In-Office Address Canvassing: Methods for Validating the Census Bureau's Address List for the 2020 Census

Geography Division
US Census Bureau

*The following slides do not contain Title 13 information

Location Matters

<u>Overarching Goal of the Census:</u> To count everyone once, only once, and in the right place.

Spatial accuracy in MAF/TIGER data supports this overarching goal.

Use of imagery in office and field data collection and maintenance enables more precise and accurate placement of housing units, road features, and boundaries.

Imagery provided by: GIS Data Coordinator, D.C. Office of the Chief Technology Officer.
State Boundary: U.S. Census Bureau TIGER line file.

The 2020 Decennial Census:
Goals and Key Innovation Areas

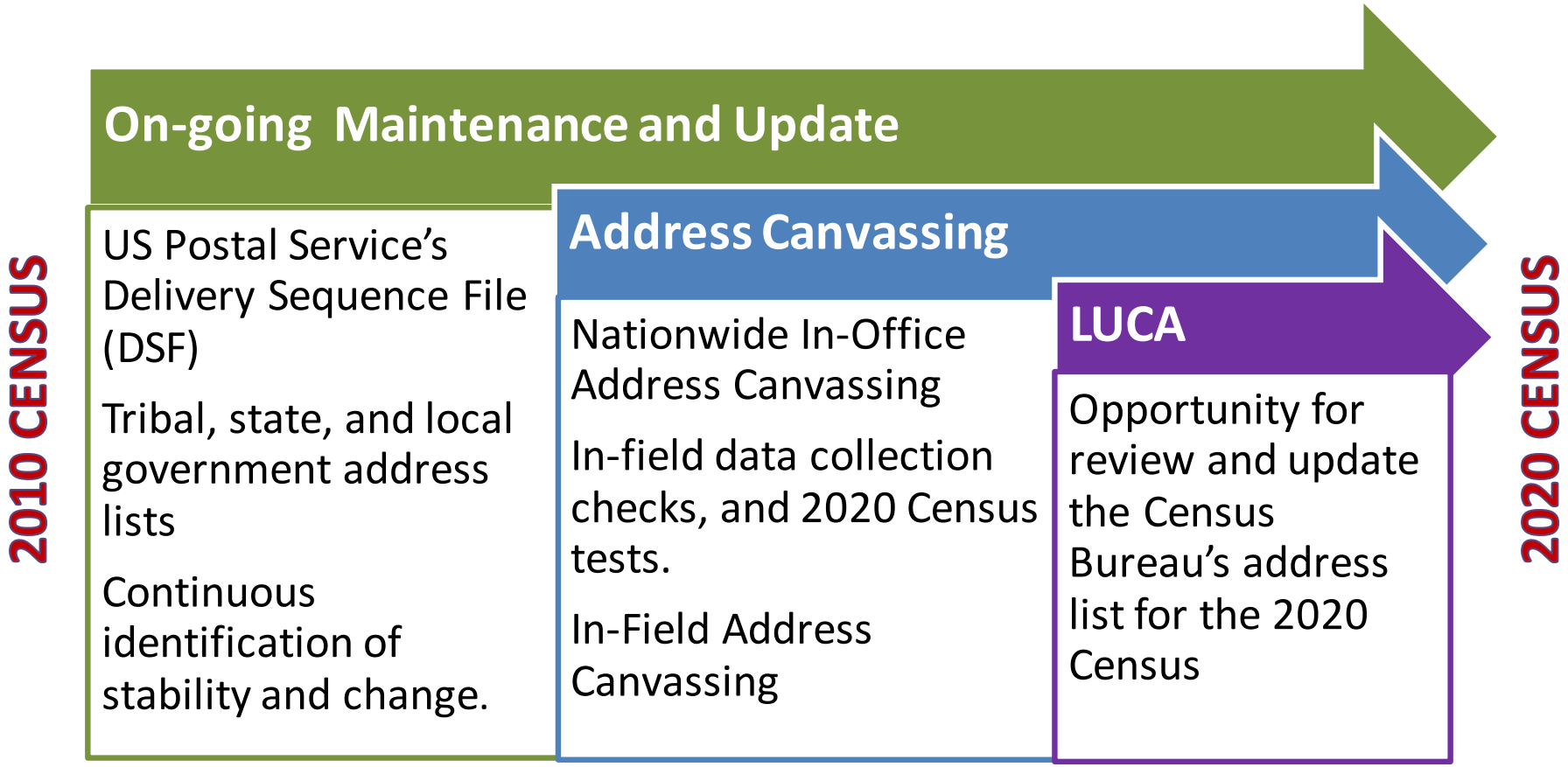
Overarching Goal: To count everyone once, only once, and in the right place.

