2016
	Nonresponse Followup Panel Comparisons and Instrument Analysis	<i>Not Released</i> —in review process
	Analysis of Contact Outcomes Involving the Contact Frame	<i>Not Released</i> —awaiting completion for management review
	Results for Optimizing Self Response	<i>Not Released</i> —in review process, awaiting management clearance
	Non-ID Processing Analysis Report	<i>Not Released</i> —in review process, awaiting management clearance
	2014 Census Test: Overview Report	<i>Not Released</i> —in review process
	Bring Your Own Device Analysis Report	<i>Cancelled</i>
Public Opinion Polling/Continuous Small Scale Testing	2014 Census Test Focus Groups	Final report dated September 24, 2015, but not reviewed by management
Public Opinion Polling/Continuous Small Scale Testing	2014 Census Test Bring-Your-Own-Device Enumerator Focus Groups	Final report dated October 24, 2015, but not reviewed by management

Test	Planned Report	Status
2015 Census Test	Address Validation Test	<i>Not Released</i> —awaiting cover sheet language
	2015 Census Test: Overview Report	<i>Not Released</i> —currently inactive; awaiting hire of project management contractor, who will be responsible for this report
	Nonresponse Evaluation Followup Analysis Report	<i>Not Released</i> —in review process, awaiting management review
	Field Re-Engineering Team Experimental Panel Test Results	<i>Not Released</i> —was scheduled to be distributed for comment by the end of January (unknown if this happened)
	Analysis of Administrative Records Usage	<i>Not Released</i> —in review process, awaiting management review
	Adaptive Design	<i>Not Released</i> —scheduled to go to management in early March 2016
	Imputation Research	<i>Not Released</i> —scheduled to go to management in early March 2016
	Bring Your Own Device Test Analysis Report	<i>Not Released</i> —currently in peer review
2015 Optimizing Self-Response Test	2015 Optimizing Self-Response Test Results	<i>Not Released</i> —report in progress
	Analysis of Savannah Re-interview Results	<i>Not Released</i> —final draft will be issued to management in early March
	Analysis of Non-ID Processing Results	<i>Not Released</i> —final draft will be issued to management in early March
	Analysis of the 2015 Census Test of Advertising and Partnerships	<i>Not Released</i> —report in progress
2015 National Content Test	Optimizing Self-Response	<i>Not Released</i> —currently in management review, draft expected end of March 2016
	Race and Ethnicity	<i>Not Released</i> —currently in management review, draft expected June 2016
	Relationship	<i>Not Released</i> —currently in management review, draft expected March 2016
	Coverage	<i>Not Released</i> —draft expected April 2016
	Puerto Rico	<i>Not Released</i> —report expected June 2016
	Analysis of Non-ID Processing Results	<i>Not Released</i> —report expected April 2016
	2015 National Content Test Telephone Questionnaire Assistance Centurion Instrument Interviewer Debriefing	<i>Not Released</i> —awaiting management review
Public Opinion Polling/Continuous Small Scale Testing	2015 Census Test Focus Groups	<i>Not Released</i> —report expected in May 2016

Test	Planned Report	Status
Public Opinion Polling/Continuous Small Scale Testing	2015 Census Test Bring-Your-Own-Device Enumerator Focus Groups	Final report dated circa [sic] September 2015, but not reviewed by management
Public Opinion Polling/Continuous Small Scale Testing	2020 Privacy & Confidentiality Study on Social Media Monitoring	<i>Not Released</i> —report in progress
Public Opinion Polling/Continuous Small Scale Testing	Public Opinion on Bring Your Own Device Concept for the 2020 Census	<i>Not Released</i> —currently in management review
Public Opinion Polling/Continuous Small Scale Testing	2012 to 2015 Census Research and Testing: A Study on Privacy and Confidentiality	<i>Not Released</i> —report in progress
Other	2020 Census Local Update of Census Addresses Improvement Project	Final report dated April 13, 2015, reviewed by management, awaiting cover sheet language
Other	Evaluation of 2010 Census Telephone Numbers in the Contact Frame	<i>Not Released</i> —status unknown
Other	Evaluation of the American Community Survey CATI and Respondent-Provided Telephone Numbers in the Contact Frame	<i>Not Released</i> —status unknown
2016 Census Test Reengineering Address Canvassing	MAF Coverage Study	TBD
	Address Canvassing Test	TBD
2016 Census Test Reengineering Field Operations	TBD	TBD
2016 Census Test Optimizing Self-Response	TBD	TBD
2016 Census Test Utilizing Administrative Records and Third-Party Data	TBD	TBD

