

2015 Address Validation Test
Partial Block Canvassing Component and Related Master Address File-to-Imagery Comparison

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What Is Partial Block Canvassing?

Partial block canvassing is a field data collection methodology that focuses fieldwork on a specified location or area within a census block (or other geographic unit) rather than traditional address canvassing in which the field worker traverses the entire census block. As such, PBC focuses on acquiring information with which to update the address list and is less focused on validating information already on the address list. PBC, therefore, is part of a more comprehensive process for analyzing quality and completeness of the address list and housing stock, which would also include procedures for identifying and validating areas in which the address list is current and complete.

PBC depends on a preceding operation that identifies areas and locations to be focused upon. The primary operation leading to identification of blocks for PBC is the Master Address File (MAF)-to-Imagery Comparison, which is part of the Targeted Address Canvassing Research, Model, and Area Classification (TRMAC) Project (described below). Preceding operations, however, could encompass any efforts that identify specific locations in which a review of the two or more sources reveals differences or discrepancies or a need for updated information. An example of a difference or discrepancy could be when one source indicates, say, 20 housing units in a block, another source indicates 25, and based on a review of imagery or another third source, it is not apparent which source is correct. This could occur in blocks that appear to be “built out,” but in which it could be possible that garage or basement apartments or other hidden units exist. PBC could also be implemented to obtain information for new housing units that are visible in imagery and are clustered in a portion of census block.

PBC is not intended to be a coverage measurement methodology. By its very nature, PBC is neither a random sample nor a representative sample. PBC is not a method by which to validate and assure the completeness and accuracy of the full address list. Further, PBC is not a method by which to discover potential gaps or deficiencies in the address list or address and housing unit attributes. For the methodology to be successful, fieldwork locations and objectives must be specified. In other words, PBC does not involve simply walking or driving around a census block or other geographic area looking to see if there are any changes to note or updates to make.

Comparison of the MAF to Imagery

The TRMAC Project Team conducted a pilot project in Spring 2014 to assess the feasibility of using imagery to assess the completeness of information in the MAF as well as to detect change over time. This pilot project laid the groundwork for planning and eventual implementation of a more comprehensive, nationwide review. This methodology also provides the basis for identifying blocks for inclusion in the PBC Test (described below). Comparing the MAF with imagery consists of using imagery for a visual review of housing units to identify and classify individual census blocks. The review is a three-step process:

- Automated census block classification based on MAF housing unit type (collected as part of the 2009 Address Canvassing operation) and whether the number of MAF addresses has remained stable, increased, or decreased compared to 2010 Census housing unit counts;
- Manual review of imagery to identify stability or change including whether a census block appears to be built out or whether there is evidence of possible future growth; and
- Manual comparison of census block classification and number of MAF addresses with housing units visible on imagery to affirm consistency between the number of addresses in the MAF and housing units on imagery or to identify discrepancies.

Automated classification based on comparison of 2010 Census housing unit counts and 2013 MAF address counts suggest a substantial amount of stability in the nation. Of the 11.3 million census blocks (as of 2013), nearly 4.3 million (38.0 percent) had zero population and housing in 2010 and no addresses within the MAF in 2013. An additional 5.1 million blocks (45.3 percent) encompassing nearly 80.7 million addresses (58.2 percent) contained the same number of addresses in 2013 as housing units counted in the 2010 Census. This classification process, being on the comparison of the 2013 MAF to the 2010 Census, may not reflect all changes that have occurred since. Change detection through comparison of multiple vintages of imagery and other sources is critical to fully assessing the extent of housing unit change and the degree to which the MAF is kept current. This process also identified the amount of change within blocks by housing unit type and highlighted categories of areas that may warrant higher priority in review and updating based on imagery and other sources. For example, the number of addresses in census blocks containing five or more mobile homes increased by 4.4 percent between 2010 and 2013. The number of addresses in blocks containing small multi-unit structures (two to nine units) increased by 1.8 percent. Both of these types of housing units present challenges when updating the address list based solely on the DSF and other sources.

