

2020 Census Program Management Review

Geographic Programs-Related Projects Maryann Chapin, Program Manager

3.101/3.102 – Master Address File (MAF) Error Model/
Independent MAF Quality Assessment

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Improvement

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8.108 – Field Staff Training

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WBS 3.101 – Master Address File (MAF) Error Model

Project Description:

Create a model that results in predictions of where MAF coverage error occurs and where it does not. This model will incorporate data that have been found to be correlated with coverage.

Project Objective:

Identify, test, and refine options that construct an address coverage model in order to gauge the ongoing quality of the census frames.



3.101 – Master Address File (MAF) Error Model (Cont.)

Recent Accomplishments:

- Initial software programs readied for executing model and identifying key variables as indicators of coverage error.
- Agreed with various stakeholders on April 2014 start date for the MAF Error Model Validation Test. Work is underway to identify the geographic blocks where the test will occur.



WBS 3.101 – Master Address File (MAF) Error Model

Risk Highlights:

- General timing/cancellation of the MAF Error Model Validation Test.
- Maturity/readiness of the data collection application to support the MAF Error Model Validation Test.



WBS 3.101 – Master Address File (MAF) Error Model (Cont.)

Challenges:

- A new data collection application is in development. Understanding the development schedule and when needed software capabilities will be available is critical to the MAF Error Model Validation Test.
- Determination of sample/site test design for the MAF Error Model Validation Test – staffing, acquisition of devices, etc.
- Integrating 3.101 Team's results with Targeted Address Canvassing decision.

Near-term Project Focus Items:

- Model development through data mining and incorporation of additional data.
- Sample design/site selection for the MAF Error Model Validation Test based on model results.



WBS 3.102 – Independent MAF Quality Assessment

Project Description:

Create measures of coverage of the MAF that work in concert with related measures resulting from the Geographic Support System Initiative to create a picture of the quality of the MAF.

Project Objective:

Identify, test, and refine options that:

- Assess the coverage of the MAF using the MAF error model.
- Develop understandable and useful statements of MAF coverage.



WBS 3.102 – Independent MAF Quality Assessment (Cont.)

Recent Accomplishments:

- Determined that quality/coverage measures will be created from the MAF Error Model, rather than the MAF Error Model Validation Test output.

Challenges:

- Integrating 3.102 Team's results with Targeted Address Canvassing decision.

Near-term Project Focus Items:

- Determine if sample size is sufficient for model testing.
- Sample design/site selection for the MAF Error Model Validation Test based on model results.



WBS 3.103 – Local Update of Census Address (LUCA) Program Improvement

Project Description:

The objective is to select a new LUCA operational design by September of 2014 based on recommendations resulting from research and feedback on those recommendations from tribal, state and local governments.

The primary question being addressed is what improvements to the 2020 LUCA Program are desired or required that are cost-effective and yield high data quality given:

- plans to implement intercensal address partnership activities as part of the Geographic Support Systems Initiative (GSS-I)?
- potential plans for a targeted address canvassing operation?
- additional analysis from 2010?
- input from local governments through focus groups on potential models for 2020 LUCA (in lieu of Test 19 which was cancelled)?



WBS 3.103 – Local Update of Census Address (LUCA) Program Improvement (Cont.)

Recent Accomplishments:

- Researched the enumeration rate of 2010 LUCA addresses received multiple times from multiple levels of government in order to learn if addresses we received from multiple levels of governments need the same level of verification (for non-targeted areas) as other addresses. In other words, does the fact that we get the address from multiple sources serve as validation?
 - Initial review of the LUCA addresses show that the enumeration rate was almost twice as high (60%) for addresses received from multiple governments than addresses received only once (33%).
- Continue to compile information and data about previous LUCA and related partnership programs from 2010 Census assessments, surveys and lessons learned documents in order to learn what worked well and what needs improvement for 2020 LUCA.



WBS 3.103 – Local Update of Census Address (LUCA) Program Improvement (Cont.)

Recent Accomplishments (continued):

- Initial research into the 2010 LUCA to 2010 Administrative Records match study showed that using strict matching rules (exact match on the complete five digit zip code and exact matching on the Apartment/Unit Number) prevented approximately 25% of the addresses from matching in one of the initial counties researched.
 - We will re-run the 2010 LUCA to 2010 Administrative Records match utilizing matching on 3 digit ZIP codes (and using software designed to fix errors in ZIP codes) as well as equivocated matches on Apartment/Unit number fields to determine if that improves the match rate without introducing errors in the match process.



WBS 3.103 – Local Update of Census Address (LUCA) Program Improvement (Cont.)

Risk Highlights:

- Administrative records of sufficient quality may not be available for all geographic areas.
- LUCA is planning to utilize tools developed for the GSS-I. This is dependent on the GSS-I developing software and processes to ingest files from partners.

Challenges:

- Close coordination and integration is needed between the 2020 and GSS-I programs in order to inform recommendations for the 2020 LUCA operational design.

WBS 3.103 – Local Update of Census Address (LUCA) Program Improvement (Cont.)