Source: U.S. Census Bureau

Appendix D: 2015 Census Test NRFU Design Options and Research Panels

NRFU Design Option Elements	Control Panel ^a	Experimental Panels (Using Field Reengineering—Reorganized Census with Integrated Technology)	
		Hybrid ADREC ^b Removal Panel	Full ADREC Removal Panel
Field management structure	<ol style="list-style-type: none"> Managed from the Local Census Office Paper payroll Regular face-to-face contact with supervisor Geographic boundaries employed for assignment areas and supervision 	<ol style="list-style-type: none"> Employed an Area Operations Support Center at the Denver Regional Office Automated payroll Minimal face-to-face contact with supervisor Assignments not restricted by fixed geographic boundaries 	
NRFU case assignment	<ol style="list-style-type: none"> Enumerator received a workload of cases, which he or she maintained responsibility for used own judgement to complete 	<ol style="list-style-type: none"> Enumerator provides availability in advance, and the operational control system assigned an optimal number of cases to attempt each day, as well as the order in which the cases were to be attempted 	
Data collection instrument and operational control system	<ol style="list-style-type: none"> COMPASS and RTOCS^c 	<ol style="list-style-type: none"> COMPASS and MOJO^d 	
Administrative records strategy to remove cases from the NRFU workload	<ol style="list-style-type: none"> None 	<ol style="list-style-type: none"> Remove unoccupied housing units prior to any contact attempts; remove remaining occupied housing units, which can be enumerated by ADREC after one contact attempt 	<ol style="list-style-type: none"> Remove all housing units (occupied and unoccupied), which can be enumerated with ADREC prior to conducting any contact attempts
Maximum number of contact attempts	<ol style="list-style-type: none"> Maximum of three personal visits (up to six total contact attempts if a phone number was identified); and attempt a proxy interview after third personal visit attempt 	<ol style="list-style-type: none"> Maximum of three personal visits (with the specific maximum number determined by real-time stopping rules) before attempting a proxy interview 	
Contact mode	<ol style="list-style-type: none"> Personal visit first, then telephone attempts were permitted 	<ol style="list-style-type: none"> Personal visit only 	
Training	<ol style="list-style-type: none"> Traditional verbatim classroom training 	<ol style="list-style-type: none"> Combination of independent online training and a one-day verbatim classroom training 	

Source: U.S. Census Bureau

^a Close resemblance to 2010 Census NRFU operations; ^b administrative records; ^c Research and Testing Operational Control System; ^d the bureau's next generation operational control system for managing field work.


Appendix E: Agency Response



UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
Washington, DC 20233-0001
OFFICE OF THE DIRECTOR

6 JUN 2015

MEMORANDUM FOR: Carol Rice
Assistant Inspector General for Economic
and Statistical Program Assessment

FROM: John H. Thompson 
Director

SUBJECT: Census Bureau Comments on OIG draft report: *2020 Census: The Bureau Has Not Reported Test Results and Executed an Inadequately Designed 2015 Test* (Draft Issued April 28, 2016).

Please see the attached comments in response to recommendations made in your final report entitled *2020 Census: The Bureau Has Not Reported Test Results and Executed an Inadequately Designed 2015 Test*. The Census Bureau appreciates the comments and recommendations developed by the Assistant Inspector General for Economic and Statistical Program Assessment in producing this draft report.

Attachment

Census Bureau Comments on OIG Draft Report:
"U.S. Census Bureau 2020 Census: The Bureau Has Not Reported Test Results and
Executed an Inadequately Designed 2015 Test" (Draft Issued April 28, 2016)
June 1, 2016

The Census Bureau appreciates the opportunity to comment on this draft report. We have no fundamental disagreements with any of the recommendations and will soon prepare a formal action plan to document the steps we will take in response to those recommendations.