Challenge Goal: Conduct a 2020 Census at a lower cost per housing unit (adjusted for inflation) than the 2010 Census, while maintaining high quality results.

Focus on Four Key Innovation Areas

- Reengineering Address Canvassing
- Optimizing Self-Response
- Utilizing Administrative Records and Third-Party Data
- Reengineering Field Operations

Maintaining an Accurate Address List



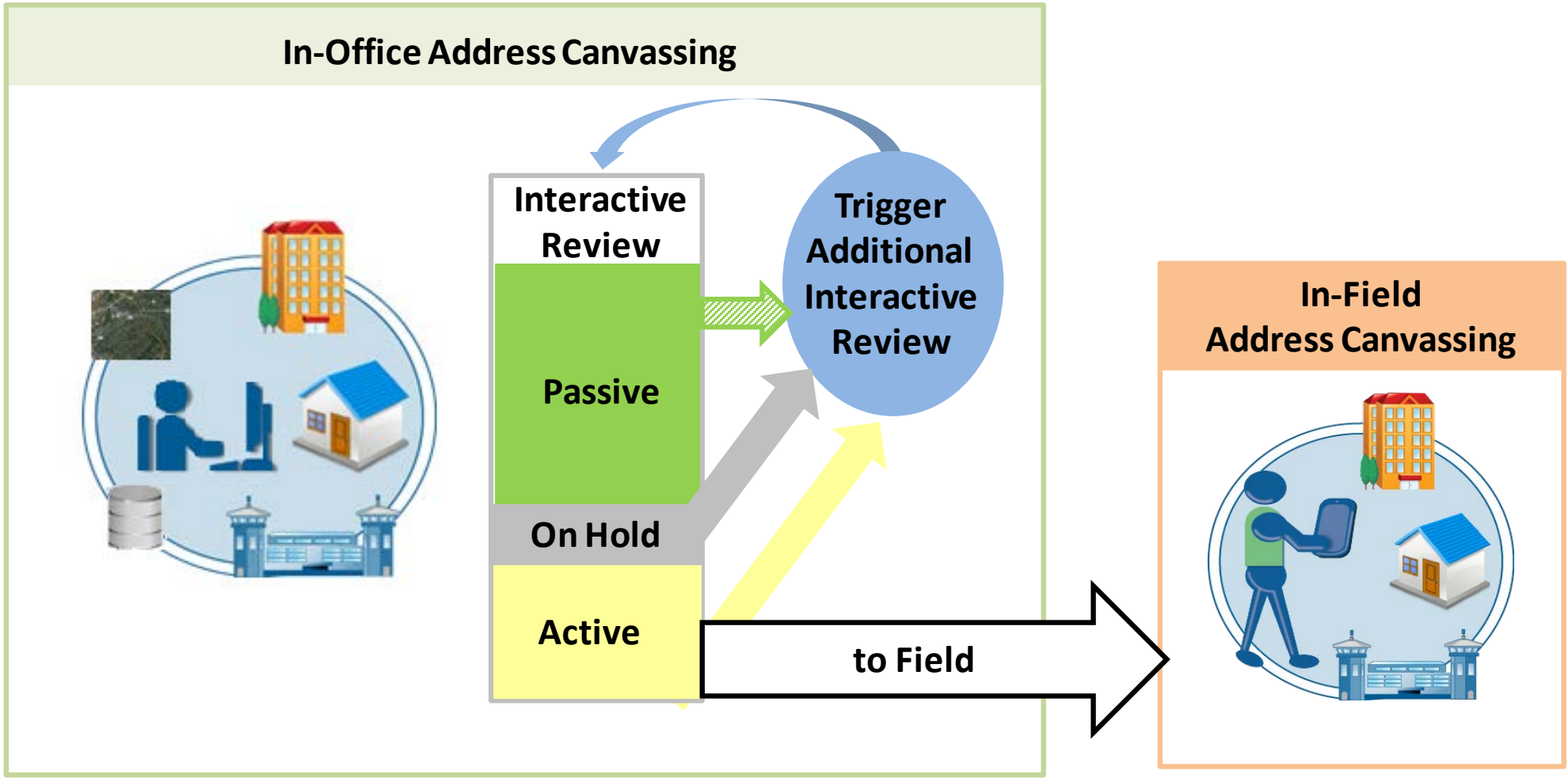
What is Address Canvassing?

- Address canvassing is the process by which the U.S. Census Bureau validates, corrects, or deletes existing Census Bureau addresses, adds missing addresses, and adds or corrects locations of specific addresses before a decennial census.

- In previous address canvassing operations, field representatives traversed every road and visited each residential address in the United States.