Near-term Project Focus Items:

- Continue to conduct address level research from the 2010 LUCA to Administrative Records match to understand why enumerated LUCA records did not match to administrative records and why LUCA records that matched to administrative records were not enumerated. This includes re-running the match with different match rules to determine if we can improve our match rate without introducing errors into the matching process.
- Determine if there is a correlation between the number of addresses added by an Option 1 LUCA participant in relation to the size of their government and the enumeration rate of those addresses. If the enumeration rate is affected by how many LUCA address a participant provides (based on size of government), it can help flag LUCA submissions for more detailed review.
- Research how/if GSS-I quality indicators for MAF/TIGER can be used when validating LUCA records.

WBS 4.107 – Non-ID Processing

Project Description:

- Determine options for enhancing automated address matching and geocoding processes for responses lacking a Census identification code.
- Establish options for operational cost savings by decreasing workload for Clerical Non-ID Processing and any associated field verification work.



WBS 4.107 – Non-ID Processing (Cont.)

Objectives:

- Identify, test, and refine options that lead to matching a Non-ID case to an existing address record in the Census living quarters inventory.
- In the case of a non-match, provisionally add the address for the Non-ID case to the Census inventory, along with determining its physical location and the associated geographic codes.
- Determine methods for verifying the existence and location of nonmatching addresses by other means than field work.



WBS 4.107 – Non-ID Processing (Cont.)

Key Knowledge Management Recommendations

1. Assuming greater speed and efficiency in processing census responses, as well as automated field operations in the 2020 Census, workload could go to field verification on a flow basis.
2. Conduct research to quantify the number of times cases were incorrectly geocoded during 2010 Non-ID Processing, which led to the deletion of the case.

WBS 4.107 – Non-ID Processing (Cont.)

Recent Accomplishments:

- Conducted Non-ID Processing on addresses from the 2013 National Census Contact Test, which completed interviews on January 31.
- Delivered requirements to system providers for Automated Non-ID Processing for the 2014 Census Test, which is currently scheduled for Q1, FY14. System providers include:
 - The Center for Administrative Records Research and Applications (CARRA)
 - The Decennial Systems and Contract Management Office (DSCMO)
 - Geography Division (GEO)
- In cooperation with the Optimizing Self Response (4.103) Team, initiated planning for testing new methods for collecting address data from Non-ID respondents (i.e., arranging the fields in different ways, implementing edits to provide prompts to the respondent, etc.)

WBS 4.107 – Non-ID Processing (Cont.)

Risk Highlights:

Risk Statement	Mitigation
<p>IF budget constraints scale back the scope of 2020 tests THEN testing and implementation of new Non-ID Processing applications and methods could be negatively affected</p>	<p>Mitigation is largely being addressed at the 2020 Program level. However, the team has also identified ways to achieve testing goals with smaller scale testing of proposed enhancements to Non-ID Processing even if the formal field tests do not occur</p>
<p>IF there is no measure by which the Non-ID team may assess the quality of the administrative record data to be used during testing THEN any application of these data to Non-ID Processing cannot be effectively evaluated or recommended</p>	<p>There are 2020 teams researching administrative record files and evaluating them for quality. Any files not assessed for quality prior to testing will be compared to similar files to establish a quality measure</p>



WBS 4.107 – Non-ID Processing (Cont.)

Risk Highlights (cont.):

Risk Statement	Mitigation
<p>IF address data collected from various modes are not consistent by the end of the 2020 R&T phase, THEN the Non-ID team will be unable to measure the true impact of the modifications to automated Non-ID Processing because the inconsistent address data could affect the results</p>	<p>The Non-ID team has met/will meet with representatives of the relevant response modes in order to establish criteria for the collection of address data in a standard format. The Non-ID team has already provided requirements for the internet questionnaire and telephone interview instruments</p>
<p>IF Non-ID Processing systems cannot meet the requirements of daily processing during the 2020 R&T phase, THEN an assessment of the Non-ID Processing as part of an integrated system that simulates a production environment cannot be achieved, severely limiting the team's ability to obtain adequate data/metrics on which 2020 plans could be reasonably based.</p>	<p>The Non-ID team has provided the WMS team, CARRA, and GEO with requirements for daily Non-ID data transfers needed in Fall 2013, hopefully providing sufficient lead time to establish the systems needed for daily processing. The team will continue to check in with members of the WMS team, CARRA, and GEO biweekly in order to track their progress.</p>

WBS 4.107 – Non-ID Processing (Cont.)

Challenges:

- Adapting as the other research projects and the overall 2020 Program evolve. However, by keeping open lines of communication and seeking other opportunities for integration, the team can effectively address this challenge
- Research involving administrative records (AR) data is constrained by the approval process for accessing the datasets and releasing results from using them. However, the team is working with 2010 Non-ID and AR datasets to build the software and systems which can be adapted for use with current data, and also working with the appropriate staff to expedite approval



WBS 4.107 – Non-ID Processing (Cont.)

