

U.S. Census Bureau Geography Division

Final Report



GSS-I Address Summit Pilot: Address Authority Outreach and Support for Data Sharing Efforts

March 28, 2013

Version 1.0

Review Log

Date	Version	Name
11/26/2012	V0.1	Pilot Team: Anne O'Connor, Christopher Stephenson, Kathryn Wimbish
11/27/2012	V0.2	Pilot Team: Laura Ermine, Anne O'Connor, Christopher Stephenson, Kathryn Wimbish
12/7/2012	V0.3	Pilot Team: Laura Ermine, Anne O'Connor, Christopher Stephenson, Kathryn Wimbish
12/11/2012	V0.4	Michael Ratcliffe
1/23/2013	V0.5	Pilot Team: Laura Ermine, Anne O'Connor, Christopher Stephenson, Kathryn Wimbish
1/24/2013	V1.0	Michael Ratcliffe, Deirdre Dalpiaz Bishop

Approval Log

Date	Version	Name & Area Represented	Signature	Description of Major Changes
	V1.0	Timothy F. Trainor Chief, Geography Division		
	V1.0	Deirdre Dalpiaz Bishop Mentor, Geographic Operations Advisor		
	V1.0	Paul Riley Mentor, Office of the Geographic Advisor		
	V1.0	Michael Ratcliffe Mentor, Assistant Division Chief for Geographic Products and Criteria		

Table of Contents

1. Overview		2
2. Introduction.....		3
3. Methodology		5
4. Results.....		13
5. Discussion and Findings		17
6. Conclusions.....		21
7. Acknowledgements.....		24
8. Attachments		27
9. Terminology and Acronyms		27

Table of Figures

Figure 1: Number of Participating Governments, by 2010 Census Population Count	14
Figure 2: Number of Participating Governments, by Government Type	15
Figure 3: Aggregators of Address-Related Data: Location of the Address Authority (ies) for a Government.....	16
Figure 4: Participation Response to Enter Information in the GIS Inventory	17
Figure 5: Time Spent, by the RO Staff, to Locate the Address Authority, by Type of Government.....	21

1. Overview

The Geographic Support System Initiative (GSS-I) is an integrated program of improved address coverage, continual spatial feature updates, and enhanced quality assessment and measurement. It will allow for a targeted, rather than full, address canvassing during 2019 in preparation for the 2020 Census. A pivotal piece of the GSS-I will be working with federal, state, local, and tribal governments, as well as other key stakeholders, to create an address list that is suitable for this purpose.

In preparation, the Census Bureau's Geography Division (GEO) hosted a Census Address Summit in September 2011. Forty-four external experts in the fields of address list development, maintenance, and sharing attended the Address Summit.

The goals of the Address Summit were as follows:

1. To educate Census Bureau partners about the GSS-I and the benefits of conducting a targeted address canvassing.
2. To gain a common understanding regarding the definition of an address.
3. To learn how Census Bureau partners are collecting, utilizing, and maintaining addresses.
 - a. What industry standards are they following?
 - b. What are their best practices?
 - c. What are their major challenges?
 - d. What are their current practices for data sharing?
4. To brainstorm about potential pilot projects that will contribute to the improved quality of the Census Bureau's Master Address File (MAF).

During the Address Summit, attendees proposed six pilot projects. The GEO determined that five pilots were feasible and began development in January 2012. One pilot was determined to be duplicative of other efforts occurring within the division and, therefore, was not included. The goal of each pilot project follows.

1. Address Authority Outreach and Support for Data Sharing Efforts Pilot

To research and develop an approach for identifying and creating an inventory of address authorities that facilitates address data sharing activities and provides guidance on overcoming barriers (legal/policy) at the local level.

2. Federal Geographic Data Committee (FGDC) Address Standards and Implementation Pilot

To educate local authorities on the benefits, use, and implementation of the FGDC's United States Thoroughfare, Landmark, and Postal Address Data Standard (FGDC Address Standard).

3. Federal/State/Tribal/Local Address Management Coordination Pilot

To create a formalized model to allow for the development, maintenance, and bi-directional (state-local, state-federal, and tribal-federal) sharing of high quality multiple use address data.

4. Data Sharing - Local, State, U.S. Postal Service (USPS), and Census Pilot

To create an address data exchange model that will allow for address data sharing between local governments, state governments, the USPS, and the Census Bureau. It will provide a business process that increases the accuracy and coverage of local government address lists, while streamlining the process of sharing those externally.

5. Hidden/Hard to Capture Addresses Pilot

To determine how to capture hidden and hard to capture addresses in the Master Address File and make them useful for enumeration purposes.

This report focuses specifically on the Address Authority Outreach and Support for Data Sharing Pilot.

2. Introduction

The goal of the Address Authority Outreach and Support for Data Sharing Efforts Pilot Project (the Pilot) is to research and develop an approach for identifying and creating an inventory of addressing authorities to facilitate address data sharing activities.

The objectives of the Pilot are to:

1. Identify the multiple aggregators of address data within state and local governments (i.e., taxation, zoning, utilities, etc.).
2. Develop a new or utilize an existing web-based portal for creation and maintenance of a list of address authority contact information.
3. Explore the best ways to communicate with all address authorities within a jurisdiction about state and Census Bureau programs.

4. Utilize the contact information to initiate the promotion of the address database(s) to external partners in order for them to update and maintain their respective contact information.

In-Scope activities for the Pilot include:

1. Establishing a working group of participants, stakeholders, and subject matter experts.
2. Establishing partnership agreements with the working group participants and the Census Bureau.
3. Evaluating the requirements of all the working group participants and the Census Bureau to ensure that the proposed pilot will meet and satisfy the necessary requirements.
4. Determining:
 - a. what initial address data sources to use
 - b. how to conduct the work
 - c. who provides the authoritative review
 - d. how to test the data
 - e. which standards to use within the overall fabric of the pilot.
5. Using participants from the working group, conducting a pilot project(s) to research and develop a model for identifying and creating an inventory of address authorities, and facilitate address-sharing activities by providing guidance on overcoming barriers (legal/policy) at the local level. Refining the proposed model based on feedback and experience gained from pilot project(s).
6. Identifying the multiple aggregators of address data within state and local governments.
7. Developing a new, or using an existing, web-based portal for creation and maintenance of a list of addressing authority contact information. The Geographic Program Participant Database (GPP) can be a seed for the inventory.
8. Exploring ways to communicate with all addressing authorities within a jurisdiction about state and Census Bureau programs.

Out-of-Scope activities for the Pilot include:

1. Writing detailed requirements for a database system (inventory) to record addressing authority data.
2. Writing use agreements for the acquisition of data files.
3. Maintaining the addressing authority inventory.
4. Disseminating information on data sharing programs.

