
United States Census 2020

The Path to the 2020 Census Design Decision

Executive Summary

The Census Bureau is committed to producing preliminary design decisions for the 2020 Census by September 2015, including a lifecycle cost estimate for the 2020 Census reflecting those major decisions. This document, “The Path to the 2020 Census Design Decision,” will guide the Census Bureau through the planning, research, and testing necessary for the creation of a formal report documenting the preliminary 2020 Census design decision.

This document outlines the four key design areas of the 2020 Census, including:

1. Reengineering Address Canvassing - eliminate a nationwide in-field address canvassing in 2019;
2. Optimizing Self-Response - communicate the importance of the 2020 Census to the United States population and generate the largest possible self-response, eliminating the need to follow up with those households;
3. Utilizing Administrative Records - use data that the public has already provided to the government to reduce the Non-Response Follow-Up workload; and
4. Reengineering Field Operations - use technology to more efficiently and effectively manage the 2020 Census fieldwork.

For each of the four key design areas, “The Path to the 2020 Census Design Decision” outlines:

- a) The **assumptions** that were used to calculate the preliminary lifecycle cost estimates for the 2020 Census;
- b) The **options and/or components** that will be evaluated for inclusion in the preliminary design;
- c) The **questions** that need to be answered prior to determining the preliminary design; and
- d) The **research and testing activities** that will validate the accuracy of the assumptions and help answer the questions.

“The Path to the 2020 Census Design Decision” is a living document that will change based on further research, testing, and stakeholder recommendations. The document will become more robust as the results of the research and testing program are finalized. However, it is important to note that while this document will assist in the creation of the preliminary 2020 Census design decision by September 2015, not all 2020 Census-related decisions will be made by that time.

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1. Introduction

In September 2015, the Census Bureau will formally announce the preliminary design of the 2020 Census. The goal of the design is to conduct a 2020 Census at a lower cost per household (adjusted for inflation) than the 2010 Census, while maintaining high quality results.

Through a comprehensive research and testing program, and through advice and recommendations from external stakeholders such as the National Academy of Sciences (NAS), the Office of the Inspector General (OIG), the Government Accountability Office (GAO), and the Census Bureau's Scientific Advisory Committee (CSAC) and National Advisory Committee (NAC), the Census Bureau has identified four key design areas. These design areas are expected to result in tremendous cost savings if planned and implemented correctly:

1. Reengineering Address Canvassing - eliminate a nationwide in-field address canvassing in 2019;
2. Optimizing Self-Response - communicate the importance of the 2020 Census to the United States population and generate the largest possible self-response, eliminating the need to follow up with those households;
3. Utilizing Administrative Records - use data that the public has already provided to the government to reduce the Non-Response Follow-Up (NRFU) workload; and
4. Reengineering Field Operations - use technology to more efficiently and effectively manage the 2020 Census fieldwork.

This document, "The Path to the 2020 Census Design Decision," will describe each of the four key design areas and will highlight important associated information, including:

- a) The **assumptions** that were used to calculate the preliminary lifecycle cost estimates for the 2020 Census. Over 100 input variables contributed to the development of the assumptions and cost estimates and were derived using a combination of actual results from the 2010 Census, research to date for the 2020 Census, and the expert opinion of individuals or teams with subject matter knowledge;
- b) The **options and/or components** that will be evaluated for inclusion in the preliminary design. The preliminary 2020 Census design will include one of three options as part of the Utilizing Administrative Records design area. For the other three areas, the preliminary 2020 Census design will include one or more of the components outlined in this document ;
- c) The **questions** that need to be answered prior to determining the preliminary design. These are high-level questions that correspond to each key design area. More detailed questions are included within the 2020 Census Project Plans, Study Plans, and Test Plans; and
- d) The **research and testing activities** that will validate the accuracy of the assumptions and help answer the questions.

"The Path to the 2020 Census Design Decision" will guide the Census Bureau through Fiscal Year (FY) 2015 and the production of a formal report documenting the preliminary 2020 Census design decision by the end of September 2015. It is a living document that will change based on further research,

testing, and stakeholder recommendations. The document will become more robust as the results of the research and testing program are finalized. However, it is important to note that not all questions outlined in this document will be answered by September 2015, nor will all 2020 Census-related decisions be made by that time.

Given assumptions to date, the Census Bureau estimates a potential lifecycle cost reduction of \$5.1 billion, while maintaining the ability to produce high quality data. Estimated cost savings for each of the four key design areas are included in this document. The Census Bureau plans to demonstrate the cost/quality trade-offs of the changes proposed for the 2020 Census in relation to 2010. Work in this area has started and will mature through FY 2015. The results of the 2020 Census research and testing program, in combination with the cost/quality trade-off analysis, will be the basis of the preliminary 2020 Census design decision.

2. The Four Key Design Areas

While there are hundreds of interrelated activities that occur as part of a decennial census, the Census Bureau has identified four key design areas that are likely to result in the greatest cost savings while continuing to generate high quality data.

Reengineering Address Canvassing

The goal of Reengineering Address Canvassing is to eliminate a nationwide in-field address canvassing in 2019. Instead, the Census Bureau plans to develop innovative methodologies for updating the Master Address File (MAF)/Topologically Integrated Geographic Encoding and Referencing (TIGER) System throughout the decade. These methodologies include statistical modeling and the analysis of empirical geographic evidence to help determine where in-field address canvassing will occur. These design changes have the potential to save the Census Bureau an estimated \$1 billion¹.

Optimizing Self-Response

The goal of Optimizing Self-Response is to communicate the importance of the 2020 Census to the United States population and generate the largest possible self-response, eliminating the need to follow up with those households. The Census Bureau plans to incorporate the use of new technologies, such as advertising via social media, encouraging the use of the Internet as the primary response mode, and allowing respondents to submit a questionnaire without a unique identification code. These design changes have the potential to save the Census Bureau \$548 million².