The recommendations concern our need to:

1. Analyze and document test results in a timely manner, to inform subsequent tests and ensure transparency.
2. Utilize existing controls, such as oversight by the Research and Methodology Directorate, or implement new controls, to ensure that projects and tests are designed to enable the Bureau to answer research questions using test results.
3. Analyze (a) internal control weaknesses and (b) performance limitations of operational control system features, and make improvements during remaining 2020 Census testing activities.
4. Ensure that all contract costs are charged in accordance with cost accounting requirements, so all test costs can be correctly reported.

Recommendation 1:

We agree with the first recommendation to analyze and document test results in a timely manner, to inform subsequent tests and ensure transparency. In an effort to do this, since 2012, the Census Bureau has conducted quarterly Program Management Reviews (PMR) to share updates about the plans, tests, schedules, budgets, and strategies to deliver a successful, cost-effective 2020 Census.

Formal invitations are sent to the Census Bureau's key stakeholders and the meetings are open to the public. Regular attendees include the Department of Commerce (e.g., Office of Acquisitions Management, Office of the Inspector General, and Office of Budget), the Office of Management and Budget, the Government Accountability Office, and the National Academy of Sciences, among others. Since October 2014, the PMRs have been telecast using UStream, allowing those interested to view the PMR without attending in person. Archived PMR materials and videos are publicly available on the Census Bureau's Web site:

<http://www.census.gov/programs-surveys/decennial-census/2020-census/planning-management/program-briefings.html>

Feedback is encouraged both during and after the meetings. The presentation of test results at the PMR allows for a more robust and open discussion of the learnings from the test and the planning for the next tests than a stagnant report would allow for. The Census Bureau has shared all test plans and findings. The formal reports are merely the documentation of the research and subsequent discussions that have occurred.

The Census Bureau has shared our test plans and findings with members of the Census Bureau Statistical Advisory Committee, the National Advisory Committee, and the National Academy of Sciences Standing Committee on the 2020 Census. Additionally, the Census Bureau has presented our test plans and findings at scientific conferences. Examples include the Joint Statistical Meetings, the American Statistical Association, the American Association for Public Data Users, the Federal Committee on Statistical Methodology, and the Population Association of America. Presentations were given at all of these venues, written papers were submitted for some.

The 2020 Census Operational Plan documents the design for conducting the 2020 Census. The plan reflects and supports evidence-based decision making by describing design concepts and their rationale, identifying decisions still to be made, and describing significant issues and risks related to the implementation of the Operational Plan. Chapter 4 documents the objectives, findings, and design implications of each of the census tests conducted between 2012 and 2015. Chapter 5 outlines design decisions made to date and yet to be determined, by each of the 34 2020 Census operations.

The operational plan is publicly available on the Census Bureau's Web site:

<http://www2.census.gov/programs-surveys/decennial/2020/program-management/planning-docs/2020-oper-plan.pdf>

For example, the 2020 Census Operational Plan (Version 1.1) states the following test results:

2014 Census Test:

- Objective: Evaluate the value of a preregistration option using "Notify Me" (a Web site that allows respondents to indicate a preferred mode of contact for the 2020 Census).
- Finding: "Notify Me" had low participation with only about 3 percent of the sample choosing to pre-register.
- Design Implications: Conduct another test of "Notify Me" to determine if more people use this capability when advertising is used to inform the public about the 2020 Census, and specifically about the "Notify Me" option.
- Page 37

2015 OSR Test:

- Objective: Test value of "Notify Me" when partnerships and traditional advertising are used to promote early engagement of respondents.
- Finding: Continued low participation in "Notify Me."
- Design Implications: Discontinue "Notify Me."
- Page 45

Following the release of the 2020 Census Operational Plan, the Census Bureau then prioritized the completion of the 2020 Census Research and Testing (R & T) Management Plan. This plan provides the overarching management and analysis framework for executing research and testing projects and integrating the results across projects to ensure a solution that reflects the best information available across the Census Bureau, and within the broader community. It defines the high-level research for the life cycle of the 2020 Census Program by defining the:

- **research questions** to be answered;
- **resources** contributing to the research;
- **field tests** that will inform the answers to the questions;
- **status** that defines where we are toward the completion of the research;
- **completion** date or expected decision date; and
- **priority** placed on the research question.