3. Methodology

Pilot Team Members

The pilot team members are: Ms. Laura Ermine, an external pilot team partner, Ms. Anne O'Connor, Mr. Christopher Stephenson, and Ms. Kathryn Wimbish. The Acknowledgements Section provides organizational affiliations for team members as well as a list of other participants in the pilot team's work.

Getting Started

The GEO invited representatives from various governments who were knowledgeable in the field of addressing to attend the 2011 Address Summit. The Census Bureau asked the attendees to complete a survey relating to their status within their respective government/agency, and provide information about the types of addresses they collect and store.

The pilot team determined that the Address Summit survey was a place for the pilot team to start the inquiry locating an Address Authority. The pilot team acquired the questions and the results of the Address Summit questionnaire, and extracted the position and departments of each of the attendees, and the types of addresses they collect. The Address Summit attendees represented a variety of roles and functions within their respective governments and organizations, such as engineers, planners, administrators, GIS specialists, and tax assessors. These contacts worked in a variety of departments, such as power and water utilities, tax offices, planning and zoning, engineering, emergency management, and regional planning commissions. Addresses were assigned and maintained on residences and commercial structures, but also on fire hydrants, telephone poles, and traffic lights. This confirmed that the pilot team would need to be clear and succinct about the types of addresses in which the pilot team was interested in so that the participant would provide information only about their residential and commercial address lists.

The pilot team next looked to the Geographic Program Participants database (GPP) as a resource, as it contains contact and geographic program information for all 39,185¹ legal entities and their respective contacts associated with the Census Bureau's geographic programs. There are nearly 150,000² contacts in the GPP database. The pilot team extracted data for all contacts who worked in legal entities that had participated in an address-related geographic program: 2010 Local Update of Census Addresses program (LUCA), the New Construction program (NC), or the Boundary and Annexation Survey (BAS). The pilot team wanted to gain an understanding of a contact's position within a government, and the department in which he/she worked. The pilot team analyzed the totals of each position held by the program contacts, by level of government as well as the number of contacts by department within a government. From these data, the pilot team created a table using the type of government as the highest order. Within each type of government, the pilot team created ranges of population based on gaps that occurred naturally for the potential participating entities. Within each population range, the pilot team listed, in descending order of frequency, the department in which each contact worked. The pilot team recorded the results on a chart titled "Locating the Address Authority by Department Type for a Level of Government" (see Attachment A). This document will be a tool for use by the Census Bureau's Regional Office (RO) staff if they need guidance in locating the Address Authority.

The GIS Inventory, created and maintained by the National State Geographic Information Council (NSGIC), also contains information about address-related files and contact information. The pilot team reviewed it, made note of the contents that meet the Census Bureau's needs, and additional information needed to meet the pilot's needs. The pilot team then approached Mr. William Burgess, the Washington, DC liaison for NSGIC at that time (currently, he is the liaison for the Federal Geographic Data Committee), with the idea of using the GIS Inventory. Mr. Burgess replied that address-related information is becoming NSGIC's number one priority, and that this joint venture coincided with NSGIC's goal of increasing participation in the GIS Inventory.

To direct the RO staff on the use of the GPP and the GIS Inventory as a resource for contact and file information, the pilot team created a flow chart of the logical sequence of using both resources. The result is the "Locating the Address Authority through the GIS Inventory & the GPP" (see Attachment B).

Designing the Questionnaire

The pilot team developed a questionnaire to capture information needed to fulfill the objectives of the pilot. The pilot team also consulted with the FGDC Pilot team to ensure the questionnaire reflected the GEO's goal of following the FGDC standards as closely as possible. The GPP

¹ Data as of 11/16/2012; entities with a functional status of Active or Consolidated; this number changes as entities incorporate and dis-incorporate.

² Data as of 11/16/2012; approximate number of contacts in the GPP.

Contact Data page and the TIGER Enhancement Database (TED) module of the GPP were the models for both the GIS Inventory version and the automated form version of the questionnaires.

The items for data collection are as follows:

1. *Address Authority contact information: name, title, position, department, address, phone number, fax number, email address;*

This question is the keystone of the model pilot. If the Address Authority could not be determined within a specified government, the next step would be to move to a higher level of government.

2. *For which layers/data they are responsible: parcel, address ranges, address points, tax assessor database, or a government services database;*

If there were multiple address-related layers, users would complete questions three through 17 for each layer. In the GIS Inventory, there is a tab labeled “My Data Layers” that enables the user to select a list of layers from a pull-down menu. Government services refer to utility companies that provide electricity, water, sewer, refuse, etc.

3. *Geographic coverage of the data layers: full, partial, other;*

The pilot team wanted to know what the typical coverage a level of government would have within their address files. The goal of this question was to determine whether:

- a. lower levels of government, such as incorporated places and towns/townships, would tend to have address information for the full extent of territory within their legal boundaries;
 - b. higher levels of government, such as counties, had full coverage or coverage only for the unincorporated portions of their territory (i.e., the portions not covered by incorporated places or towns or townships);
 - c. situations existed in which one government was responsible for maintaining the address list of one or more other governments at the same level.
4. *Implementation phase of the data layers: under preliminary review, in progress, complete, unknown;*

This response would ultimately provide the pilot team with a broad view of the status of many governments with respect to creating and maintaining an address file.

5. *Frequency of update: continually, daily, weekly, monthly, quarterly, yearly, unknown, other;*

This information provides the currency of the data. This will be a determining factor as to whether to pursue another data source.

6. *The AA’s status with the address data: are they the authority over the content, sharing outside of their government, or both;*

Ultimately, the Census Bureau needs to know who has the authority to determine whether that government can share their data outside of their government, such as with the Census Bureau. If they are not willing to share their data with us, then the Census Bureau must discover a different source.

7. *Can the contact share the address database with the USCB: yes, no;*

8. *Presence of use restrictions: yes, yes but conditions apply, no;*

The government/agency may also have a legal use agreement that the Census Bureau must sign in order for the Census Bureau to acquire their address data. The Address Authority may have the authority to share the data with the Census Bureau, but can only do so if both the Census Bureau and the government come to an agreement of the terms of the sharing of the data. There are also situations where the government does not present a use agreement, but will require the user to register on their website so that they can track who is interested in downloading their data.

9. *Presence of a fee to acquire the data layer: yes, yes but will waive for the federal government, no;*

The pilot team did not want to bring attention to the cost of acquiring data within the model pilot; however, the pilot team decided to ask a question that would provide a sense of the need to purchase address lists. Therefore, the pilot team did not ask for a dollar amount, but only if a fee existed.

10. *Address type of each layer: selections of mailing/city-style, mailing/non-city-style, and Situs/E911 for residential, commercial, and government types of addresses;*

The Census Bureau collects residential addresses for censuses and surveys, and commercial addresses for business-related surveys. Therefore, the pilot team sought both residential and commercial addresses. The code structure of the government's database would explain how the government differentiated their address data.