Utilizing Administrative Records

The goal of Utilizing Administrative Records is to use data that the public has already provided to the government to reduce the Non-Response Follow-Up (NRFU) workload. The Census Bureau plans to use data from internal and external sources, such as the 2010 Census, the United States Postal Service (USPS), and the Internal Revenue Service (IRS) to identify vacant housing units and those units that do not meet the Census Bureau's definition of a housing unit (deletes). The data sources may also be used to enumerate the population in cases of non-response. These design changes have the potential to save the Census Bureau \$1.2 billion³.

Reengineering Field Operations

The goal of Reengineering Field Operations is to use technology to more efficiently and effectively manage the 2020 Census fieldwork. The Census Bureau plans to develop an operational control system that manages tasks and makes decisions typically made by humans (e.g., case assignments, contact

¹ See Appendix 1 – Preliminary Lifecycle Cost Estimates for the 2020 Census.

² See Appendix 1 – Preliminary Lifecycle Cost Estimates for the 2020 Census.

³ See Appendix 1 – Preliminary Lifecycle Cost Estimates for the 2020 Census.

attempts). Additional modernization includes a streamlined approach to implementing and managing field operations through a new field structure, including field staff roles, work schedule, and staffing ratios. These design changes have the potential to save the Census Bureau \$2.3 billion⁴.

2.1 REENGINEERING ADDRESS CANVASSING

The MAF/TIGER System is the foundation of the decennial census. The MAF is a list of all known housing units and serves as the base of the census frame, to deliver questionnaires, and to assist in data collection. Each address in the MAF is linked to a geographic location in TIGER, the Census Bureau's mapped spatial database. This linkage ensures that the census data are processed and tabulated in the correct geographic location.

In preparation for the 2010 Census, the Census Bureau worked to develop a complete MAF/TIGER System. The Census 2000 address list was updated using address data from the USPS Delivery Sequence File and from tribal, state, and local governments during the Local Update of Census Addresses (LUCA) and New Construction Programs. The focus of these activities occurred toward the end of the decade. In 2009, the Census Bureau hired over 100,000 employees⁵ to validate and update the accuracy of the address list and maps at a cost of \$459 million⁶.

During this address canvassing operation, two-thirds of the 6 million addresses added were located in 4 percent of the nation's 11 million census blocks⁷. This statistic, coupled with the need to conduct the 2020 Census at a lower cost than the 2010 Census, and with recommendations from external stakeholders, led the Census Bureau to Reengineering Address Canvassing.

The Census Bureau has determined that a full in-field address canvassing of the nation is no longer necessary. Advancements in technology have enabled continual address and spatial updates to occur throughout the decade as part of in-office address canvassing effort. This has positioned the organization such that a partial in-field address canvassing in only the most challenging areas is now feasible.

Assumptions

The research and testing assumptions related to Reengineering Address Canvassing include:

- In-field address canvass only 20 percent of total housing units;
- Eliminate early local census offices (manage from regional census centers);
- Reduce the number of crew leader assistants by 50 percent;

⁴ See Appendix 1 – Preliminary Lifecycle Cost Estimates for the 2020 Census.

⁵ 2010 Census Evaluation of Automation in Field Data Collection in Address Canvassing Report.

⁶ 2010 Census Address Canvassing Targeting and Cost Reduction Evaluation Report.

⁷ 2010 Census Address Canvassing Operational Assessment Report.

- Redesign the training strategy to reduce enumerator training hours by 35 percent; and
- Establish a training pay rate of \$1.50 lower than the production pay rate.

2020 Census Design Components

The Reengineering Address Canvassing design decision will outline the best methodology for determining where the Census Bureau should conduct in-field address canvassing in preparation for the 2020 Census. The following design components are under consideration:

Design Component 1

Remove geographic areas from the in-field address canvassing workload based on the availability of administrative data sets (e.g., military lands, national forests) and/or the method of enumeration planned for the 2020 Census (e.g., Update/Leave, Update/Enumerate).

See Figure 1: In-office address canvassing (automated and interactive).

Design Component 2

Use statistical modeling to determine where to conduct in-field address canvassing.

See Figure 1: In-office address canvassing (automated).

Design Component 3

Use empirical geographic evidence (e.g., imagery, comparison of the Census Bureau's address list to partner provided lists) to determine where to conduct in-field address canvassing.

See Figure 1: In-office address canvassing (interactive).

Design Component 4

Detect and capture change from administrative and third party data sources.

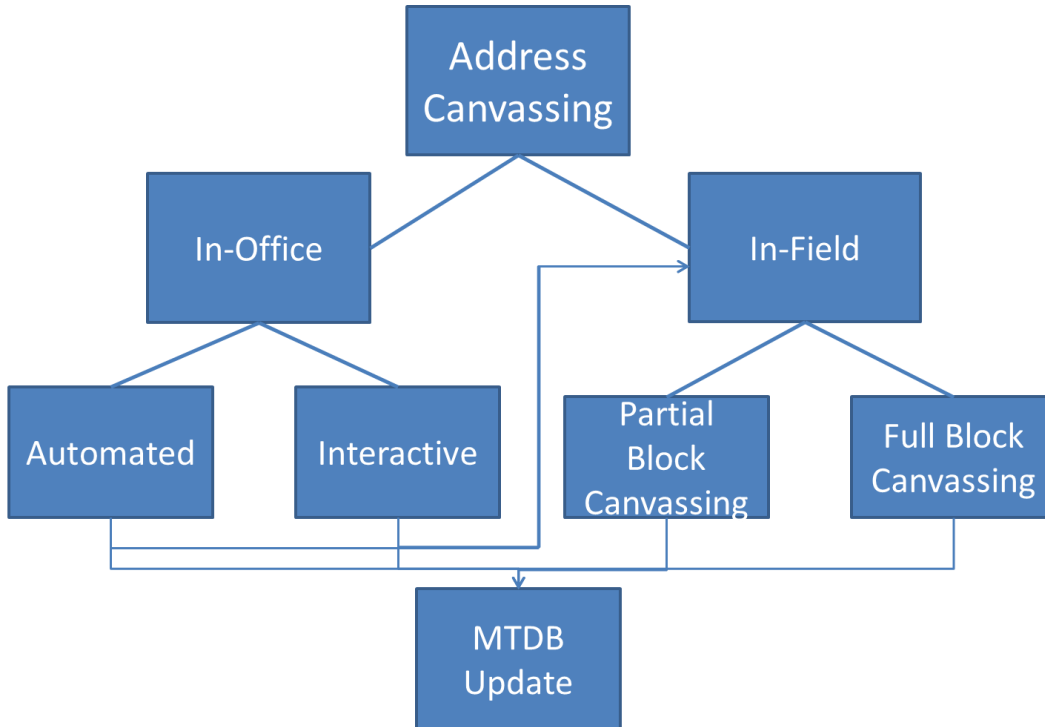
See Figure 1: In-office address canvassing (automated and interactive).