The R & T Management Plan was released in December 2015 and is publicly available on the Census Bureau's Web site:

http://www.census.gov/programs-surveys/decennial-census/2020-census/planning-management/memo-series/2020-memo-2015_03.html

The 2020 Census Program is currently undergoing a Milestone Review at the Department of Commerce. The final decision memo is expected at the end of June. The following documents were submitted to the Milestone Review Board (MRB) in February 2016:

- 2020 Census Operational Plan Executive Summary
- 2020 Census Operational Plan
- Address Canvassing Detailed Operational Plan
- Program Management Review Operational Plan Slide Deck (October 6, 2015 PMR)
- 2020 Census Lifecycle Cost Estimate
- 2020 Census Executive Steering Committee Meeting Minutes Approving the 2020 Census Operational Plan
- 2020 Census Research and Testing Plan
- 2020 Census Program Management Plan
- 2020 Census Schedule Management Plan
- 2020 Census "Swim Lane Chart" depicting 2020 milestones
- 2020 Census Risk Management Plan
- 2020 Census Lifecycle Risk Register
- Acquisition Strategy

The Census Bureau's schedule for releasing the 2020 Census test reports is as follows:

- By June 30, 2016 – All reports for testing that occurred between 2012 and 2014.
- By September 30, 2016 – Reports related to the 2015 Optimizing Self Response Test and the 2015 Census Test.
- By December 31, 2016 – Reports related to the 2015 National Content Test.
- By March 31, 2017 – Reports related to the 2016 Census Test.

To ensure a sound statistical design for subsequent tests, the 2020 Census Program has created the Decennial Research Objectives and Methods Working Group, comprised of members from the Decennial Directorate and the Research and Methodology Directorate, to review all test plans, study plans, and reports. This working group is the successor to the 2020 Census Research and Testing Strategies Group, a similar group of experts that reviewed test plans, study plans, and reports in the early phases of the 2020 Census Research and Testing Program (Fiscal Years 2012 – 2015).

To ensure adequate transfer of test findings in between the conduct of tests and release of formal reports, the 2020 Census Program maintains a Knowledge Management Database. This database is used to capture and track findings from the 2010 Census Evaluations and Experiments Program and the 2020 Census Research and Testing Program. This database is currently being migrated to SharePoint to make it more accessible to program managers and staff.

Recommendation 2:

We agree that the second recommendation to utilize existing controls, such as oversight by the Research and Methodology Directorate, or implement new controls, to ensure that projects and tests are designed to enable the Bureau to answer research questions using test results is of critical importance.

The 2020 Census Program has maintained a documented governance process since the inception of the 2020 Census Research and Testing Program in 2012. While the structure and membership of the governing bodies has recently been refreshed, the rigor has remained equally as strong. The Decennial Research Objectives and Methods (DROM) Working Group is the first approving governance body, comprised of members from the Decennial Directorate and the Research and Methodology Directorate, to review all test plans, study plans, and reports. The 2020 Census Program Management Governance Board is the second approving governance body, comprised of members from all key stakeholder directorates, including the Decennial Directorate, Research and Methodology Directorate, Field Directorate, IT Directorate, Demographic Directorate, and Communications Directorate. The 2020 Census Executive Steering Committee is the third approving governance body, comprised of the Director, Deputy Director, and all Associate Directors.

Specifically related to the 2015 Census Test, the Research and Testing Strategies Group, an earlier version of the DROM, reviewed the 2015 Census Test panel design on July 30, 2014. The 2015 Census test panel design was approved by the 2020 Census Executive Steering Committee on August 26, 2014. The objectives, findings, and design implications of the 2015 Census Test are outlined in Chapter 4 of the 2020 Census Operational Plan.

Recommendation 3:

We agree with the third recommendation to analyze (a) internal control weaknesses and (b) performance limitations of operational control system features, and make improvements during remaining 2020 Census testing activities.

The 2020 Census is designed to cost less per housing unit than the 2010 Census (when adjusted for inflation), while continuing to maintain high quality. The Census Bureau plans to achieve this by conducting the most automated, modern, and dynamic census in history. The 2020 Census includes sweeping design changes in four key areas, one of which includes reengineering field operations or using technology to reduce the manual effort and improve productivity of field operations. For example, the Census Bureau plans to use sophisticated operational control systems to send Census employees to follow up with nonresponding housing units and to track daily progress.

A key component of the field reengineering management concept, as tested in the 2015 Census Test, was alerts generated by the operational control system. No longer are supervisors expected to comb through reports, performing on-the-fly data analysis to determine when a problem could exist. Rather, the operational control system performs the heavy lifting, using near-real-time paradata to present alerts to the employee. Alerts were designed to tell a supervisor when a potential issue existed and give them the appropriate data to resolve the situation.