11. *Do they use one of the recognized national database standards? yes, no (skip question 12);*

12. *Address standard used: FGDC Standard, USPS Profile of FGDC Standard, USPS Standard: Publication 28, NENA, Unknown, Other;*

This question provides information on how governments organize their address data, through the use of an address standard. The standard they aspire to follow and what they find practical to use may be two different things. The FGDC Standard is long and involved, and governments may find it overwhelming. The USPS Profile of the FGDC Standard has elements that are mandatory, conditional, and optional, which some governments may find more appealing to their level of address file complexity. The USPS Standard is short and minimal, and may be attractive to many governments. The National Emergency Number Association (NENA) standard reflects E911 addressing.

13. *Level of government, which enforces the use of the address standard: local, county regional, state, federal;*

This provides an indicator of interactivity between levels of government, or the flexibility a government has to set their standard.

14. *File format used for data exchange of each layer: Spatial: DBF, KML, SHP, XML, other; Tabular: CVS, excel, text, paper, other;*

How the government stores their address data. They may store it spatially, or keep it separate in a tabular format. Also, they may join the addresses to the parcels as attributes.

15. *Source of each data layer (select all that apply): local/municipality, county/parish, regional/state, planning agency, private contractor, self, and other;*

The response provided would be the key to knowing the interconnectivity between levels of government, non-governmental organizations such as regional commissions and councils of government, and private contractors. This information is beneficial for administering GEO geographic programs, as it gives weight for situations with consolidated governments and where governments rely on higher level governments for data collection, storage, and maintenance.

16. *URL of the website(s) containing the address layer;*

Data placed on the government's website would enable easy access for acquisition by Census Bureau staff.

17. *Additional information.*

This was to allow the participant to provide any information they deemed worthy of including. This would provide the GEO with possible fields for which to collect for the GSS-I implementation.

Considerations to the Design of the Questionnaire

The pilot team consulted with the FGDC Address Standards and Implementation pilot team on the address standard questions to ensure that the questions and the potential responses in the questionnaire were consistent with FGDC standards. The pilot team learned that there are mandatory, optional, and conditional types of elements to each standard, and most followers of the standard create a profile of a standard that meets the needs of the respective government's data files. While the FGDC standard is long and involved, most governments aspire to follow this standard. To ensure the capture of data from users of the FGDC standard, the pilot team added the term "profile" to the question concerning the address standard used by the participant. The reason to add the term was based on Ms. O'Connor's professional experience working with local governments on the development of the FGDC standard and feedback from local address database managers at Urban and Regional Information Systems Association (URISA) conferences.

Knowing that the prospective partners would represent governments that varied in terms of population size and in levels of technical expertise, attention was paid to the wording of the questions to elicit as much relevant information as possible from each respondent. “Other” and/or “Unknown” selections were added to the multiple-choice questions to allow for those contacts who are at the non- or lower-technical range of data collection. (See Attachments C and D for the questionnaires).

Advisors and Reviewers of Tools Developed for Implementing the Pilot

The pilot team realized the importance of a thorough review of the tools and the questionnaire created by the pilot team. Ms. Ermine recommended a few partners who were engaged with discussions concerning the address authority topic at the Address Summit to perform the first review. The pilot team also enlisted a staff from a few ROs to review the second version of the tools and questionnaires to ensure that they contained relevant and valuable instructions and guidance for the staff who would make the calls to the external partners.

The pilot team then presented the third version of the automated form questionnaire to Mr. Burgess, who enlisted a few NSGIC members to assist with the review. They and the pilot team discussed the automated form questionnaire, and adapted it to meet the standards used in the GIS Inventory. Additionally, they suggested the creation of a separate page dedicated to the pilot. The pilot team preferred this approach in contrast to the questions being interspersed throughout the existing GIS Inventory, as it would draw the most attention to the questionnaire, and provide ease in data entry for the participant. Also, the pilot team concluded it would also promote the most effective way for participants to answer all of the Address Authority questions.

Selection of the Prospective Participants

The pilot team selected a total of 56 entities from across the country. In acknowledgment of Ms. Ermine’s assistance in the pilot, about 20 percent of the entities are in Georgia. The pilot team based the group selection on the following criteria:

- participated in an address-related geographic program (LUCA, NC, or BAS)
- had not participated in an address-related geographic program
- type of government (tribal, state, county, incorporated place, town/township)
- size of government (using 2010 Census population counts).

The resulting sample included: 20 counties, 12 incorporated places, 16 towns/townships, five tribal governments, and four states across the country, and located in 11 of the 12 ROs. The list was then divided between the RO staff’s responsibility to contact the participant, and the pilot team’s responsibility to ask the participant to use the GIS Inventory. The State of Montana Department of Commerce expressed an interest in including at least one of the tribal governments in the pilot, and provided contact information for the selected government (see Attachment E for the list of prospective participants).

Contacting Prospective Participants

The initial contact with the prospective participants was via an email sent by the pilot team lead. The purpose of the email was not only to invite them to participate in the pilot, but to also provide information that would encourage them to participate. Along with an overview of the pilot and the GSS-I, the email contained links to the GSS-I and the pilot web pages. The pilot team's plan was to gain prospective participants' buy-in to a partner relationship with the Census Bureau through understanding the benefits of that relationship, and then accepting that invitation (see Attachment F for the email to the automated form version participants and Attachment G for the email to the GIS Inventory participants).

The emails were sent to the LUCA liaison, NC contact, the BAS contact, or the highest elected official, in that order of availability.

RO staff contacted their assigned prospective participants by phone, seeking to identify the person who was the Address Authority, and then asked him or her the questions.

The GIS Inventory prospective participants were contacted by email and asked to enter their information directly into the GIS Inventory Address Authority Questionnaire. Tribal/Local Geographic Partnerships Branch staff later contacted those who did not respond to the email via a phone call.

Data Capture

The Automated Form Questionnaire

Initially, the pilot team envisioned a customized hybrid of the GPP for the RO staff to use in capturing the data. The pilot team presented a draft prototype of the Address Authority page to the GPP programming staff for their review. The prototype was a single-page version of the multi-page TIGER Enhancement Database, which was used for the MAF/TIGER Alignment Improvement Program during the 2000s (see Attachment H). Considering the small sample of external partners, the short timeframe of the pilot, and the limited resources to produce a unique data entry system, the pilot team decided to find another method of data collection.

The pilot team was determined to provide an application-like tool for data collection for the RO staff, and the pilot team's external partner suggested the idea of an automated form. The form looks like a typical MS Word document; however, specific fields were designed for the user to input the data collected, whereby the data could then be easily extracted into an MS Excel or an MS Access database for ease in collection and evaluation by the pilot team.