Design Component 5

Conduct in-field partial block canvassing in select portions of census blocks (as opposed to canvassing the full block).

See Figure 1: In-field address canvassing (partial block canvassing).

Figure 1: A Reengineered Address Canvassing



Design Questions

In order to reach the preliminary 2020 Census design decision related to Reengineering Address Canvassing, the Census Bureau will need to answer the following questions:

1. Which address and spatial data (including imagery) can be used to improve the quality of the MAF/TIGER System?
 - Federal government data from partners
 - Tribal, state, and local government data from partners
 - Third-party data
 - A combination of the above

For each of these sources:

- How many updates result from the use of the data?
- Is the time spent to acquire, process, and evaluate the data worth the effort?

- Is one source more valuable than another?
 - Do these sources identify stability and consistency?
 - Do these sources help detect change?
2. Can geographic areas be removed from the in-field address canvassing workload based on specific characteristics?
- Using administrative and third-party data
 - i. Special land use areas such as national forests, national parks, and military lands
 - Areas traditionally included in non-mail out types of enumeration such as Update/Leave and Update/Enumerate. During those operations, addresses will be updated and the population will be enumerated at the same time.
3. What is the best approach the Census Bureau should use to measure the quality and completeness of the MAF/TIGER System?
- MAF Error Model
 - TAC Model
 - Quality Indicators
 - National Estimate of Coverage
 - Address Range Check
 - A combination of the above approaches

Current research includes the development of two statistical models. Both models use auxiliary data in the modeling process, such as the USPS Delivery Sequence File, administrative records from state and local governments, and demographic and socioeconomic data from the 2010 Census and the American Community Survey. The MAF Error model is a distribution model used to estimate the quality of the MAF. It predicts the average number of added, deleted, and/or changed addresses in a census block. The Targeted Address Canvassing (TAC) Model is a logistic regression model used to suggest the proportion of census blocks that should be in-field address canvassed and where in-field address canvassing should occur.

Quality Indicators measure the quality and completeness of the address and road data in the MAF/TIGER System. These indicators are computed, stored, and displayed in a Confidence, Analysis, and Tracking System and contribute to an overall assessment of MAF/TIGER data quality.

The National Estimate of Coverage is an evaluation of the MAF that measures the net coverage of housing units at the national and regional levels as compared to housing unit estimates produced by the Census Bureau's Population Division.

An Address Range Check operation includes the use of Census Bureau enumerators to verify that the addresses for housing units within a specific street segment are in alignment with the address ranges contained in the MAF/TIGER System.

4. Can statistical modeling be used to predict stability and change?
 - Which data contributes to the models? For example, 2010 Census, USPS, utility records, building permit records
 - Which model performs best?
 - i. MAF Error Model
 - ii. TAC Model
 - iii. Combination of both

5. How should statistical modeling be used?
 - As an input to research and field work (geographic modeling/partial block canvassing)
 - As a direct mechanism
 - i. To determine where to conduct in-field address canvassing
 - ii. To determine how much in-field address canvassing is necessary

6. What impact does the Local Update of Census Addresses (LUCA) have on address canvassing?
 - Do the legal requirements mandate that addresses submitted during that program be confirmed using address canvassing?
 - Can addresses be confirmed using office research and administrative records?
 - Eight focus group meetings were held across the country from March through June of 2014. Ten government officials, representing tribal, state, and/or local entities, were invited to be a part of each focus group. Participants were asked questions related to address list construction, collaboration between governmental entities, the management of the 2010 Census LUCA Program, and training. What were the results of the 2014 LUCA focus group meetings?

Research and Testing

The Reengineering Address Canvassing assumptions will be tested and the design questions will be answered during the following operations:

- 2015 Address Validation Test;
- Geographic Support System Initiative;
- Decennial Modeling and Analysis; and
- American Community Survey.

The research and testing that occurs as part of the aforementioned operations will impact the design of the 2020 Census.

2.2 OPTIMIZING SELF-RESPONSE

The 2010 Census relied on various methods to deliver paper census questionnaires, including the USPS, field operations such as Update/Leave and Update/Enumerate, and direct interactions with administrators of group facilities (e.g., prisons, military housing). In conjunction with the questionnaire delivery, a robust communications campaign and partnership program was used to drive self-response. The use of the Internet was not employed during the 2010 Census.

The preliminary mail out, update/leave, and communication strategy resulted in 74 percent⁸ of the nation responding to the 2010 Census questionnaire. The Census Bureau then hired approximately 635,000 employees to conduct a NRFU operation for the remaining 26 percent of the nation at a cost of over \$1.6 billion⁹.

Optimizing Self-Response will be critical to controlling the costs of the 2020 Census. The more households that self-respond to the questionnaire, the fewer households the Census Bureau will have to contact during NRFU. The more households that respond in an electronic format, the less printing and postal costs, and the less data capture the Census Bureau will have to conduct upon receipt.

In preparation for the 2020 Census, the Census Bureau is researching and testing the best ways to generate self-response, particularly via the Internet, to the census questionnaire.

Assumptions

The research and testing assumptions related to Optimizing Self-Response include:

- The response via the Internet will be 55 percent;
- The Census Bureau's strategy will include the use of paper mail;
- Paper questionnaires will be mailed to 20 percent of specific non-respondents based on data analysis (e.g., demographic and socioeconomic characteristics, prior mail response rates); and
- There will be a reduction in paper capture operations and infrastructure as compared to the 2010 Census.