Near-term Project Focus Items:

- Complete analysis of results from automated Non-ID processing in CARRA and GEO for the workload from the 2014 National Census Contact Test.
- Conduct usability testing of an interactive geocoding map interface (census block selection tool), which could be integrated with the Census questionnaire to help assign/confirm geographic location of a response.
- In cooperation with the Optimizing Self Response team, conduct testing on several different arrangements of the address collection fields on the internet instrument to collect address data consistently and accurately, which will facilitate resolution during automated processing.

8.101 – Improving Quality Control

Project Description:

- Research ways to improve Quality Control for field data collection, by:
 - Using administrative records to focus field work on suspicious cases and/or reduce field work for both listing and enumeration operations.
 - Using GPS data to spot potential falsification
 - Detecting falsification or deviations from procedures at the LCO level
 - Predicting falsification at the interviewer level, and
 - Automating Observation Checklists.
- We are currently involved in three field tests:
 - Quality Control Test, primarily an instrument test with some GPS research, conducted by HQ staff.
 - MAF Error Model Validation Test, during which we will test our listing QC ideas.
 - 2014 Census Test, during which we will test our enumeration/reinterview ideas

8.101 – Improving Quality Control (Cont.)

Recent Accomplishments:

- Completed planning for the Quality Control Test.
- Began execution of the Quality Control Test.
- Completed an internal solicitation document to get bids to program our Automated Observation Forms.
- Received access to the administrative records data and started comparing our 2010 Nonresponse Followup reinterview data to the administrative records data as an initial test of the potential of using administrative records data in place of field reinterview.

8.101 – Improving Quality Control (Cont.)

Risk Highlights:

- Our biggest risks are focused on system development. For all of these, we continue to stress the importance of QC testing.
 - If the system development deemphasizes QC requirements and functions over production functions, then QC functions may not be available or automated.
 - If the systems are not in place to handle administrative records during field tests, then the opportunity to test the use of administrative records for QC purposes will be delayed.
 - We are considering the option of using ACS to test our administrative records ideas.
 - If funding for the development of a matching application is not available, then we may not be able to develop and test an effective reinterview program during the R&T phase.

8.101 – Improving Quality Control (Cont.)

Challenges:

- Balancing our instrument development, test planning, and research work.
 - As the Quality Control Test approached, significant time was devoted to test planning, preparation and execution. Once testing is complete, we expect the instrument development and test planning time requirements to shrink, allowing more time to focus on research.

8.101 – Improving Quality Control (Cont.)

Near-term Project Focus Items:

- Finish and compile the results of the Quality Control Test.
- Compare the 2010 Nonresponse Followup Reinterview data to 2010 administrative records data to estimate the value of administrative records for reinterview, followed by more detailed research based on the results.
- Compare the 2010 Address Canvassing Dependent Quality Control data to the 2010 administrative records data to estimate the value of administrative records for listing quality control purposes.
- Continue analyzing 2010 data (from various operations) to spot LCOs with suspicious results, such as extremely high production rates, that might point to procedural violations.
- Continue developing a model of falsification in 2010 to see if we can find predictors for falsification.
- Receive bids from other divisions within the Census Bureau for development of the Automated Observation Form.

WBS 8.108 – Field Staff Training

Project Description:

To improve the efficiency of training field staff to better utilize advanced training techniques, to get better data at lower costs.

Project Objectives:

- a) Improve field staff understanding of operational goals.
- b) Better prepare field staff for expected exceptions and problems inherent to geographic areas (e.g. specific training modules).
- c) Ensure training is conducive to adult learning and allows interaction with supervisors, but maintains cost efficiency.
- d) Provide more consistent training across operations, which can be referenced after training is complete.
- e) Design training tools so that they can be integrated into field automation technologies (e.g. manuals and guides available electronically, videos can be watched, and training applications will be available on the device, laptops, and/or computers).
- f) Research training techniques used by private sector companies and other government agencies.

WBS 8.108 – Field Staff Training (Cont.)

Key Knowledge Management Recommendations:

- Evaluate the initial training program to determine if experienced workers could be trained via a self-study and job aid instead of classroom training. A field practice exercise could also be included in the initial training program. A more targeted training may result in better fieldwork outcomes.
- Utilize the mobile device to help train staff interactively (especially if using verbatim training, which can be tiring). This may improve the effectiveness of the training, which should result in fewer errors.
- Users found the hands on parts of training sessions very beneficial, and provided a good knowledge foundation on procedures. Users were given test data that they could use during the training sessions, which was also available for refresher training if they wished to view it again.



WBS 8.108 – Field Staff Training (Cont.)

Recent Accomplishments:

- Successfully completed the team's 90-Day Checkpoint on 2/15/13 (the 120-Day Checkpoint is scheduled for 3/22/13).
- Identified and had team members begin to watch various free online webinars, designed to inform and teach about how to create and implement new, innovative, and different methods of automated training.
- Made significant progress towards the completion of basic team-related documents (e.g. Project Overview, Project Plan, Methodology and Research), in order to begin work towards meeting project goals.



WBS 8.108 – Field Staff Training (Cont.)

Challenges:

- Implementation: In general, need to carefully consider what training items and products can logistically and feasibly be added into the training plans of field tests (e.g. the MAF Error Model Validation Test), depending upon the timing of the tests. Will need to start with smaller-scale implementation and increase from there.