The GIS Inventory Questionnaire

The pilot sought to test the feasibility of using a web-based tool to collect Address Authority information. Recognizing that Census Bureau resources for programming a web entry system for a pilot project would not be available, the pilot team decided to use the NSGIC-established, web-based, GIS Inventory database application. This provided the Census Bureau with an

existing, functioning, web-based tool, and had the added benefit of introducing more governments to the GIS Inventory system.

After working with the GIS Inventory website development team, the pilot team decided that a stand alone page would be the best approach for the questionnaire. A page separate from other data entry pages would enable the user to focus on the Address Authority questionnaire without additional, unrelated questions.

For consistency, the pilot team then revised the automated form questionnaire to reflect the changes made in the GIS Inventory questionnaire so that both questionnaires would be similar.

Implementing the Model Pilot

The Automated Form Questionnaire

The “Locating the Address Authority by Department Type for a Level of Government,” and the “Locating the Address Authority through the GIS Inventory & the GPP” tools were provided to the RO staff as supplemental tools for implementing the model pilot. In addition, the pilot team created a set of suggested procedures for them to follow (see Attachment I for the RO procedures).

These tools would be valuable for situations where the RO staff may not know the contacts for an entity, or, more specifically, not have the Address Authority contact information. There were varying degrees of RO staff satisfaction with the supplemental documents. Some RO staff found the tools very useful, while others did not use the tools at all. The RO staff would reference the questionnaire for the questions to verbally ask the participants. Although the pilot team did not provide the direction for the RO staff to distribute the questionnaire to the partners, RO staff emailed the questionnaires to some of the participants for them to complete at their leisure.

The GIS Inventory Questionnaire

The pilot team extended the invitation to participate in the pilot through email, with a follow-up via phone. The email contained background information on the Address Summit, the GSS-I, and the pilot itself through links to the census.gov website. This would provide the prospective partners the resources to learn about the pilot and the GSS-I, and encourage them to provide their information at their convenience. The key would be to relate the pilot to the GIS Inventory, so that prospective participants would understand the value of the pilot and learn about the GIS Inventory as a tool for connecting with other governments and agencies (see Attachment J for the GIS Inventory procedures).

Feedback Surveys

The pilot team agreed that a survey of the RO staff and the participants would provide feedback on the viability of the pilot as designed. As a reference, the pilot team reviewed the 2010 LUCA survey and the BAS survey to gain an understanding of successful surveys. The pilot team

recognized that succinct questions, which were either multiple choice or select a value, were the best way to structure the questions.

RO Staff

The survey questions would supply information related to the tools provided, the level of difficulty in identifying the Address Authority and information on their address-related data, implementation of the pilot by the pilot team, and suggestions for how to implement a process within the GSS-I to contact the Address Authority. Refer to Attachment K for an outline of this process.

Automated Form Version Participants

The questions posed in the survey would provide indicators of future geographic program participation, use of the GSS-I website for information on the pilot, contact with the RO staff, and usefulness of the pilot to aid in understanding the sharing of address data with the Census Bureau (see Attachment L for the Automated Form Participant Feedback Survey).

GIS Inventory Participants

The questions posed in the survey were an effort of both the Census Bureau and the NSGIC staffs. The questions would provide indicators of the tools provided, reasons to participate, level of ease in using a web-based system for data entry, usefulness of fostering communication improvements between levels of governments, and the usefulness of improving the Census Bureau's address list. There was also a free text field for them to list any suggestions regarding future Census Bureau geographic programs (see Attachment M for the GIS Inventory Participant Feedback Survey).

4. Results

The emails for the Automated Form and the GIS Inventory prospective participants were sent out in mid-September 2012. The GIS Inventory participation rate four weeks later was zero percent. TLGPB staff began calling the prospective participants during the last week of October. Two weeks after the follow-up phone calls, the participation rate remained at zero percent. Over the next few weeks the team received emails from a few prospective participants who said that they would complete the questionnaire as time allowed. Additionally, two governments that were not invited to participate in the pilot noticed the Address Authority Questionnaire link on the GIS Inventory's home page, and completed the questionnaire (these were not included in the pilot statistics).

The overall result of pilot participation is:

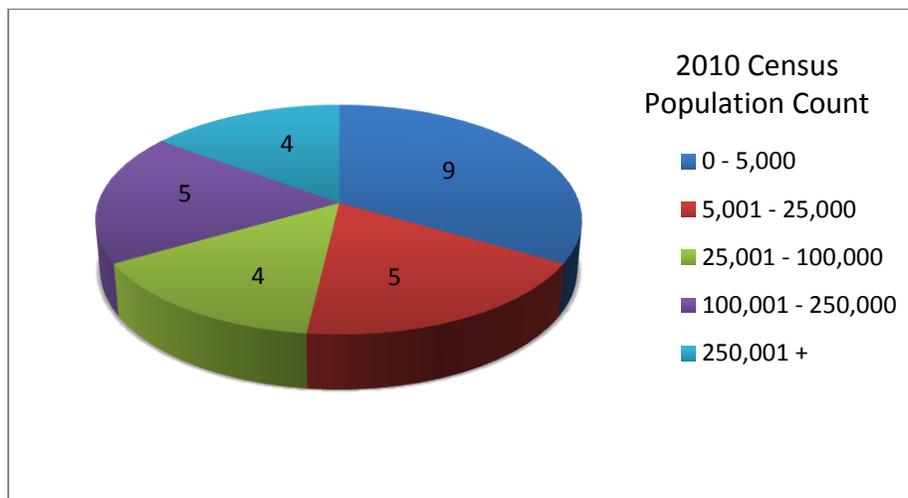
- RO staff was 87 percent successful in acquiring Address Authority information from participants.

- Eight percent of the GIS Inventory participants completed the questionnaire.
- Four governments (one state, two counties, and one town/township (Address Authority is in the county) indicated they have partial coverage. Of these four governments, two (one county and the town/township) had a population of 5,000 or less, and two (the state and one county) had a population of more than 250,000.
- Of the 27 participating governments, three were aware of the GIS Inventory (all counties). Of those three governments, two had a population between 25,000 and 100,000, both of whom use the inventory, and one had a population between 100,000 and 250,000, but they did not use the inventory. Of the 27 participating governments, 10 update their address data continually (not on a set schedule, but usually when there is a change to record). All 10 of these governments had a 2010 Census population less than 100,000.