Reengineered Address Canvassing

In-Office Address Canvassing and In-Field Address Canvassing



In-Office Address Canvassing: Interactive Review

- In Interactive Review (IR) clerical staff use a customized application to:
  - Compare housing units that existed in 2009 baseline images, to what exists in current imagery to identify change on the ground.
  - Compare counts of housing units in the Master Address File (MAF) to housing units shown in current imagery to identify coverage or geocoding issues.
  - Assess current imagery for signs of stability or future change.

- Imagery is a critical component of In-Office Address Canvassing:
  - we have the ability to canvass blocks from an office location without having to go out and do so in the field.

Outcomes of Interactive Review

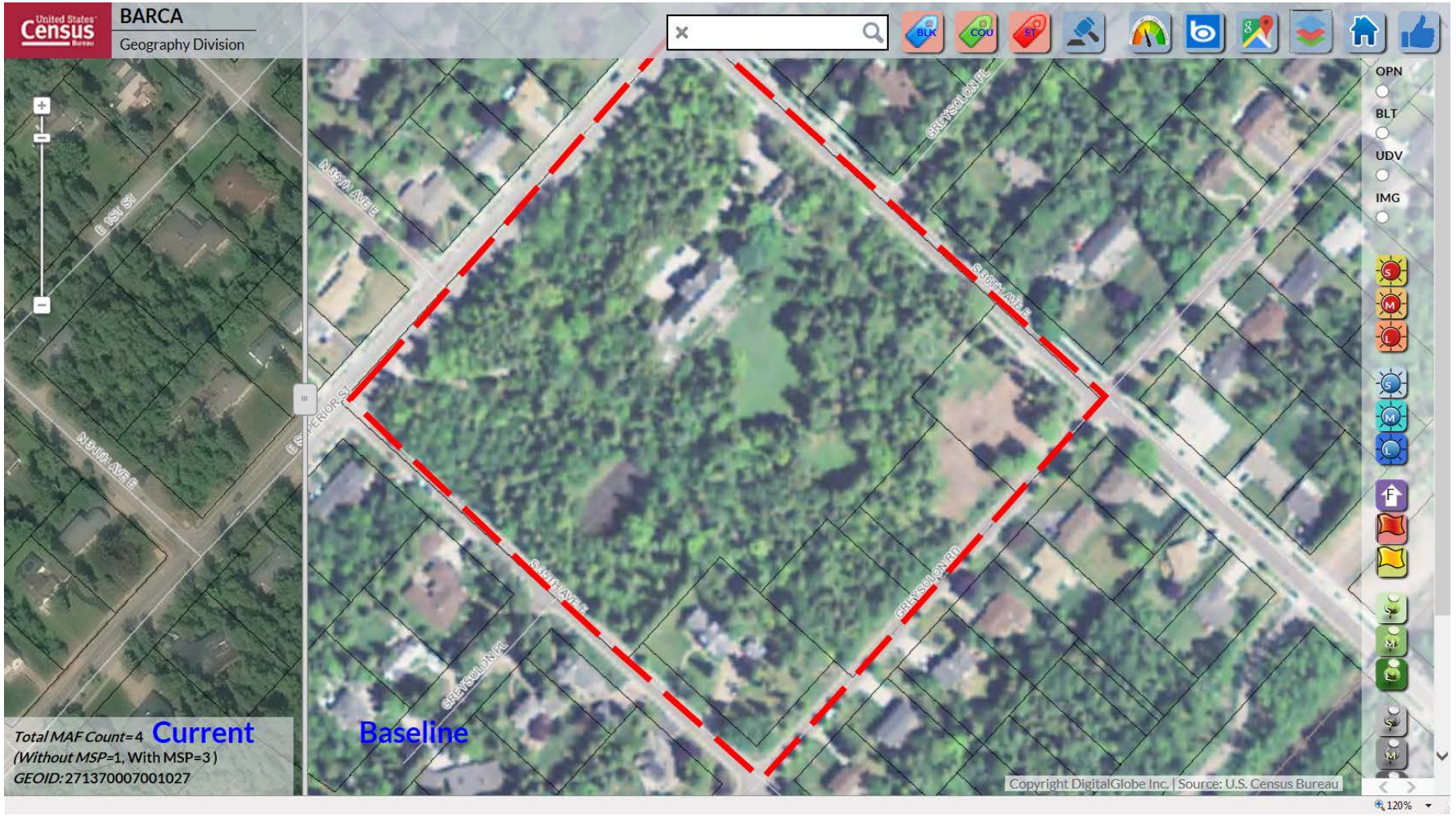
- Outcomes from the Interactive Review of each census block:
  - **Passive** – Blocks with no coverage issues and is not likely to experience change before the census. These blocks will not be sent to the field for additional review.
  - **Active** – Blocks where some kind of coverage or change was identified. These blocks may be reviewed again and/or sent to the field for In-Field Address Canvassing.
  - **Hold** – Blocks may be put on hold at a later time if imagery is unclear or cloudy.