2020 Census Design Components

The Optimizing Self-Response design decision will outline the best methods for generating self-response. The Census Bureau has already decided that the Internet will be used during the 2020 Census and that both electronic and paper correspondence will assist with preliminary notification and reminders. However, decisions related to design components remain:

⁸ This percentage removes vacant and deleted housing units from the response calculation to reflect voluntary participation from occupied housing units.

⁹ 2010 Census Non-Response Follow-Up Operations Assessment.

Design Component 1

To maximize Internet response, employ the use of a pre-registration phase. Enable respondents to provide the Census Bureau with specific information prior to the Census (e.g., name, email address, telephone) and use this information to contact respondents and encourage self-response at the time of the Census through methods chosen by the respondent.

Design Component 2

Allow respondents to answer the 2020 Census without entering an identification code (Non-ID):

- Design Option 2a

Provide on-line tools that allow the Census Bureau to conduct real-time matching and geocoding of the respondent's address at the time of response.

- Design Option 2b

Conduct batch matching and geocoding of the respondent's address at specific periods during the day.

Figure 2: Respondent does not need to enter a unique identification code

Where did you live on July 1, 2014? [\(Help\)](#)

Please select the type of address associated with your residence.

Address Type: Street Address P.O. Box Rural Route

Address Number: Street Name: Apt/Unit:
*For example: (5007) (N Maple Ave) (*Apt. A* or *Lot 3*)*

City: State: ZIP Code:

Design Questions

The Census Bureau will need to answer the following Optimizing Self-Response research questions to aid in the determination of a preliminary design decision:

1. What are the best methods for communicating the importance of responding to the 2020 Census as measured by public response?
 - Communications campaign

- i. Advertising via traditional modes – television, newspaper, radio
 - ii. Advertising using digital approaches including microtargeting
 - iii. Direct contact via telephone, email, paper mail
 - iv. Outreach via social media – Facebook, Twitter
 - v. Segmentation of the population
 - Partnership program
2. What percentage of the population has access to the Internet?
 - Is the access concentrated or dispersed?
 - Does the accessibility correlate with areas that are flagged as good candidates to forego address canvassing? Does inaccessibility correlate with areas flagged for address canvassing (suggesting the need for an update/enumerate type field operation instead)?
 3. What is the estimated self-response rate? Via different modes?
 4. What infrastructure is necessary to support the Internet as the primary mechanism for self-response?
 - Security
 - Scalability
 5. While the primary focus will be on electronic response via the Internet, what other modes of response will be necessary and what is the required supporting infrastructure?
 - Telephony (Telephone Questionnaire Assistance, chat on-line)
 - Paper
 - Computer applications for mobile devices
 6. Is there value in asking households to pre-register for the 2020 Census, enabling the Census Bureau to obtain their contact information and use that information to solicit a response at the time of the actual census?
 7. Is it necessary to provide households with an identification code to respond via the Internet?
 - Do the Census Bureau’s security processes support the validation and authentication of respondents who respond without an identification code (Non-ID)?
 - Can the Census Bureau’s matching and geocoding processes support the Non-ID workload? Can matching and geocoding occur in real-time or is a batch process more effective?

Research and Testing

The Optimizing Self-Response assumptions will be tested and the design questions will be answered during the following operations:

- 2012 National Census Test;
- 2014 Census Test;
- 2015 Optimizing Self-Response Test;
- 2015 National Content and Self-Response Test; and
- American Community Survey.

The research and testing that occurs as part of the aforementioned operations will impact the design of the 2020 Census.

2.3 UTILIZING ADMINISTRATIVE RECORDS

During the 2010 Census, the NRFU universe included 50 million housing units. Each of those units received at least one personal visit, resulting in the identification of 31 million occupied and 14 million vacant housing units. Another 5 million units were deleted because they did not meet the Census Bureau's definition of a housing unit. Vacant and deleted units accounted for 38 percent of the NRFU universe¹⁰.

In preparation for the 2020 Census, the Census Bureau is researching and testing the use of administrative records to reduce the NRFU workload.

Assumptions

The research and testing assumptions related to Utilizing Administrative Records include:

- The total NRFU workload will be reduced by 11 percent through the removal of vacants and deletes;
- The total number of local census offices will be reduced by 12 percent through the removal of vacants and deletes;
- The Vacant/Delete Operation will be eliminated;
- The total number of NRFU visits will be reduced; and
- The Coverage Follow-up Operation will be eliminated.

¹⁰ 2010 Census Non-Response Follow-Up Operations Assessment.

2020 Census Design Options

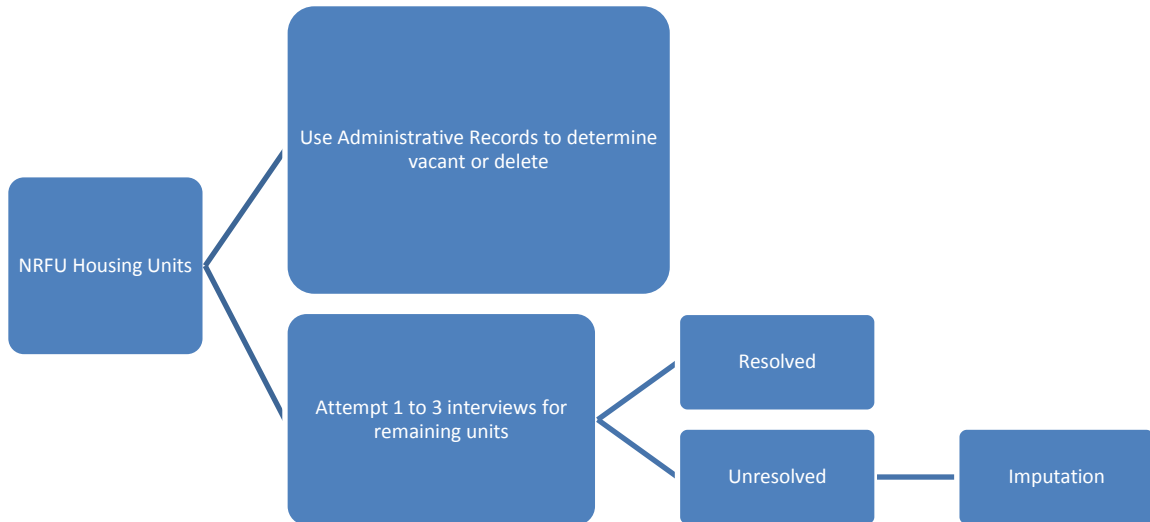
The Utilizing Administrative Records design decision will outline the best methodologies for using administrative records in support of NRFU, adaptive design, and enumeration. The design options currently under consideration include:

Design Option 1

Match administrative records to the non-responding universe. Remove vacants and deletes from the NRFU workload.