Results from the Questionnaires

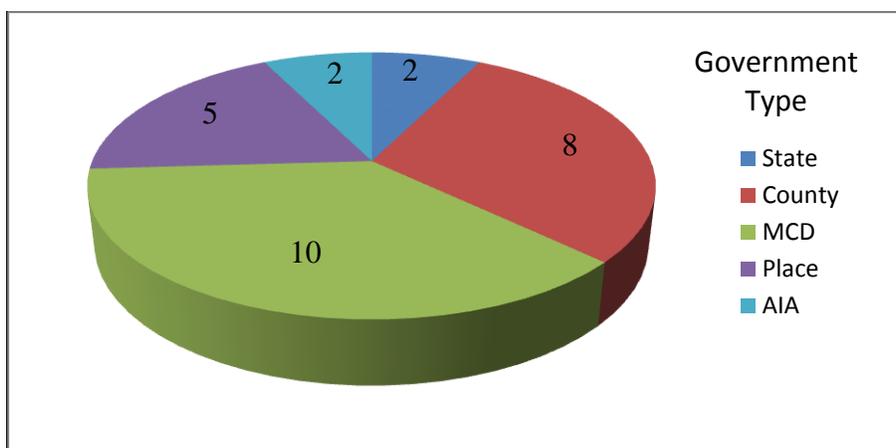
By Population (see Figure 1)

Figure 1: Number of Participating Governments, by 2010 Census Population Count



By Government Type (see Figure 2)

Figure 2: Number of Participating Governments, by Government Type

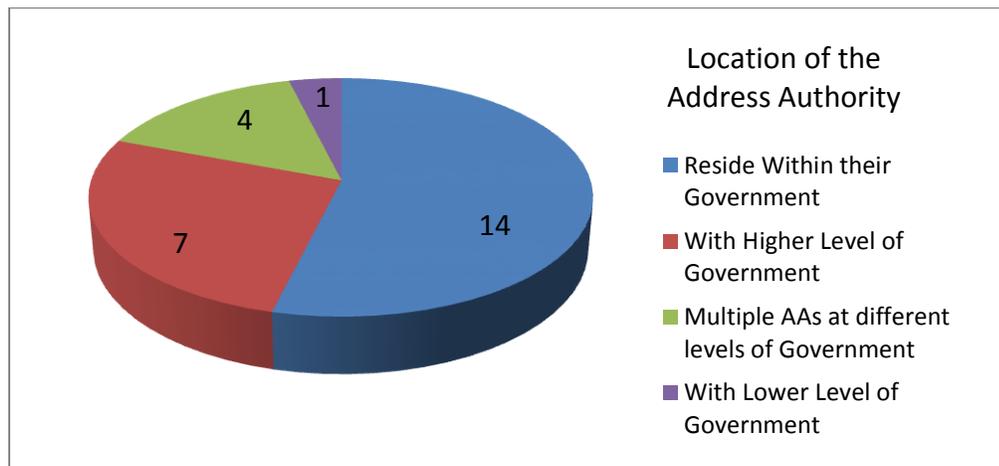


- Of the 28 governments invited to participate through the GIS Inventory, two participated, 20 did not respond, five declined to participate, and one was removed due to Hurricane Sandy.
- Of the 27 governments that responded to either the automated form questionnaire or via the GIS Inventory:
 - 14 stated that they have an Address Authority working within their level of government,
 - seven have an Address Authority working at a higher level of government,
 - four have multiple Address Authorities within, above, and below their level of government, and
 - one government's Address Authority works-at a lower level of government.
- Of the 27 participating governments, 22 stated that they have full coverage of addresses within their jurisdiction.
 - Of the two participating states, neither maintains full coverage.
 - Of the eight participating counties, six maintain full coverage.
 - Of the 10 participating towns/townships, nine maintain full coverage.
 - Of the five incorporated places, all maintain full coverage.
 - Of the two tribal governments, both maintain full coverage.
- Of the 27 participating governments, 16 have a complete database, while 10 stated that the database is in the process of development.

- Of the nine participating county governments, six store their data as geospatial data. That was the highest percentage of any government type.
- Of the 10 participating town/township governments, eight keep their data in DBF or Excel form.
- Slight evidence suggests that county governments are the most aware of the GIS Inventory out of all the types of governments.
- Slight evidence suggests that State and County governments are generally more aware and make use of the GIS inventory than smaller governments.

By Aggregators of Address-Related Data (see Figure 3)

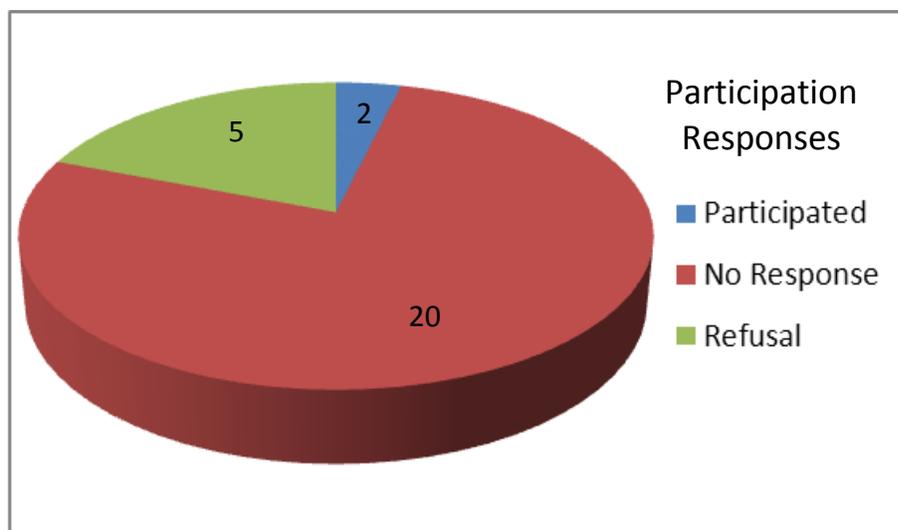
Figure 3: Aggregators of Address-Related Data: Location of the Address Authority (ies) for a Government



- For 52 percent (14 out of 26) of the governments, the Address Authority resides within the respective government.
- For 27 percent (7 out of 26) of the governments, the Address Authority resides within a higher level of government, or an agency.
- For 15 percent (4 out of 26) of the governments, there are multiple Address Authorities, with one residing within the respective government and another residing with higher level of government.
- For 5 percent (1 out of 26) of the governments, the Address Authority resides within a lower level of government (in the county for an American Indian Area).

By Participation Response to Enter Information into the GIS Inventory (see Figure 4)

Figure 4: Participation Response to Enter Information in the GIS Inventory



- Of the 27 governments asked to respond to the GIS Inventory questionnaire, 7 percent (2 out of 27) of the governments completed the survey on the GIS Inventory.
- 74 percent (20 out of 27) of the governments did not respond to the survey on the GIS Inventory.
- 19 percent (5 out of 27) of the governments declined to respond to the survey on the GIS Inventory.

5. Discussion and Findings

The following is a list of assessments based on the data collected.