- Select blocks are triggered for a new review when the following are detected:
  - The block was previously placed on-hold for imagery issues(cloud/haze).
  - The opportunity for future growth was previously detected.
  - The number of addresses in the MAF for the block has changed.
  - A natural disaster occurred in the area since the first review.

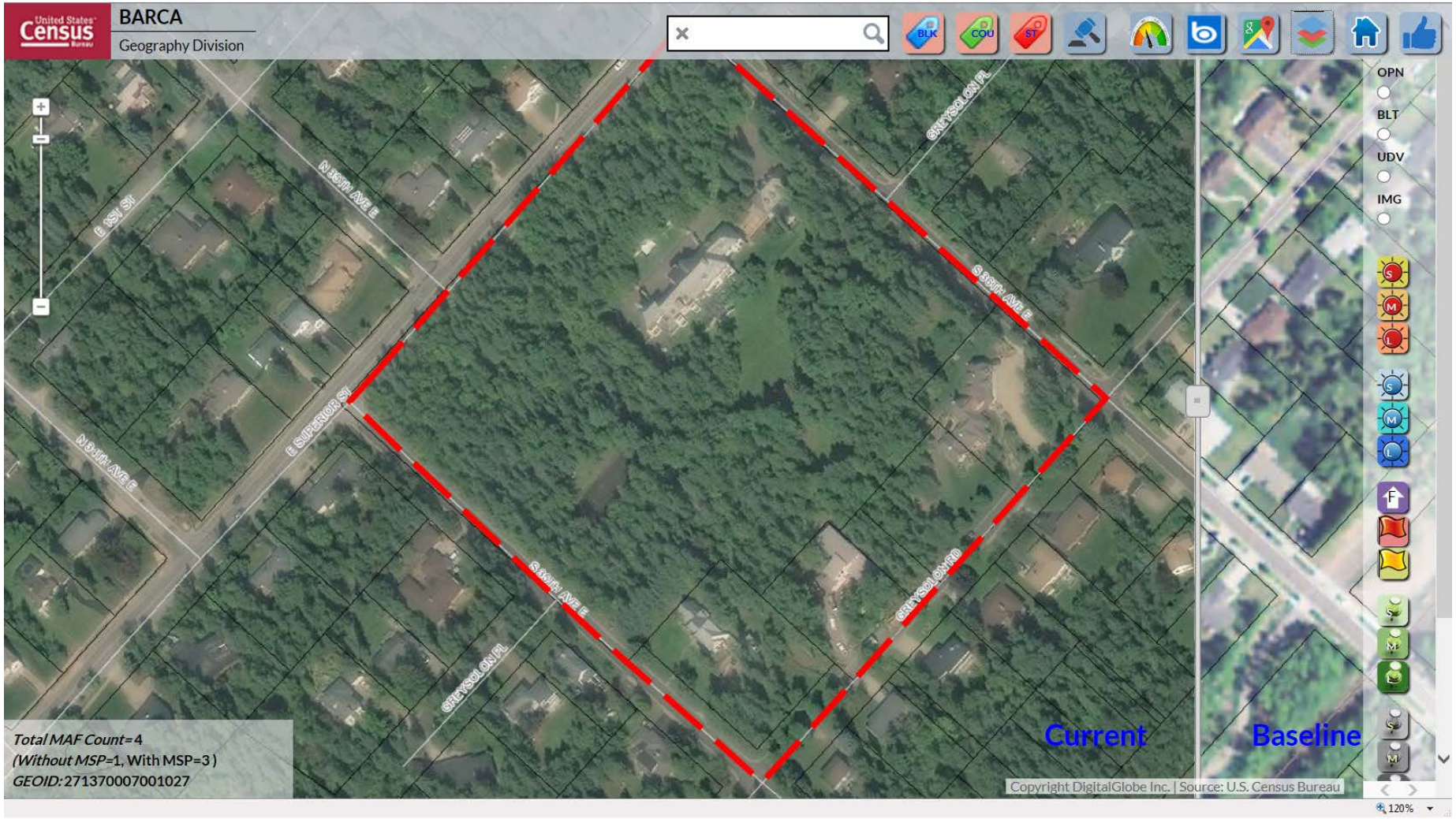
Block Assessment, Research, and Classification Application (BARCA)

Non Title 13 information.