For occupied units, visit and/or call up to three times. After three follow-ups, use imputation to enumerate the household.

Figure 3: Use administrative records to determine vacant or delete



Design Option 2

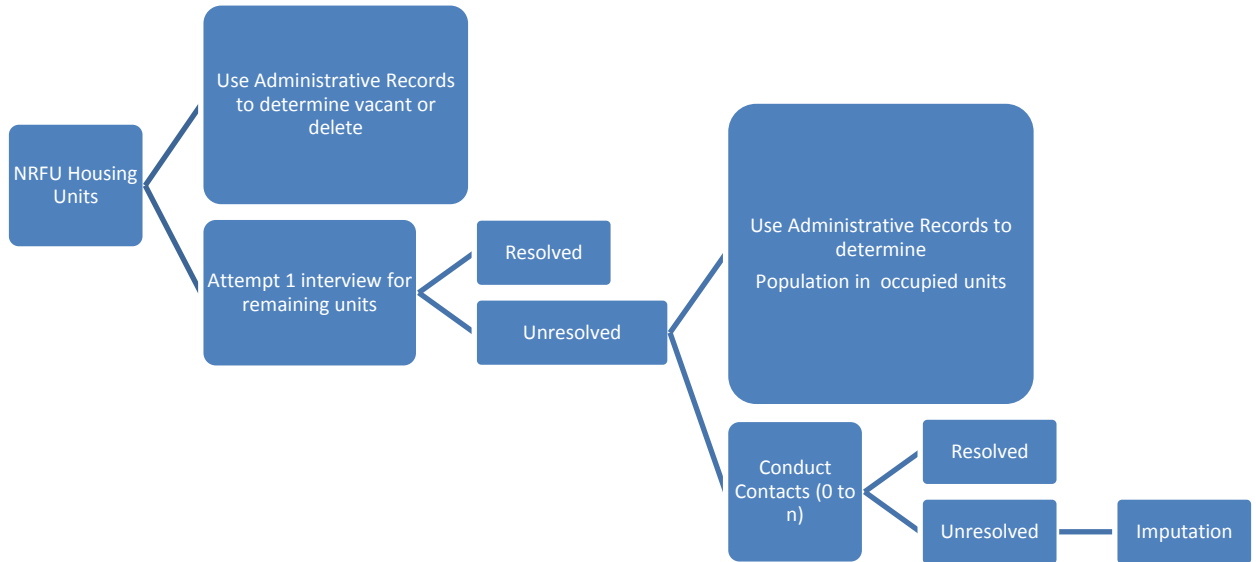
Match administrative records to the non-responding universe. Remove vacants and deletes from the NRFU workload.

AND

Match administrative records to the non-responding universe. Identify occupied units and reduce the number of NRFU in-person visits to one (this option has been referred to as partial removal). After one visit, use administrative records to enumerate the household.

Visit and/or call up to two more times for all other units (those for which we do not have a valid administrative record source). After reaching the maximum number of follow-ups, use imputation to enumerate the household.

Figure 4: Use administrative records to enumerate after one visit



Design Option 3

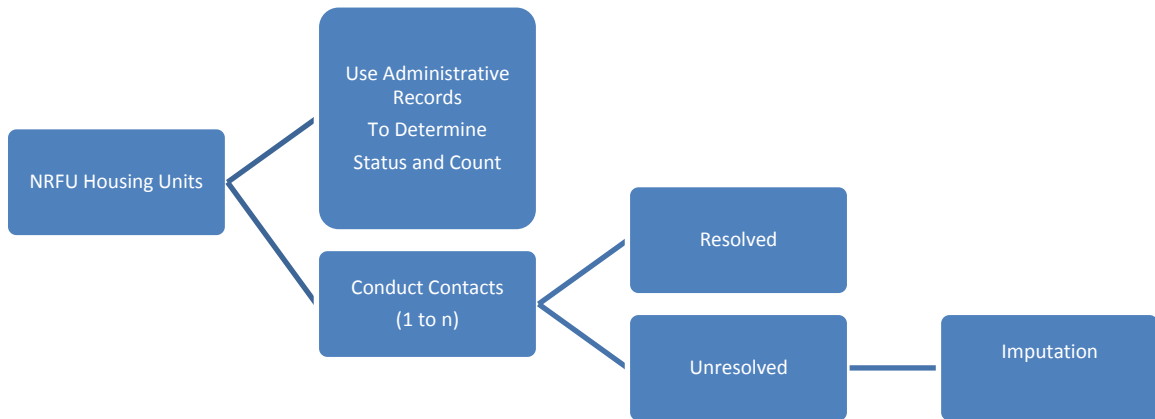
Match administrative records to the non-responding universe. Remove vacants and deletes from the NRFU workload.

AND

Match administrative records to the non-responding universe. Identify occupied units and eliminate NRFU in-person visits (this option has been referred to as full removal). Use administrative records to enumerate the household.

Visit and/or call up to three times for all other units (those for which we do not have a valid administrative record source). After three follow-ups, use imputation to enumerate the household.

Figure 5: Use administrative records to enumerate without visiting



Design Questions

In relation to Utilizing Administrative Records, the Census Bureau will need to answer the following research questions to aid in the determination of the preliminary design decision:

1. Which administrative records are necessary to support the 2020 Census?
 - Federal government data
 - Tribal, state, and local government data
 - Third-party data
 - A combination of the above
2. Does the Census Bureau already have access to the data or is data acquisition required?
 - Does the Census Bureau have an existing agreement with the provider?
 - Do the Census Bureau's plans align with the existing agreements?
 - Is policy or legislation/legislative change required?
3. How many sources do we need in order to enumerate using administrative records (some data providers may require that we corroborate their data with another source before using)?
4. How accurately does the Census Bureau remove occupied and vacant cases from the NRFU workload? For example, how many times did we incorrectly assign a unit as vacant when in fact it was occupied?
5. Would the results have been different if we had altered the methodology for identifying occupied and vacant units?