- Of the governments contacted by phone to complete the questionnaire, 87 percent of them participated in the model pilot. Of the governments contacted by email, there was a seven percent participation rate. This may demonstrate that personal contact with a government produces a higher participation rate than allowing a government to complete the questionnaire on their own time.
- GIS Inventory participants required repeated contact in order for them to participate, even after they agreed they would participate. Impending deadlines for current assignments prevented them from completing the questionnaire within the next few days; some indicated that they would respond to the questionnaire within a week.

- All of the GIS Inventory Address Authority participants were already recorded in the GPP as a contact for a geographic program.
- The TLGPB staff was not as successful as the RO staff in having the participant complete the questionnaire. This may demonstrate the importance of RO staff maintaining a healthy and constant relationship with the various levels of government in their region, and that the RO staff has greater experience in partnering with the governments.
- The limited outreach for the pilots does not provide statistically significant outcomes.
- The pilot team did not verify the info collected by the RO staff or through the GIS Inventory.

Utilizing a Web-Based System

Based on the success of the RO staff contacting the participants, and the negligible response by participants through the GIS Inventory despite follow-up phone calls by the TLGPB staff, the Census Bureau should not solely rely on governments to update a system. To increase the participation rate, the Census Bureau must highly publicize any future web-based system, and make follow-up phone calls to encourage participation.

Participant Feedback Survey Results

Four responses were received for the participant feedback survey. Three entities had taken part in previous Census Bureau geographic programs – two in LUCA and one in BAS. When asked “Did any of the following factors influence your decision to participate in the Address Authority Pilot?,” three respondents chose: “I wanted to improve how local governments can participate in the US Census Bureaus geographic programs.” There seems to be a commitment among local entities to work with the Census Bureau in helping to create more current and accurate data for all to use.

A variety of information was available to help the respondents complete the questionnaire. Each respondent found different sources useful, from RO staff to the information supplied on the pilot website, to directions included with the questionnaire, to explanations on the GIS Inventory page. A variety of approaches is crucial to encourage local entities to fill out surveys and for the GEO to receive accurate and complete information from the respondents.

All the respondents found the information that was collected in the questionnaire as useful in fostering improvements with communication between the higher and lower levels of government. They also all agree that the information collected would improve the Census Bureau’s address list.

Only one respondent gave additional information regarding the pilot project. “Generally speaking, the more data sharing between organizations, the better chances its quality will improve. We’d like to see more of our local data be incorporated into Census databases. We’d also like to receive Census address data, for comparison and/or general uses.”

RO Staff Feedback Survey Results

Thirteen of the fourteen RO staff responded to the follow-up survey. The questionnaire that they used to obtain information from their local partners as part of this pilot study resulted in mixed reactions.

Regarding the diagram to locate an Address Authority by department, five RO staff found it not useful, three found it useful, three found it very useful. In regard to using the GIS Inventory to locate an Address Authority, three RO staff found it not useful, six found it somewhat useful, and two found it very useful. As for the directions on how to enter responses into the questionnaire, one respondent found it not useful, seven found it useful, and three found it very useful. Those who considered the tools somewhat or not useful requested more detailed instruction that would aid in capturing situations where there are multiple Address Authorities in different departments.

If the RO staff found it necessary to call headquarters for clarification on the process or the questionnaire for the Address Authority, they usually perceived the staff to be very helpful.

The RO staff spoke with one to three people in order to locate the Address Authority. This task took from as little as ten minutes to up to three hours. One RO reported that they received a call from the entity offering the information after they received an email from the pilot study lead. Another RO staffer observed that smaller governments have more restricted work hours and less staff availability, therefore contacting these entities required more time.

Most RO staff found it somewhat easy to use the questionnaire to record the external partner's response, although one found it very easy and one felt it was not easy to do so. One member stated that reviewing the questionnaire at least gave them an idea of what type of information the pilot team was seeking to obtain from the Address Authority, but found it difficult to follow the questionnaire precisely. A few suggested re-ordering the questions to a flow which would be more in line to how the conversation would occur. Five RO staff used a hard copy document to record the Address Authority, and then transferred the information to the electronic version. Five RO staff recorded directly into the electronic version. One did not answer this question.

There was a variety of useful suggestions for additional information to collect about the Address Authority and address related files for inclusion in the GPP:

- Provide a means to differentiate between the Address Authority responsible for distribution of the data, and the Address Authority responsible for the maintenance of the data, as the Census Bureau might possibly obtain files from either.
- Provide a means to designate a back up contact for each Address Authority. This would be helpful to increase the success of communicating with the entity.
- Make available either a check mark or other symbol if the data are available for free.
- Make available a field to enter the location of the data.

- It would be useful to know whether a particular governmental entity passes address information to a higher-level entity (county, regional organization, state) and, if this is the case, find out how often the data are collected, who is the contact at the higher-level entity, and so forth.
- Provide a means to record whether there are plans for the creation of a new Address Authority. This would save time in the future.

The issue of whether a questionnaire was the most useful approach to this issue arose due to the limiting nature of this format. One RO staffer mentioned that they preferred to use a paper copy of the automated form questionnaire simply because there was more space to enter extra information volunteered by the participant; the other 12 entered the responses directly into the automated form version of the questionnaire. While drop-down menu fields direct the user to the expected and usual responses, it restricts the user from capturing additional information which may be useful. It is important to consider providing open-text fields for some types of questions in order to gather a wide range of individual circumstances.

Many RO staff mentioned that each case in which an Address Authority is in a different department and position requires a different approach. For example, a Fire Department may assign addresses and maintain them on paper, and delivers the document to a Land Management office for conversion into an electronic file. The Census Bureau needs to be aware of unique arrangements such as this so that staff will be successful in locating the Address Authorities. In addition, the GPP design must have the functionality to capture this type of arrangement.