Baseline Imagery



Current Imagery



Triggers: Bringing Blocks Back into Interactive Review

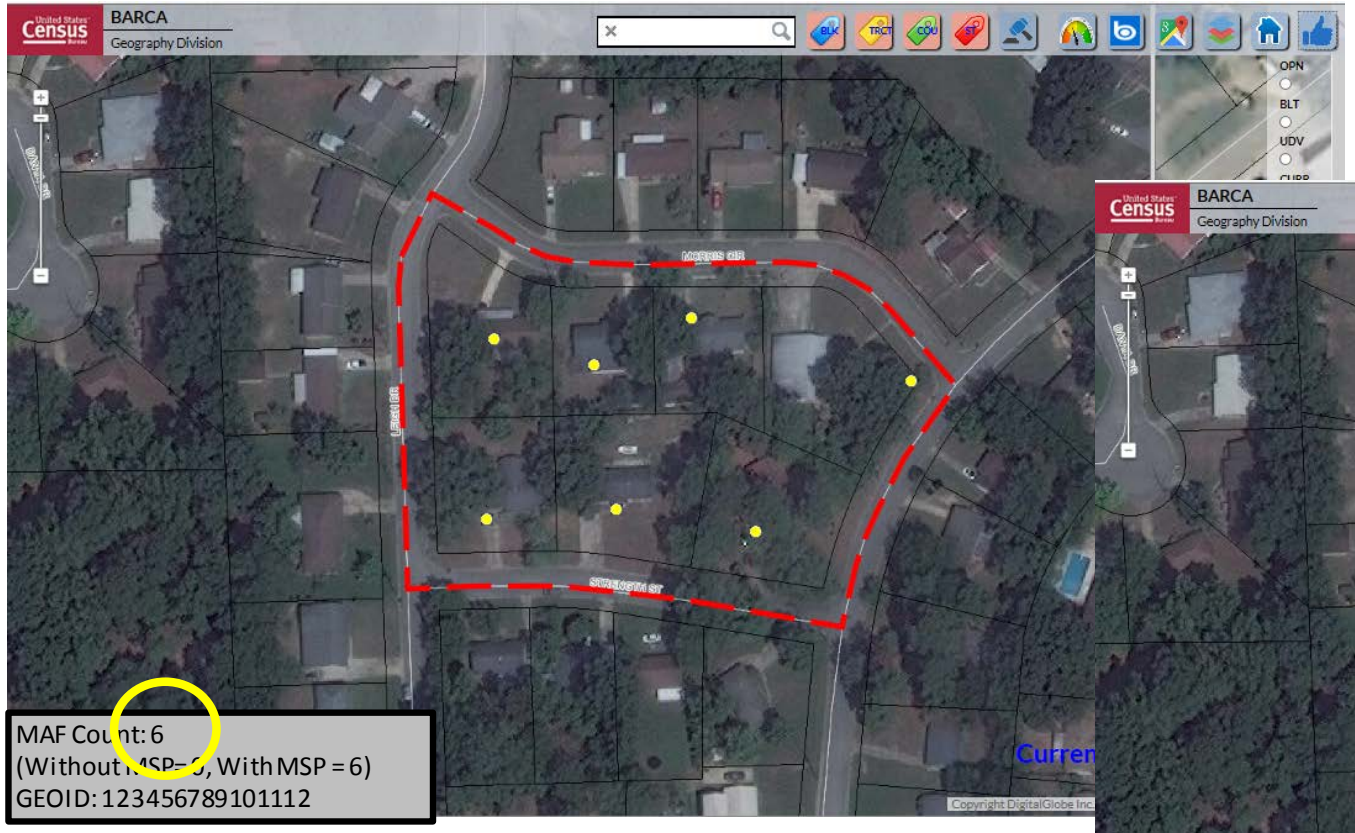
- A trigger is an “event” that provides information and/or data that suggest the need to send a block back through IR or ABR. Examples include:
  - New, or better resolution, imagery becomes available.
  - Update to the count of addresses in a block due to processing of the US Postal Service’s Delivery Sequence File (DSF) or a tribal, state, or local government address list, or other Master Address File update processes.
  - Automated imagery review/analysis that detects, or suggests, the existence of new housing.
  - A natural disaster (hurricane, flood, tornado) affects housing stock in an area to the extent that inhabitability, deliverability of mail, and existence of structures may be affected.