6. Is there enough characteristic data to enumerate each person in the household?
 - Name, Sex, Age, Hispanic Origin, Race, Housing Unit Status (occupied vs. vacant), Housing Unit Tenure (own vs. rent)
 - What characteristic data are available from each administrative record source?
 - How many characteristics are required to enumerate the household?
7. Are proxy responses for NRFU addresses more or less accurate than the administrative records for a housing unit?
8. Are proxy responses more valuable in certain geographic areas than others?
9. Does the quality of proxy responses for NRFU addresses vary by the number of contact attempts prior to the proxy response and/or by whether the administrative records available for the address are deemed high or low quality?
10. What is the public's perception of the Census Bureau's use of administrative data?

Research and Testing

The Utilizing Administrative Records assumptions will be tested and the design questions will be answered during the following operations:

- 2013 Census Test – Assessment released May 28, 2014;
- 2014 Census Test;
- 2015 Census Test;
- Decennial Modeling and Analysis;
- Gallup Poll – February 2012; and
- American Community Survey.

The research and testing that occurs as part of the aforementioned operations will impact the design of the 2020 Census.

2.4 REENGINEERING FIELD OPERATIONS

The Decennial Census is often referred to as the “largest U.S. peacetime mobilization of federal employees.” Traditionally, the Census Bureau has hired hundreds of thousands of employees to conduct field operations such as Update/Leave, Update/Enumerate, NRFU, and Group Quarters

Enumeration. These operations have always been conducted using paper forms and questionnaires. Rapid changes in technology over the past decade now provide the Census Bureau with an opportunity to use automation to conduct field operations during the 2020 Census, making the operations more efficient while maintaining high quality.

In preparation for the 2020 Census, the Census Bureau is researching and testing the best methods for field data collection, assignment management, and administrative functions.

Assumptions

The research and testing assumptions related to Reengineering Field Operations include:

- Increase NRFU productivity by 20 percent with automation;
- Remove late responses from the NRFU workload;
- Reduce the total number of local census offices by 5 percent;
- Reduce the total square footage of local census offices by 70 percent;
- Eliminate crew leader assistants;
- Reduce the number of clerical staff by 20 percent with automation;
- Redesign the training strategy to reduce enumerator training hours by 35 percent;
- Establish a training pay rate \$1.50 lower than the production pay rate;
- Seventy-five percent of enumerators bring their own device (BYOD);
- Reduce the phone/personal visit contact cycle relative to the 2010 Census from 6 to 3; and
- Use adaptive design (routing and dynamic case management) to allocate resources efficiently.

2020 Census Design Components

The Census Bureau has already determined that its field operations will be reengineered to better include the use of technology. The major design components of the reengineering effort include:

Design Component 1

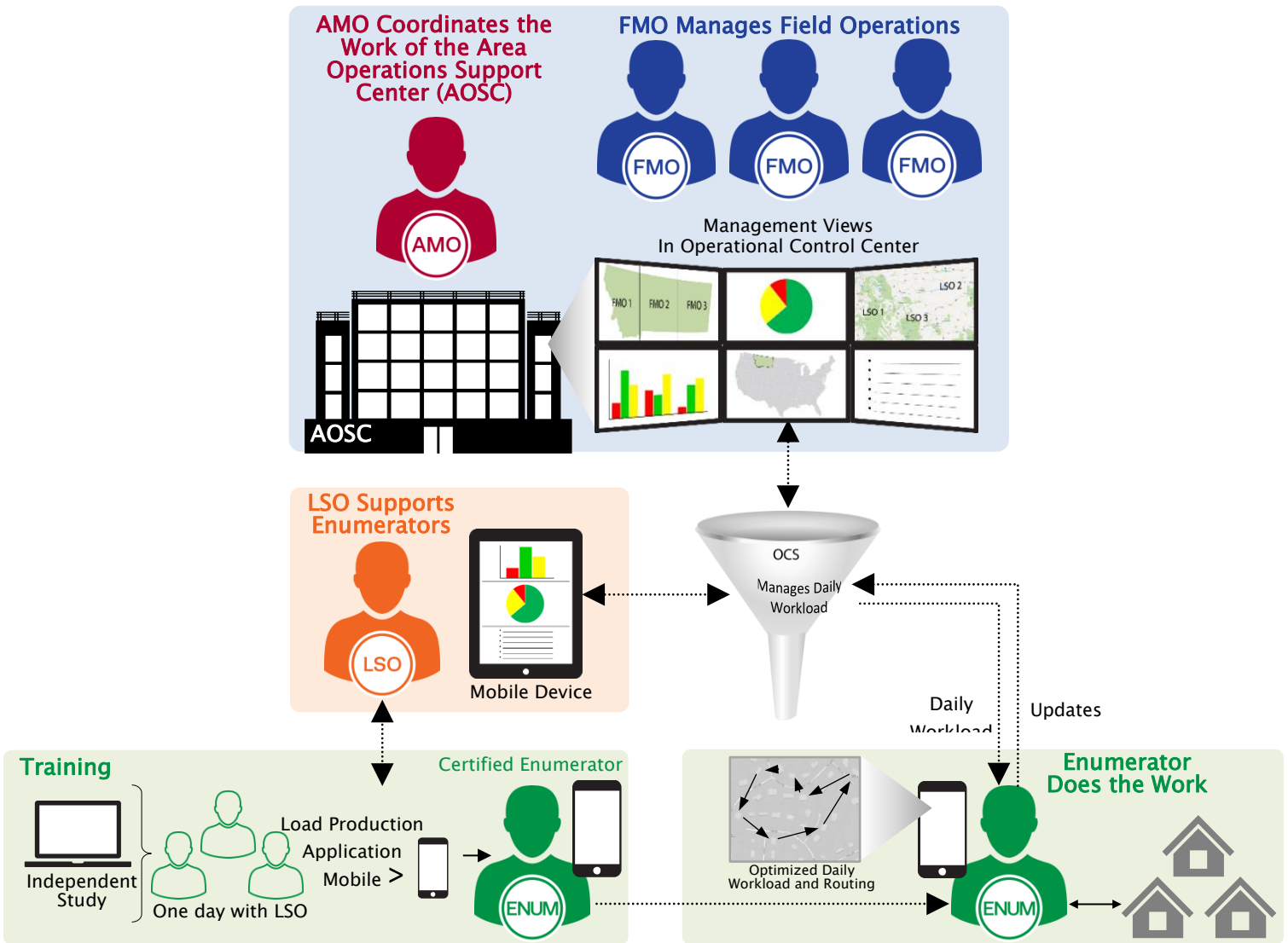
Reengineer the Field Work - Develop a robust and modern Operational Control System that will manage tasks and make decisions traditionally made by humans:

- Provide enumerators with daily, optimal, and sequenced contact attempt assignments;
- Provide supervisors with electronic access to enumerator workload and status information; and
- Automate training.

Design Component 2

Reengineer the Field Staff Structure – Develop a streamlined approach to implementing and managing field operations through a new field structure, including field staff roles, work schedule, and staffing ratios.

Figure 6: Reengineering Field Operations – Concept of Operations



Design Questions

The Reengineering Field Operations design decision will outline the best methods for field data collection, assignment management, and administrative functions. In order to reach the preliminary design decision, the Census Bureau will need to answer the following questions:

1. How can the Census Bureau reduce the cost of field operations with automation?
 - Replace paper-based operations with automated field operations
 - Limit the number of contact attempts based on supplemental data and business rules
 - Remove late mail returns from the NRFU workload
 - Automate training
 - Increase NRFU productivity by at least 20 percent
2. What does the model for reengineered field operations entail?
 - What did the model for the 2010 Census include?
 - How can the 2010 model be changed and/or improved - develop a new blueprint (business process model) for field operations and the associated functions
 - Use this blueprint to develop requirements for a logical architecture
3. How will the structure of the field change?
 - How will management interact with employees?
 - How will the workload be assigned?
 - Where will the management of the work occur (e.g., home, local census office, regional census center)?
4. What type of systems and devices will be used to support:
 - Case assignment (Operational Control System)
 - Routing and navigation (Geographic Information Systems)
 - Data collection
 - Administrative activities such as time and expense reporting
 - How do these systems talk to one another?
 - Does this new model allow for interaction with other Census Bureau systems?
5. Will the Census Bureau build or buy these systems?
6. Will the Census Bureau provide the devices or will the employees bring their own (BYOD)?

Research and Testing

The Reengineering Field Operations assumptions will be tested and the design questions will be answered during the following operations:

- 2015 Census Test;
- ReOrganize Census with Integrated Technology (ROCKIT) Simulations; and
- American Community Survey.

The research and testing that occurs as part of the aforementioned operations will impact the design of the 2020 Census.

3. The Path to the 2020 Census Design Decision

3.1 The Schedule

Table 1 lists the major programmatic and outreach activities associated with the determination of the preliminary 2020 Census design decision by September 2015. Each of the Census Tests has a fully developed schedule that is available upon request.

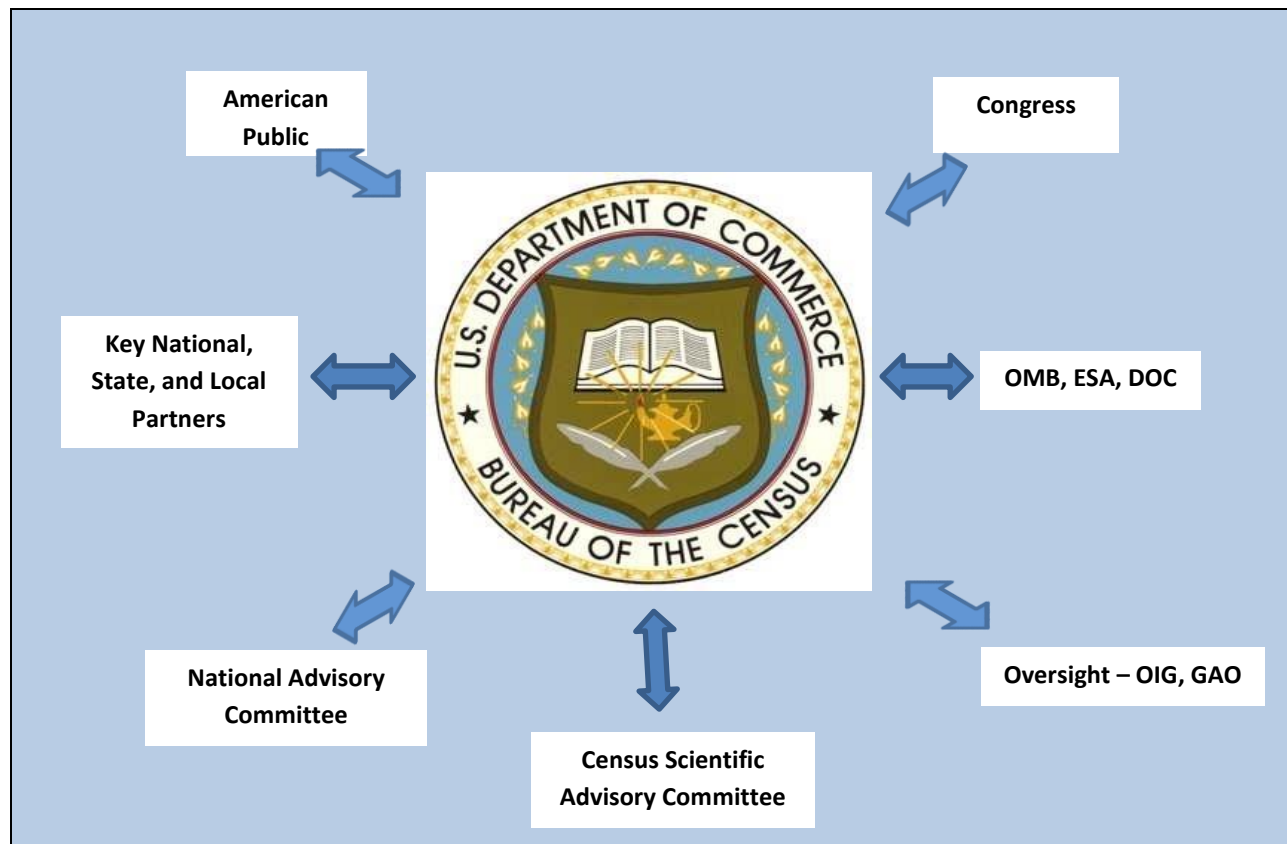
Table 1: Programmatic and Outreach Activities