In this research project, interactive review focused on census blocks in 29 counties. The counties chosen for review reflected different rates of estimated housing unit change, urban/rural status, contained Address Validation Test (AVT) sample blocks, or whether the government was a participant in the GSS-I Partnership Program. Within each county, reviewers selected census blocks representing a variety of development patterns, such as densely and sparsely developed areas, older suburban neighborhoods, newer development, single family home developments, areas containing concentrations of apartment buildings, and areas with mixes of residential and commercial uses. Reviewers visually compared multiple vintages of imagery and classified

census blocks as stable (no visible change), growth, or decline. Of the 11,086 census blocks reviewed in the 29 counties, 82 percent showed no change according to both the imagery-based review and comparison of 2013 MAF address counts to 2010 Census housing unit counts. Reviewers also compared results of automated classification to imagery-based analysis results for the census block. The automated classification results matched imagery-based results in 95.4 percent of the census blocks. This research project demonstrated the value in using imagery to assess whether the MAF is complete and accurately reflects the number of housing units visible on imagery. The project also confirmed expectations that, for many census blocks—especially those that are “built-out” with no additional land area available for residential development,, the number of addresses and housing units has remained stable and consistent since the 2010 Census.

Partial Block Canvassing Component of the 2015 Address Validation Test

The purpose of the PBC component of the Address Validation Test (AVT) is to acquire metrics and information for use in analyzing the appropriateness and utility of PBC as a methodology for collecting information to update or validate information within the MAF/TIGER database.

Partial Block Canvassing Test Objectives

- Test ability to navigate to a PBC worksite using locational information produced by the Targeted Address Canvassing Research, Model, and Area Classification (TRMAC) in-office interactive review of imagery and other information. Locational information could be:
 - Lat/long coordinates for a specific location or structure
 - Coordinates bounding two or more housing units
 - A pair of addresses bounding the area to be micro targeted; e.g., between 101 Oak Road and 111 Oak Road.
 - A specific street or street segment; e.g., all houses on Brandnew Court; new houses along Oldgrowth Road between Oak Road and Maple Road.
- Identify potential issues related to non-professional staff conducting the fieldwork, such as, allowing for updates near the targeted geography, defining boundaries of updates without allowing for exceptions to procedures, defining locations when the potential updates occur on a street that is not in TIGER, matching “add” actions to the list of ungeocoded records, and any other operational exceptions/issues.
- Identify potential issues for professional staff: do they need aerial imagery to do their job, what other tools are needed, could procedures be designed to minimize costs for the fieldwork, and other potential exceptions/issues.
- Collect specified address information for use in comparison to information collected for the same census block through traditional canvassing as part of the larger Address Validation Test. This will be used to analyze whether PBC is sufficient or whether a traditional whole-block canvass detected additional updates.
- Collect information that can be used to assess and validate the accuracy of local government address lists.
- Collect information that can be used to assess and validate the accuracy of block classifications assigned by the TRMAC interactive review.

Steps Necessary for Partial Block Canvassing

1. In-office review identifies areas in which the MAF is inconsistent with housing units visible in imagery and/or identifies areas in which sources of address/housing unit counts differ and cannot be resolved through review of imagery or other source materials, or consultation with a local government partner.
2. In-office reviewers produce necessary information for use by field workers to navigate to the specified location for updating. This information also will define the geographic scope of the work and the specific information for collection in the field.

Locational information could be:

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Selection of Blocks for Partial Block Canvassing

The PBC component of the AVT will encompass 600 to 1,000 census blocks. The TRMAC Team within Geography Division will identify blocks through its interactive review process. To the extent possible, the team will select blocks that also are included in the MAF Model Validation sample. This will facilitate analysis of fieldwork results obtained through micro targeting as well as a through a traditional canvassing operation.

In-office review identifies inconsistencies between numbers of addresses in the Master Address File (MAF) and housing units visible in imagery. Blocks in which updates are clustered in a relatively small area are candidates for PBC. Note that initial findings from the in-office review indicate that the vast majority of blocks (over 80%) are not exhibiting change, and are consistent when comparing the imagery against the MAF, and therefore would not need to be canvassed through either a full or partial block canvassing operation.

Staffing

Headquarters and Regional Office professional staff will conduct fieldwork activities for the PBC component. We anticipate the need for 20-30 professionals, primarily geographers, but also other professionals.

Assignments will consist of approximately 30-35 blocks, with work occurring over a one-week (five work days) period.

Data Collection in the Field

Hardware/Software

Data collection in the field will use the Census Bureau's corporate Listing and Mapping Application (LiMA). Management of work assignments, loading of data, etc. will use existing systems and processes associated with the LiMA.

No new software is required for the PBC test. No new systems are required.

Schedule

Fieldwork is scheduled for December 15, 2014 to January 15, 2015. This coincides with the schedule for the LiMA systems test 1.