Trigger Example

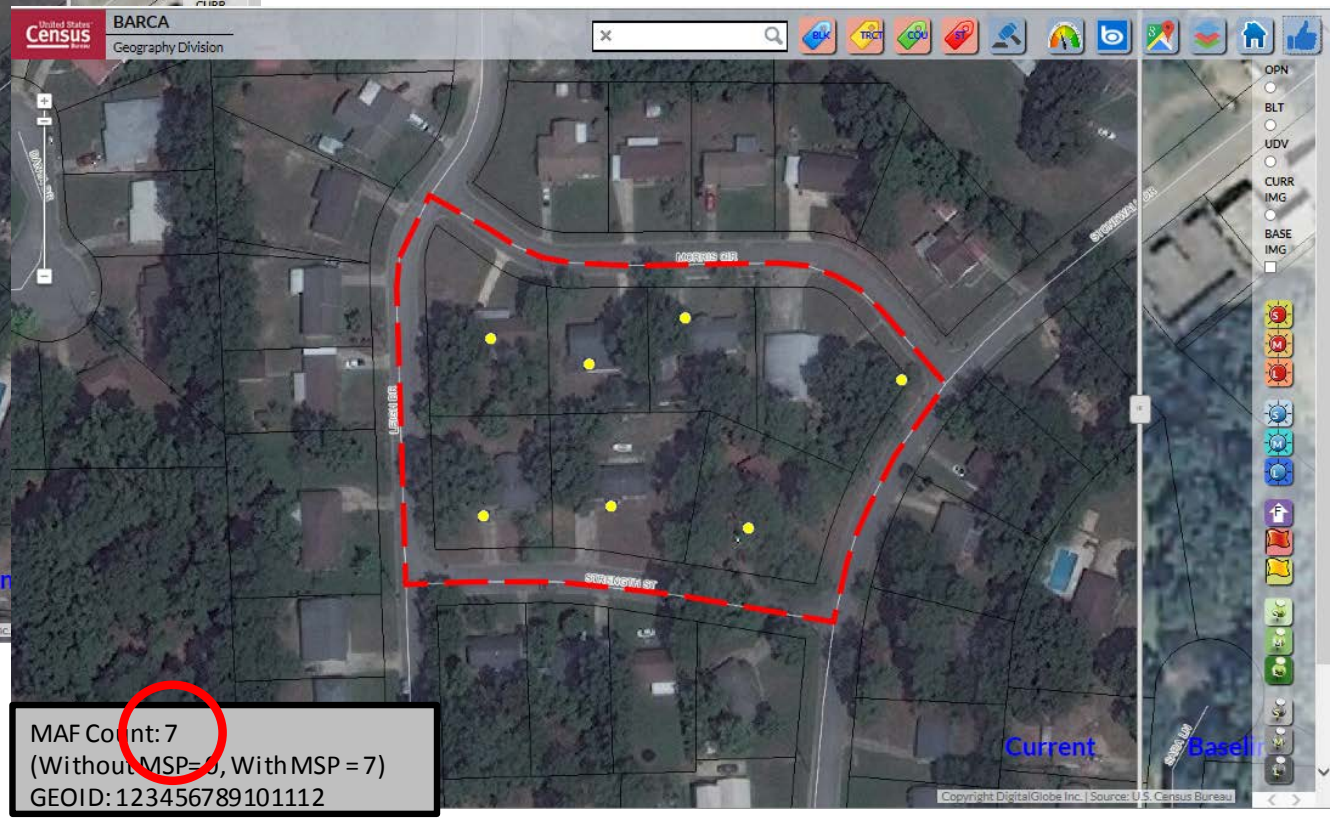
- Change in count of addresses in a block after an update to the Master Address File.
  - Compare counts in a block and trigger for re-review in which there is a change.
  - In this example, Interactive Review indicates that the updates to the Master Address File have kept up with change on the ground.

Trigger Example

Note: Slide does not contain Title 13 information.



Initial Review: December 2016 Review finds seven housing units on the ground, but six in the Master Address File.



MAF Count Changed: January 2018. Block triggered. Review confirms that the number of housing units in the Master Address File matches the number on the ground.