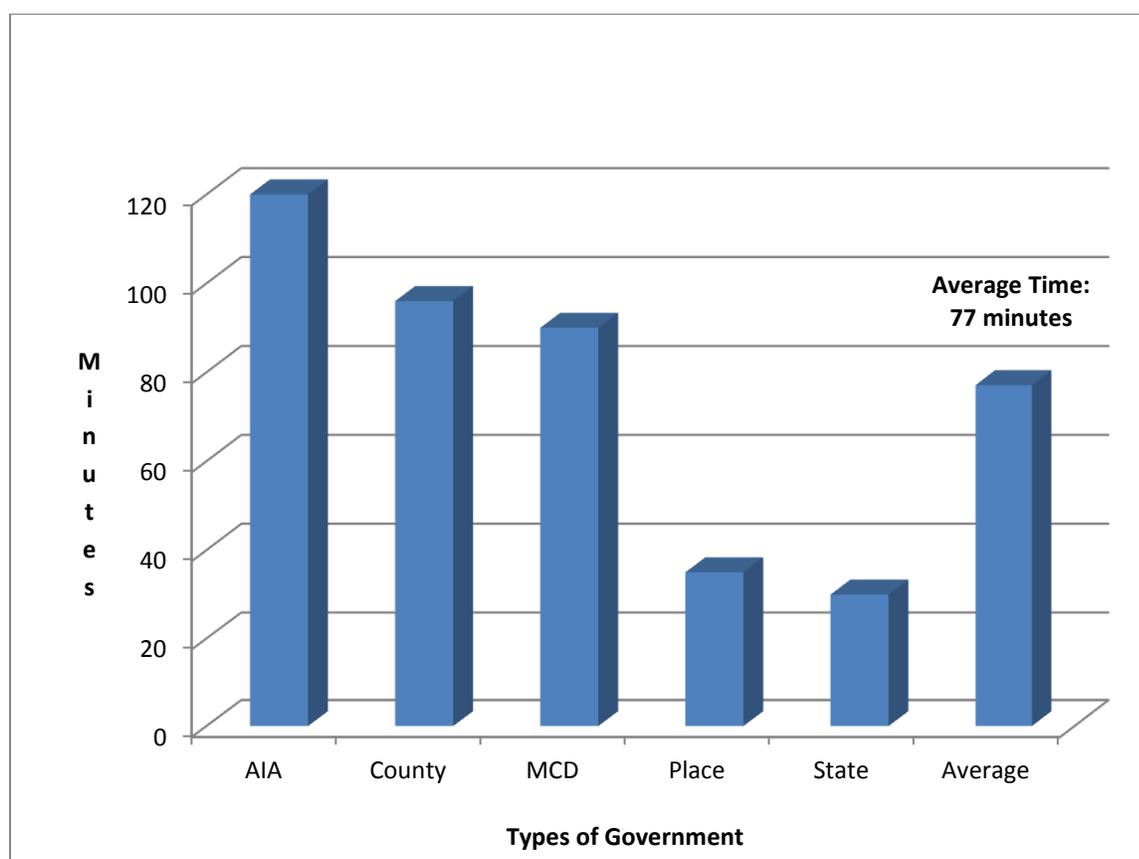
Looking ahead, it would be much easier to contact states for geographic data rather than each sub-state entity. Therefore, the pilot team recommends that the GEO begin with contacts at the state level to obtain high quality geospatial data coordinated by the state, when possible, and approach counties and other local governments when necessary.

It seems that some RO staff already knew whom to contact in their areas, with the exception of one RO staff who contacted the pilot external partner to find the best points of contact. Others found the documentation on locating an Address Authority useful in helping locate the Address Authority. There appear to be more exceptions to the rules, in terms of locating authoritative address databases, than those that fit the expectations. This is where local knowledge from long experience is invaluable. There might be methods to share local knowledge among staff in the ROs or ways to pass this knowledge on as new staff take over. This, combined with informative methodology which will institutionalize and share knowledge, will help to increase the accuracy and currency of the information in the GPP.

In summary, there is a variety of factors to consider when locating an Address Authority in order to obtain address files. It is important to record the Address Authority who creates an address database so that the Census Bureau knows whom to contact when questions about a database arise. It is also important to differentiate from the Address Authority who has the authority to share the database, to request permission to acquire and use the database. If an entity has a well-

developed GIS program, then this is a good place to begin the search for an Address Authority. It would be helpful to include a downloadable PDF of the GPP data fields for the RO staff to use to capture the information. This enables staff to record additional information that does not necessarily fit the questionnaire. In addition, it is important to recognize that some Address Authorities are highly sophisticated with well-developed geospatial capabilities, and some may have a limited level of database development experience.

Figure 5: Time Spent, by the RO Staff, to Locate the Address Authority, by Type of Government



6. Conclusions

The conclusions are based on an evaluation of the data collected in this pilot. The following best practices came to light:

- The Addressing Authority is a new concept. Therefore, the Census Bureau must clearly define the role in any address data gathering effort. The Address Authority who assigns addresses is useful in order to learn more about a database, but the person who has the

authority to share the data is of even more importance to the activities within Geography Division. The GPP should allow the user to differentiate both of these Address Authorities.

- Start the search for the Address Authority by using a top-down approach: contact the highest level of government, that being the state government and the tribal governments. This approach will dramatically reduce the workload for the RO staff, foster a partnership between the Census Bureau and the states, and acknowledge partnerships between the states and their lower-level governments.
- Introductory emails are effective in preparing an entity for a forthcoming phone call from the RO. There is only a 3 percent chance that a government will respond to the invitation email prior to the RO contacting the government. Response increased after contact by phone.
- Most of the RO staff are seasoned geographers and have local knowledge and relationships with the governments in their region. To this end, most of them did not find the pilot tools useful in locating the Address Authority. The pilot team recommends that the tools would remain available to the RO staff for use as a supplement if needed. This, in turn, stresses the importance of the sharing of knowledge from the senior staff to the newly hired staff.
- The GIS Inventory is not widely known among governments lower than the county level.
- Many of the RO staff initially recorded the questionnaire responses on paper, and then transferred them to the automated form version. Therefore, the Address Module of the GPP should include an option for the user to print a hard copy version of the module that includes the fields and their respective items/selections.
- Developing a web-based system for the governments to update and maintain the data is an idea worth pursuing. It allows the governments to have control of their contact information and places the responsibility on them, which then strengthens their role and responsibilities with respect to a partnership with the Census Bureau. The pilot team could not determine the reasons for the low response to the GIS Inventory. It would be of value to follow-up with the non-participating governments to learn more about the low response rate.
- The pilot team recommends either the GEO creates a Census Bureau web-based system, or the GEO invests resources into promoting the use of a system sponsored by another agency.
- Although the pilot team was not able to test the prototype of the Address Authority page for the GPP, the pilot team sees a value in the prototype for designing a web-based system.
- A goal of the GSS-I is to partner with state governments and encourage lower level governments to coordinate and share information with their respective states. States and counties are the majority of government types which use the GIS Inventory system. Furthermore, the counties are the stronghold for entering their information. The pilot team recommends that the Census Bureau help foster a relationship between the counties and their states with the ultimate result of the states becoming the source of address data.

Recommendations

The pilot team sees the methods used in this pilot as viable tools for moving forward to collect information about the Address Authority and the data they represent. Regional Office staff found the pilot to be a worthy exercise, and provided suggestions for improvements and inclusions into the search process for the Address Authority. They understand the need for the Census Bureau to identify the Address Authority and that there be a complete and easy tool for capturing information.

Participants understood the need to forge a partnership with the Census Bureau so that they may more easily share their address data.