During the 2015 Census Test, alerts were generally well received by the supervisory staff as indicated by on-line and in person debriefings. However, some staff reported a higher volume of alerts than others. That disparity is largely driven by Cases Not Picked Up Alerts. These were specifically designed to alert a Local Supervisor of Operations (LSO) that an employee had not started working on their cases. During the operation, we altered the alert based on feedback from the field staff to better provide information needed to manage their employees. These alerts are randomly assigned to the LSOs on duty; the shift coverage will be altered in the future to better cover the beginning of the enumerators' workdays.

Nonresponse Follow-up for the 2016 Census Test began on May 12, 2016, according to schedule. Based on findings from the 2015 Census Test, adjustments to the operational control system and alerts have been made for the 2016 Census Test. The most visible change is an update to the user interface, which now includes a standard set of information for every alert, plus variable information to help the user resolve that specific alert. Another example includes a change to the Cases Not Picked Up Alert. For the 2016 Census Test, the alert is not generated until sixty minutes plus the calculated driving time to the first unit. 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, a user now receives a "happy" alert when an enumerator has three consecutive workdays without another receiving another alert.

Additional examples of evidence-based decision making that were used to inform the 2016 Census Test design:

- Now testing an increased ratio of enumerators to supervisors as compared with the 2015 Census Test (20:1 in LA, 30:1 in Houston, 13:1 in Maricopa, 8:1 in 2010);
- Conducted enhanced geocoding of address coordinates to better align with the road network – this will allow for better routing and optimization of the cases;
- Will now interview the managers of multi-unit structures to identify vacant and potentially non-existent housing units before enumeration attempts;
- Designed a better path for the conduct of proxy interviews in which the enumerator is guided from start to finish; and
- Will now allow for an “early out” for cases where an enumerator cannot find the housing unit or if it does not exist.

Finally, the Census Bureau has decided that it will use a Commercial Off-the-Shelf (COTS) platform, which is part of the CEDCaP Segment Architecture for the data collection component within the Business Solution Architecture for the 2020 Census. The decision is documented as part of the 2020 Census Memorandum Series:

http://www.census.gov/programs-surveys/decennial-census/2020-census/planning-management/memo-series/2020-memo-2016_06.html

The decision followed a robust Alternatives of Analysis evaluation. Recommendations are documented in the CEDCaP COTS Capability and Analysis Report:

<http://www2.census.gov/about/policies/cedcap/cedcap-report-final.pdf>

Recommendation 4:

The Census Bureau is committed to ensuring appropriate cost accounting for the 2020 Census Program. We agree with the fourth recommendation to ensure that all contract costs are charged in accordance with cost accounting requirements, so all test costs can be correctly reported.

The Decennial Program Management Office, Contacts Management Office, is taking the following steps to ensure appropriate cost accounting. We have asked all Contracting Officer’s Representatives to identify their contracts that in any way (directly or indirectly) support a decennial census test so that we will be able to provide oversight agencies with a correct listing of contracts supporting each test. We are requesting improved invoicing from the identified contracts through either modifying contracts by adding Contract Line Item Numbers (CLINs) that will capture hours and funds devoted to specific tests, or requesting the tracking and recording of the information by contractors on their invoices where CLINs are not the appropriate approach based on contract type.

Other Comments:

The Census Bureau disagrees with the following text on page 3 of the report, “The Bureau made preliminary 2020 Census design decision in October 2015 – a year after the original target date” and “However – considering the delayed preliminary design decision, as well as other delays noted in this report – there is still a risk that the Bureau will not be fully able to test, analyze, or utilize the new technology upon which the 2020 Census success relies.”

As a result of budget cuts and sequestration in 2013, the Census Bureau re-planned the 2020 Census Research and Testing Program. The release of the 2020 Census Operational Plan was scheduled for release at the end of FY 2015. We met this date and exceeded the release of the 2010 Census operational plan by three years. The Census Bureau is on schedule to conduct a successful 2020 Census.

The Census Bureau appreciates the recommendations from the OIG’s audit of the 2015 Census Test. We will immediately begin to prepare a formal action plan to document our planned response to each of the four recommendations.