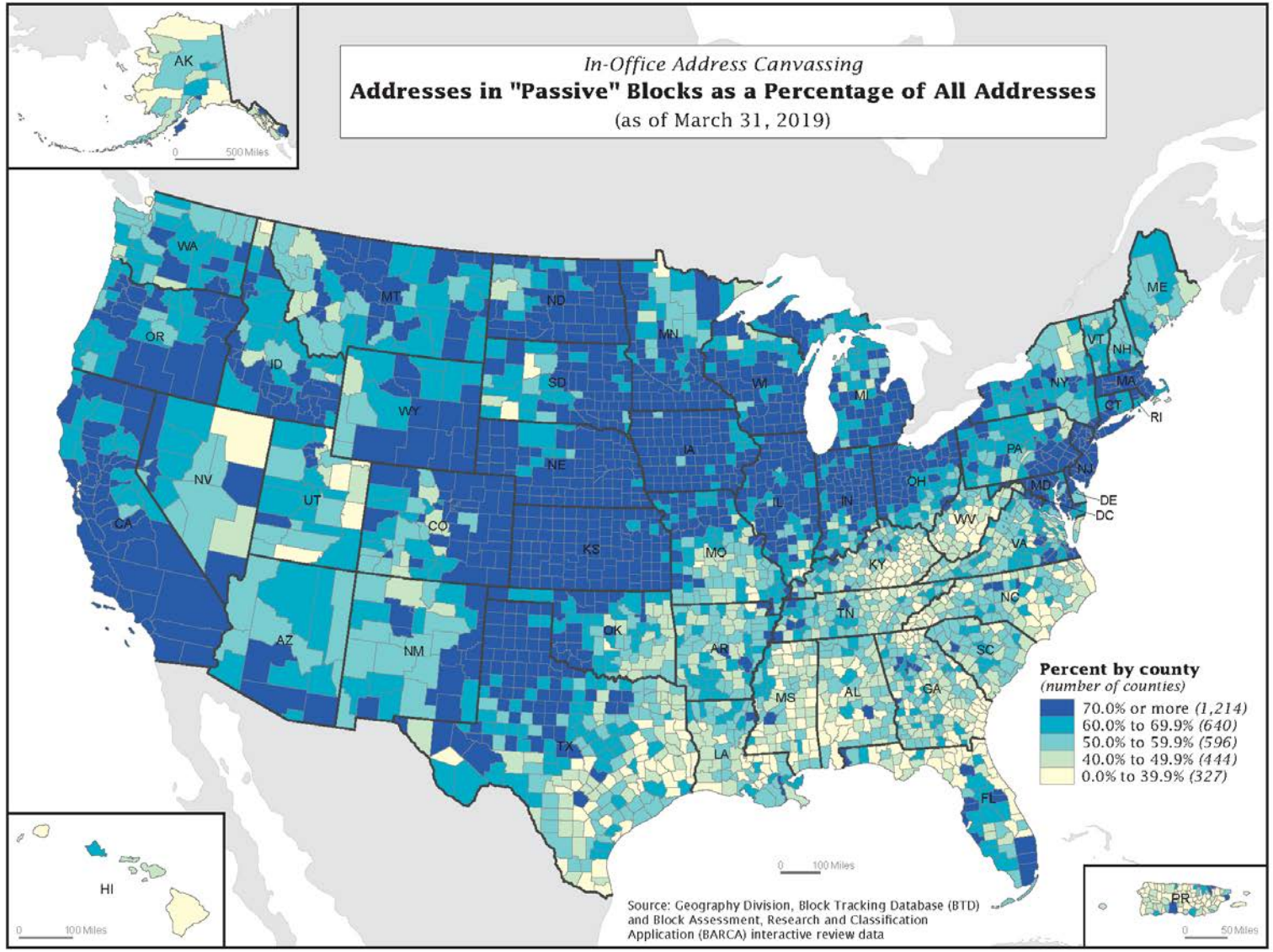
Interactive Review Production Results

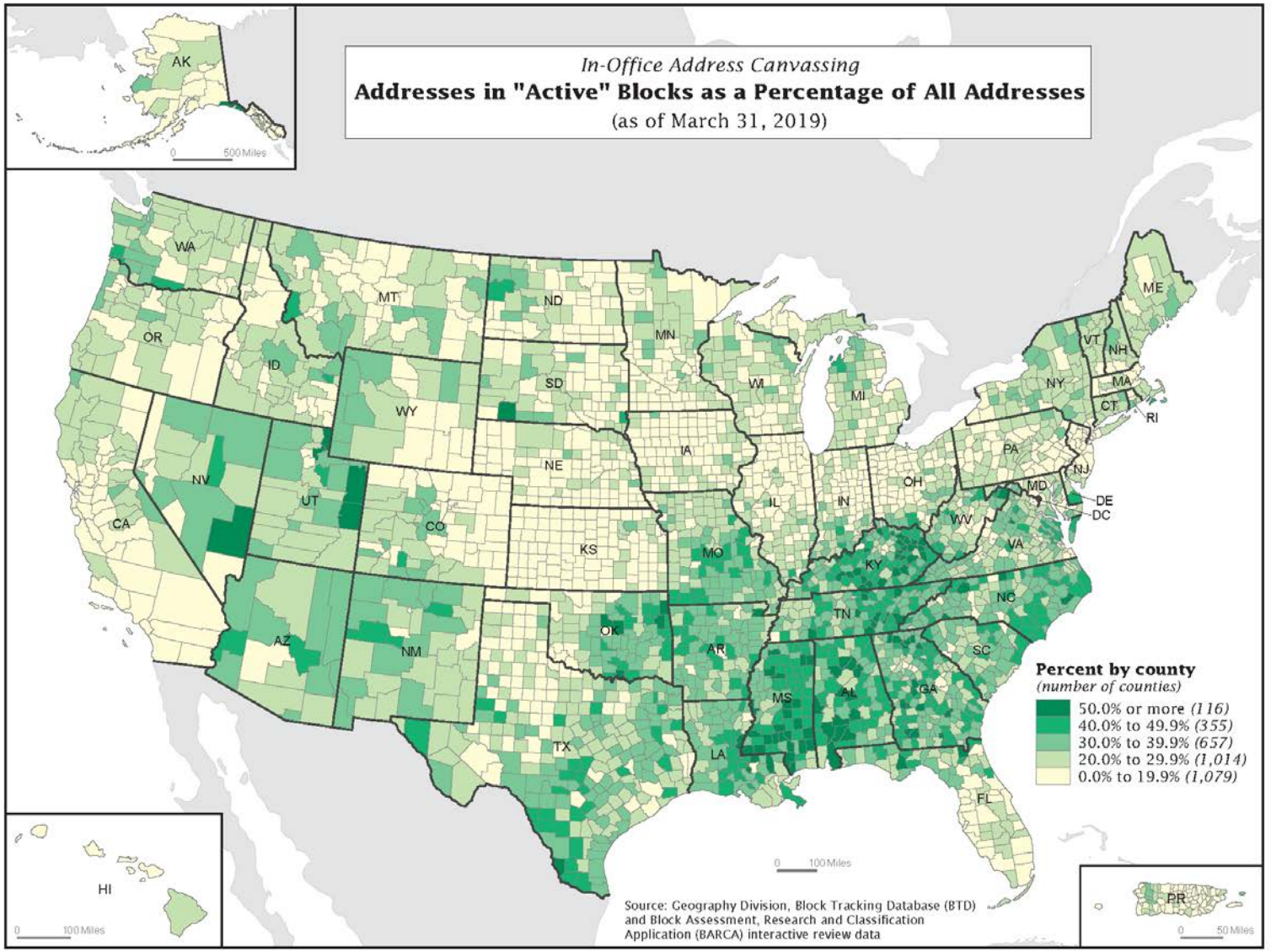
First pass of Nation, June 2017

Status	Block Counts	Blocks Percent
Active	1,952,927	17.5%
Passive	8,078,907	72.4%
Hold	381,724	3.4%
Triggered	741,928	6.7%
Total	**11,155,486**	**100.0%**

April 1, 2019

Status	Block Counts	Blocks Percent
Active	1,093,488	9.8%
Passive	9,710,702	87.0%
Hold	173,308	1.6%
Triggered	177,988	1.6%
Total	**11,155,486**	**100.0%**


In-Office Address Canvassing
Addresses in "Passive" Blocks as a Percentage of All Addresses
(as of March 31, 2019)
AK
0 500 Miles
WA
OR
CA
ID
NV
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
LA
WI
IL
MS
MI
IN
KY
TN
AL
OH
WV
GA
FL
SC
NC
VA
PA
NY
MD
DE
NJ
CT
RI
MA
VT
NH
ME
DC
HI
0 100 Miles
PR
0 50 Miles
0 100 Miles
Percent by county
(number of counties)
70.0% or more (1,214)
60.0% to 69.9% (640)
50.0% to 59.9% (596)
40.0% to 49.9% (444)
0.0% to 39.9% (327)
Source: Geography Division, Block Tracking Database (BTD)
and Block Assessment, Research and Classification
Application (BARCA) interactive review data


In-Office Address Canvassing
Addresses in "Active" Blocks as a Percentage of All Addresses
(as of March 31, 2019)
AK
0 500 Miles
WA
OR
CA
ID
NV
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
LA
WI
IL
MS
MI
IN
KY
TN
AL
OH
WV
GA
FL
SC
NC
VA
PA
NY
MD
DE
NJ
CT
RI
MA
VT
NH
ME
DC
HI
0 100 Miles
PR
0 50 Miles
0 100 Miles
Percent by county
(number of counties)
50.0% or more (116)
40.0% to 49.9% (355)
30.0% to 39.9% (657)
20.0% to 29.9% (1,014)
0.0% to 19.9% (1,079)
Source: Geography Division, Block Tracking Database (BTD) and Block Assessment, Research and Classification Application (BARCA) interactive review data

Nationwide In-Field Address Canvassing Workload

	Basic Collection Units		Housing Units	
	Number	Percent	Number	Percent
Total in Self-Response Areas (Type of Enumeration Area 1)	5,027,347	100.0	143,409,058	100.0
In-Field Address Canvassing Universe	1,115,142	22.2	50,038,437	34.9