The pilot team recommends the following:

- That the Census Bureau invest the resources to create a web-based data capture system. The Census Bureau will encourage a top-down approach to data sharing; however, sharing of data among all levels of government will require nurturing and time for many states. Therefore, the system should be adaptable to allow usage by all levels of government until the time the states are the leading source of their data.
- Since this system would be a novel approach for the Census Bureau, the pilot team recommends that the creation of a strong marketing program to educate and encourage governments to independently enter and maintain their contact and geospatial data information.
- Provide complete and adequate tools for the RO staff to support a timely and accurate identification of the Address Authority or Authorities for all levels of government. While the RO staff who participated in the pilot were readily able to identify the Address Authority, the pilot team recommends full support through written documentation and open verbal communication with the RO staff.
- The knowledge acquired through the partnering experience needs to be collected, organized, and stored in a formal system for the purpose of sharing the information with all staff. This enables local knowledge to be shared among colleagues.
- The pilot team struggled to find statistically significant conclusions due to the small sample size of participants. In the future, the pilot team recommends expanding the focus to a much larger universe of participants. If this is not possible, the pilot team recommends directing the focus of the pilot on a specific type of government (e.g., County governments) or a specific geographic area (e.g., Southern Georgia).

7. Acknowledgements

Pilot Team

Laura Ermine
Team External Partner
Government Services / Information Technology Specialist
Middle Georgia Regional Commission

Anne O'Connor
Geographer
GEO/National/State Geographic Partnerships Branch

Christopher Stephenson
Geographer
FLD/Geographic Support Branch

Kathryn Wimbish
Pilot Team Lead
Geographic Specialist
GEO/Tribal/Local Geographic Partnerships Branch

Participant Recruitment

Leslie Zolman, GISP
GIS Coordinator, Census & Economic Information Center, Montana Department of Commerce

Reviewers/Advisors on Preliminary Products

Shoreh Elhami, GISP
Director, Delaware County OH Auditor's Office, State of Ohio

David Jackson
Office of the Chief Technology Officer, City of Washington, DC

Cy Smith
Statewide GIS Coordinator, Department of Administrative Services, State of Washington

GIS Inventory Address Authority Questionnaire

William Burgess
Federal Geographic Data Committee Liaison, National States Geographic Information Council

Boice Tomlin
GIS Inventory Webmaster, National States Geographic Information Council

Will Craig

Associate Director, Center for Urban & Regional Affairs, University of Minnesota
Co-Chair, NSGIC Address Work Group
Chair, MN Complete Count Committee for the 2000 Census

Mark Kotz

Principal GIS Systems Administrator, Metropolitan Council
Chair, MetroGIS Address Workgroup
Co-Chair, Governor's Council's Standards Committee

Ian Von Essen

Immediate Past Chair, Washington State Geographic Information Council
Spokane County GIS Manager

GEO/Tribal/Local Geographic Partnerships Branch

Laura Baron

Geographer

Follow-up Calls to the GIS Inventory Participants, GPP data extracts, GIS Inventory data extracts, and processing of incoming data

John Caha

Geographer

Follow-up Calls to the GIS Inventory Participants

Judy Lothar

Geographer

Follow-up Calls to the GIS Inventory Participants

Belinda Smith

Geographer

Follow-up Calls to the GIS Inventory Participants

Rebecca Swartz

Geographer

Proofreading

FLD/ Regional Office Staff

Atlanta

William Curry

Geographer

Wes Flack

Survey Statistician

Boston

Mike Horgan
Geographer

Vince Pito
Geographer

David Tarricone
Geographer

Charlotte

David Cline
Geographer

Joanna Pitsikoulis
Geographer

Chicago

Linda Gray
Geographer

Dallas

Meredith Gillum
Geographer

Denver

Jim Castagneri
Geographer

Detroit

Joe Kogelmann
Geographer

Kansas City

Craig Best
Geographer

Los Angeles

John Kennedy
Geographer

New York

Jonathan Martin
Geographer

Seattle

Rick Campbell
Geographer

Wendy Hawley
Geographer

8. Attachments

Attachment #	Title of Document	Page Reference
A	Locating the Address Authority by Department Type for a Level of Government	6
B	Locating the Address Authority through the GIS Inventory & the GPP	6
C	External Partner Questionnaire - Automated Form Version	10
D	External Partner Questionnaire - GIS Inventory	10
E	List of Prospective Participants	10
F	Email to External Partners - Automated Form Version	11
G	Email to External Partners - GIS Inventory Version	11
H	Prototype of the Address Module in the GPP	11
I	RO staff Procedures	12
J	Procedures for Entering Information in the address Authority Questionnaire in the GIS Inventory	12
K	RO Staff Feedback Survey	13
L	Participant Feedback Survey - Automated Form Version	13
M	Participant Feedback Survey - GIS Inventory Version	14

9. Terminology and Acronyms

Term	Definition
External Partners	Partners who are external to the Census Bureau. For example, a local government who is participating in the model pilot.

Term	Definition
FGDC Data Standard	The FGDC Address Standard refers to the United States Thoroughfare, Landmark, and Postal Address Data Standard.
GIS Inventory	Formerly known as RAMONA, the GIS Inventory is produced by the NSGIC as a tool for states and their partners. Its primary purpose is to track data availability and the status of geographic information system implementation in state and local governments to aid in planning and building of spatial data infrastructures.
GSS-I	The Geographic Support System Initiative is an integrated program that utilizes partnerships for improved address coverage, continual address and spatial feature updates, and enhanced quality assessment and measurement.
NSGIC	The National States Geographic Information Council is an organization committed to efficient and effective government through the prudent adoption of geospatial information technologies. Members of NSGIC include senior state geographic information system (GIS) managers and coordinators, representatives from federal agencies, local government, the private sector, academia and other professional organizations. NSGIC provides a unified voice on geographic information and technology issues, advocates State interests, and supports its membership in their statewide initiatives. NSGIC actively promotes prudent geospatial information integration and systems development. NSGIC reviews legislative and agency actions, promotes positive legislative actions, and helps inform public and private decision-makers.
Situs	The position or site of property is where the property is treated as being located for legal purposes.

Acronym	Meaning
AIA	American Indian Area
BAS	Boundary and Annexation Survey
FGDC	Federal Geographic Data Committee.
GEO	Geography Division
GIS	Geographic Information System
GPP	Geographic Programs Participant Database
GSS-I	Geographic Support System Initiative (is also referenced as GSS in this document)
LUCA	Local Update of Census Addresses Program
NC	New Construction Program
NENA	National Emergency Number Association

Acronym	Meaning
NSGIC	National State Geographic Information Council
OMB	Office of Management and Budget
TED	TIGER Enhancement Database. A module in the GPP for recording information about GIS files or other geographic information for use in the TIGER Enhancement program
USPS	United States Postal Service