Activity	Date
2014 Census Test	Census Day – July 1, 2014
Census Bureau Director approves “The Path to the 2020 Census Design Decision”	August 29, 2014
Address Canvassing Recommendation Issued	September 2014
<i>“The Path” is shared with external stakeholders at the 2020 Census Program Management Review</i>	<i>October 3, 2014</i>
<i>“The Path” is shared with the National Advisory Committee</i>	<i>October 9-10, 2014</i>
2015 Address Validation Test	September – December 2014
<i>“The Path” is shared with the National Academy of Science (NAS) Standing Committee on Reengineering the 2020 Decennial Census</i>	<i>December 2014</i>
<i>Progress on “The Path” is shared with external stakeholders at the 2020 Census Program Management Review</i>	<i>January 9, 2015</i>
Finalize results from the 2014 Census Test	February – May 2015
2015 Optimizing Self-Response Test	Census Day – April 1, 2015
2015 Census Test	Census Day – April 1, 2015
<i>Progress on “The Path” is shared with the NAS Standing Committee on Reengineering the 2020 Decennial Census</i>	<i>March 2015</i>
<i>Progress on “The Path” is shared with external stakeholders at the 2020 Census Program Management Review</i>	<i>April 3, 2015</i>
<i>Progress on “The Path” is shared with the Census Scientific Advisory Committee</i>	<i>April 16-17, 2015</i>
<i>Progress on “The Path” is shared with the National Advisory Committee</i>	<i>April 23-24, 2015</i>
Develop preliminary results from 2015 testing activities	July 2015
<i>Progress on “The Path” is shared with external stakeholders at the 2020 Census Program Management Review</i>	<i>July 10, 2015</i>
<i>Progress on “The Path” is shared with the NAS Standing Committee on Reengineering the 2020 Decennial Census</i>	<i>July 2015</i>
Census Bureau Director receives DRAFT preliminary 2020 Census Design Decision	July 31, 2015
2015 National Content and Self-Response Test	Census Day – September 1, 2015
Census Bureau Director approves the preliminary 2020 Census Design Decision	August 31, 2015
The Census Bureau announces the preliminary 2020 Census Design Decision	September 2015

3.2 The Approval and Consultation Process

Once the Census Bureau Director has approved “The Path to the 2020 Census Design Decision”, it will be shared with external stakeholders (see Figure 6: Key Stakeholders for the 2020 Census). Given the high cost and impact of the census, with apportionment of representation and billions of dollars at stake, the Census Bureau recognizes the importance of consulting a wide array of experts and other stakeholders in planning and conducting the Census.

Figure 6: Key Stakeholders for the 2020 Census



Through their review and analysis of “The Path to the 2020 Census Design Decision”, these stakeholders will contribute to the preliminary 2020 Census design decision:

- Congress, the Office of Management and Budget, the Department of Commerce, and the Economics and Statistics Administration all play a major role in determining funding for and public perception of the Census.
- Oversight organizations, such as the Office of the Inspector General and the Government Accountability Office, conduct audits and reviews and provide recommendations that can help shape process and operations.
- Advisory groups, such as the National Academy of Sciences, the Census Scientific Advisory Committee, and the National Advisory Committee contribute to the planning, implementation, and evaluation of programs.

- Numerous partners and stakeholders advertise the Census and encourage local participation to assist the Census Bureau in counting everyone.
- The support and participation of the American public is essential to ensuring accurate and complete responses.

3.3 The 2020 Census Research and Testing Program

As outlined within the description of the four key design areas, there will be multiple research and testing activities associated with each design option and/or component. Table 2 illustrates those activities in relation to the four key design areas.

Table 2: The 2020 Census Research and Testing Program by Key Design Area

	Reengineering Address Canvassing	Optimizing Self-Response	Utilizing Administrative Records	Reengineering Field Operations
2012 National Census Test		X		
2013 Census Test			X	
2014 Census Test		X	X	
2015 Address Validation Test	X			
2015 Optimizing Self-Response Test		X		
2015 Non-Response Follow-up Test			X	X
2015 National Content and Contact Strategy Test		X		
Geographic Support System Initiative	X			
Decennial Modeling and Analysis	X		X	
ROckIT Simulations				X
2012 Gallup Poll			X	
American Community Survey	X	X	X	X

4. Conclusion

The Census Bureau is confident that adequate planning, research, and testing will result in a 2020 Census that is conducted at a lower cost per household (adjusted for inflation) than the 2010 Census, while maintaining high quality results.

Over the next year, the Census Bureau will concentrate its efforts around the four key design areas:

1. Reengineering Address Canvassing;
2. Optimizing Self-Response;
3. Utilizing Administrative Records; and
4. Reengineering Field Operations.

The Census Bureau recognizes that there are important areas of census design that must also be considered as 2020 approaches. A few examples include:

- The complete architecture of systems for the 2020 Census;
- A nationwide partnership program;
- Contracts related to advertising, communications, and telephony;
- Residence rules;
- Questionnaire content;
- Language support; and
- Hard-to-count populations.

Work related to these topics will begin in 2015 and 2016, but will not be included as part of the preliminary 2020 Census design decision.

5. References

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6. Appendix

1. Preliminary Lifecycle Cost Estimates for the 2020 Census, Version 1.1, August 28, 2014.
2. The Path to the 2020 Census Design Decision – Chart of Design Options and Components.