Geographic Programs Update

California State Data Center Meeting
September 10-11, 2014
Overview

Geographic Support System Initiative
Local Update of Census Addresses
Participant Statistical Areas Program
Redistricting Data Program
Geographic Support System Initiative

An integrated program that utilizes a partnership program for:

- Improved address coverage
- Annual, transaction-based address and spatial feature updates
- Enhanced quality assessment and measurement

Address Updates

123 Testdata Road
Anytown, CA 94939

Lat 37 degrees, 9.6 minutes N
Lon 119 degrees, 45.1 minutes W

Street/Feature Updates

Quality Measurement
The GSS-I Partnership Program

- Launched in October 2012
- Opportunity for tribal, state, county, and local governments to continually exchange address & spatial data with the Census Bureau
- Recognizes local governments as a definitive authority for quality address and street data within their communities
- Leverages the Census Bureau’s broad partner network to encourage participation
What is the Basic Process?

1. Acquire partner data (streets and addresses) and perform Content Verification to determine general usability
2. Crosswalk, standardize, match, and geocode partner addresses and structure points using the Master Address File (MAF)
3. Match street centerline data to identify differences, calculate spatial accuracy (CE95 method) of partner data using GPS control points
4. Ideal Scenario: new addresses are added to the MAF, new streets are added to TIGER, address and spatial inconsistencies are submitted for resolution
Data Content Guidelines

As a part of the U.S. Census Bureau's Geographic Information System (GIS) strategy, the Census Bureau is committed to accepting data from our partners beginning in fiscal year 2013. This document outlines the address data submission guidelines for the U.S. Census Bureau.

For more information, please visit: http://www.census.gov/geo/www/gss/gdlns/addgdln.html
### Partner Data Acquisition to Date

<table>
<thead>
<tr>
<th>Data as of Sept 3, 2014</th>
<th>Partners Contacted</th>
<th>Partners Providing Files</th>
<th>Address List Acquired</th>
<th>Structure Coordinates Acquired</th>
<th>Street Centerlines Acquired</th>
<th>Partner Files Processed</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>434</td>
<td>304</td>
<td>181</td>
<td>648</td>
<td>714*</td>
<td>996**</td>
</tr>
</tbody>
</table>

* Some counties provided multiple partial-coverage street centerline datasets (i.e., cities vs. balance of county)

** Includes feature and address files processed through the MAF/TIGER system update process
Partner Address Matching & Geocoding
Of 42,111,361 Partner Addresses received...

- 4% Duplicates (1,675,765)
- 96% Unduplicated (40,435,596)
Of 40,435,596 Unduplicated Partner Addresses...

- Matched: 86%
  - (34,884,631)
- Unmatched: 14%
  - (1,675,765)
Of 34,884,631 Matched Partner Addresses...

- 94% Same MAF Block (32,589,844)
- 5% Different MAF Block (1,782,125)
- 1% New Geocode Attained (492,573)

- 53% Same Address Class (15,685,628)
- 45% Different Address Class (681,243)
- 2% No Address Class (18,517,760)
Of 5,550,965 Unmatched Partner Addresses...

- Residential: 24% (1,320,507)
- Commercial/Other/Unspecified: 76% (4,230,458)
Block Level Address Feedback

Consists of block tallies detailing:
- What the partner provided
- Number of records matched or added to the Census address list
- Number of records not accepted
- Total number of records currently in the MAF

<table>
<thead>
<tr>
<th>Block</th>
<th>Total Addresses</th>
<th>Total Residential</th>
<th>Total Nonresidential</th>
<th>Total Other</th>
<th>Total Matched</th>
<th>Total Added</th>
<th>Total Coordinates Added</th>
<th>Total Not Accepted</th>
<th>Total Not Accepted Duplicate</th>
<th>Total Not Accepted Incomplete</th>
<th>Total Not Accepted Other</th>
<th>Total Currently in MAF</th>
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<tbody>
<tr>
<td>1000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1001</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
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<td>0</td>
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<td>0</td>
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<td>0</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>
Interactive Review and Update

- Digitizers interactively review the potential new and misaligned streets using the partner data and current imagery.

- In this example, the green-blue lines indicate street updates made by the Census Bureau based on the partner data.

- The Census Bureau added 39 miles of new streets and modified 115 miles of misaligned streets based on this partner’s street centerline data.
Street Centerline Updates

- 13,601 Miles of new roads added
- 40,385 Miles of updated roads
- 53,986 total miles of feature updates
Feature Feedback

Adding a date of last update field to the partnership shapefiles:

<table>
<thead>
<tr>
<th>MTCC</th>
<th>FIDELITY</th>
<th>FULLNAME</th>
<th>SMID</th>
<th>MTUPDATE</th>
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<tbody>
<tr>
<td>S1200</td>
<td>Y</td>
<td>Rd 4</td>
<td>4379</td>
<td>1/2/2013</td>
</tr>
<tr>
<td>H3010</td>
<td>Y</td>
<td>Hudson Br</td>
<td>5364</td>
<td>1/2/2013</td>
</tr>
<tr>
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<td>Meredith Br</td>
<td>5364</td>
<td>1/2/2013</td>
</tr>
<tr>
<td>S1400</td>
<td>Y</td>
<td>Dupont Hwy</td>
<td>4379</td>
<td>1/2/2013</td>
</tr>
<tr>
<td>H3010</td>
<td>Y</td>
<td>St Jones Riv</td>
<td>5364</td>
<td>1/2/2013</td>
</tr>
<tr>
<td>S1200</td>
<td>Y</td>
<td>E Lebanon Rd</td>
<td>0</td>
<td>1/2/2013</td>
</tr>
<tr>
<td>S1400</td>
<td>Y</td>
<td>Green Acres Dr</td>
<td>4379</td>
<td>1/2/2013</td>
</tr>
<tr>
<td>S1200</td>
<td>Y</td>
<td>E Lebanon Rd</td>
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<td>1/2/2013</td>
</tr>
<tr>
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<td>Court St</td>
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<td>1/2/2013</td>
</tr>
<tr>
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<td>0</td>
<td>1/2/2013</td>
<td></td>
</tr>
<tr>
<td>S1630</td>
<td>Y</td>
<td>0</td>
<td>1/2/2013</td>
<td></td>
</tr>
<tr>
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<td>Y</td>
<td>Korean Veterans Memor</td>
<td>4379</td>
<td>1/2/2013</td>
</tr>
<tr>
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<td>5364</td>
<td>1/2/2013</td>
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</tr>
<tr>
<td>H3010</td>
<td>Y</td>
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<td>1/2/2013</td>
<td></td>
</tr>
<tr>
<td>R1011</td>
<td>Y</td>
<td>Conrail RR</td>
<td>0</td>
<td>1/2/2013</td>
</tr>
<tr>
<td>S1400</td>
<td>Y</td>
<td>0</td>
<td>1/2/2013</td>
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<tr>
<td>R1011</td>
<td>Y</td>
<td>Conrail RR</td>
<td>0</td>
<td>1/2/2013</td>
</tr>
</tbody>
</table>
Observations from Content Verification

- Incomplete metadata – projection, datum, data dictionaries, etc.
- Coverage gaps – some counties excluded data for incorporated cities within their legal jurisdiction
- Frequent call-backs for explanations and missing data – i.e., missing Interstate Highway layer, cryptic building use codes, etc.
Community TIGER

- Proof of Concept collaborative project with ESRI
- Web (cloud) based data exchange and data management portal
- Phased and iterative project Leverages COTS technology, existing systems and proven workflows
- Utilizes and builds upon the next generation ESRI Community Maps
2015 GSSI goals

- Increase in GSSI production
- Ongoing Feedback
- Further testing/select rollout of Community TIGER to refine tools
- Dependent on FY 15 budget
Local Update of Census Addresses (LUCA) Program
LUCA Background

The LUCA program is made possible by the Census Address List Improvement Act of 1994 (Public Law 103-430) which provides an opportunity for designated representatives of local, state, and tribal governments to review the addresses used to conduct the Census.
LUCA Background (continued)

- **LUCA 1998/99**: Review and comment on our address list.

- **2010 LUCA**: Three participation options:
  - Option 1: Title-13 Full Address List Review (similar to LUCA 98)
  - Option 2: Title-13 review, full address list submission
  - Option 3: Non-Title-13, full address list submission
LUCA 1998 by the numbers

- 6.2 Million addresses submitted by 6,230 participants
- 0.9 Million matched to existing MAF records
- 5.3 Million new addresses added to the MAF
  - 3.4 Million good (enumerated) addresses
  - 63.2% Enumeration rate
LUCA 2010 by the numbers

- 41.7 Million addresses submitted by 7,641 participants
- 32.6 Million matched to existing MAF records
- 9.1 Million new addresses added to the MAF
  - 2.9 Million good (enumerated) addresses
  - 31.8% Enumeration rate
2020 LUCA Improvement Research

- To develop potential alternative designs for LUCA 2020 based on research by sub-teams
  - Looking Back at 2010 (assessments, surveys, lessons learned, etc...)
  - GSS-I’s impact on LUCA (utilizing software and processes for LUCA)
  - Targeted Address Canvassing impact on LUCA (in-house validation)
  - Focus Groups
Draft LUCA Timeline

- Advanced Notice Mailing
  - Winter 2016/2017
- LUCA Invitation Mailing
  - Summer 2017
- LUCA Materials Mailing
  - Fall 2017/Spring 2018
- Census Bureau Processes and Validates LUCA Updates
  - Fall 2017 to Summer 2019
- LUCA Feedback Materials (and Appeals)
  - Late Summer/Fall 2019
How Can You Help?

- Encourage the development/use of within structure identifiers (Apt 101, Unit B etc...)
- Encourage the development and use of structure type codes in address development (residential, commercial, etc...)
Participant Statistical Areas Program
Participant Statistical Areas Program (PSAP)

- Statistical areas updated in the PSAP
  - Census tracts
  - Block groups
  - Census designated places
  - Census county divisions
Census Tracts

- Small, relatively permanent statistical subdivisions of a county
- Consistent boundaries over time allow statistical comparisons over time
- Population/housing unit thresholds:
  - Minimum: 1,200 pop/480 HUs
  - Maximum: 8,000 pop/3,200 HUs
  - Optimum: 4,000 pop/1,600 HUs

<table>
<thead>
<tr>
<th></th>
<th>2000 Census</th>
<th>2010 Census</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>7,049</td>
<td>8,057</td>
<td>12.5%</td>
</tr>
<tr>
<td>U.S.</td>
<td>66,438</td>
<td>7,3057</td>
<td>9%</td>
</tr>
</tbody>
</table>
Block Groups

- Block groups nest within census tracts
- Smallest area for ACS sample data tabulation
- Continuity and comparability from one census to another much less of a concern
- Population/housing unit thresholds:
  - Minimum: 600 pop/240 HUs – but lowest recommended for ACS is 1,200 pop/480 HUs
  - Maximum: 3,000 pop/1,200 HUs

<table>
<thead>
<tr>
<th></th>
<th>2000 Census</th>
<th>2010 Census</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>22,133</td>
<td>23,212</td>
<td>5%</td>
</tr>
<tr>
<td>U.S.</td>
<td>211,827</td>
<td>217,740</td>
<td>3%</td>
</tr>
</tbody>
</table>
Census Designated Places (CDPs)

- Represent communities that are: closely settled, unincorporated, locally and regionally recognized, identifiable by name
- Intended to be comparable with incorporated places. Not meant to represent individual “neighborhoods” or “subdivisions” if a part of a larger place
- Have some housing units, and most often mix of residential and commercial and/or community development
- Cannot overlap with incorporated places or other CDPs

<table>
<thead>
<tr>
<th></th>
<th>2000 Census</th>
<th>2010 Census</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>607</td>
<td>1,043</td>
<td>42%</td>
</tr>
<tr>
<td>U.S.</td>
<td>5,977</td>
<td>9,721</td>
<td>36%</td>
</tr>
</tbody>
</table>
2010 PSAP Successes

- Stayed on schedule
- All Digital for the first time
- Strong support/participation in CA
- MAF/TIGER Partnership Software (MTPS) standardized submissions
  - Guide through work
  - Built in edits
  - Overall improvements
- Online imagery, other digital data, and GIS helped in the review of submissions
2010 PSAP Challenges

- Many participants unable to conduct the amount/level of review desired
- New tools resulted in more debate over final delineation
- Internally too much focus on technology, not enough focus on the concepts
- Stricter enforcement of thresholds in support of the ACS
  - Difficult to persuade some participants to merge low population tracts and block groups
  - More need for education on ACS and Economic Census
Looking Towards the 2020 PSAP

- No significant criteria changes
- Continue all digital approach, but make improvements
  - Make PSAP plan communication and data sharing easier for participants among colleagues and constituent communities, e.g., creation of PSAP plan PDF maps
  - May be primarily or completely over the web
- One “phase” – not two (delineation and verification)
- Reasons for participation remain the same, primarily:
  - Statistical areas are used to qualify for government funding
  - Decennial Census, American Community Survey, and other census and survey data published for these geographies
  - Affect other geographic area delineations, including census blocks and geographies built on census blocks
Draft PSAP Schedule

- 2016 – proposed 2020 PSAP criteria published in the Federal Register and on Bureau website
- 2016/17 – final criteria published
- 2017 – outreach and determining the PSAP “primary” participants
- 2018 – PSAP participants will begin working on the PSAP and CDP programs – at the earliest
- 2020 – all geographies “locked down” for 2020 Census
The Redistricting Data program provides States the opportunity to specify small geographic areas for which they wish to receive 2020 decennial population totals for the purpose of reapportionment and redistricting.

Title 13, Section 141c of the United States Code
Redistricting Data Program
Five Phases

- **Phase 1 - Block Boundary Suggestion Project**
  - Expected December 2015 - May 2017

- **Phase 2 - Voting District Project**
  - Expected December 2017 - May 2019

- **Phase 3 - Delivery of the 2020 Census P.L. 94-171 Redistricting Data Files and Geographic Products**

- **Phase 4 - Collection of Post-2020 Census Redistricting Plans**

- **Phase 5 - Evaluation of the 2020 Census Redistricting Data Program and Recommendations for 2030**
Redistricting Program

Next Steps

- Invitation to participate in Program
  - End of September 2014
- Meetings with State Liaisons
  - All through 2015
- Invite States to Participate in BBSP
  - February 2015
- Identify the BBSP universe
  - August 2015
BAS 2015

- There will be a BAS program next year but it will be limited in scope
- Federal Register announcement soon
Thank you!

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http://www.census.gov/geo/gssi/
http://www.census.gov/rdo/
http://www.census.gov/geo/partnerships/