USGS and the Census Bureau: Displaying TIGER in The National Map

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Presentation Outline

- Background
- What’s New?
- Timeframe
- Review and Resolution Process
- Error Codes
- Resolving Errors
- Transmitting Data
- Moving Ahead
Background

- History of cooperation dating to 1980’s

- USGS and Census established interagency team to investigate the use of TIGER roads as the primary roads layer in *The National Map (TNM)* in 2011

- Requirements identified

- Use of TIGER was recommended in 2013
USGS and Census: One Year Later

- MOU was signed between agencies in April 2014
- Implementation group has been formed
- Road Review and Resolution Processes have been implemented
- Updated data being sent to USGS
Timeframe: Constraints

Census

- Only Census can update TIGER
- Census traditionally focused on roads where people live—not interstates
- TIGER has certain representation for certain features due to the Census operations (i.e. traffic circles)

USGS

- Can’t impact US Topo production schedule
- Convert data into the TNM Model
- Build TNM cached base maps
Timeframe: Priorities

1. Interstates
   - Interstates are viewed as the backbone of roads data in TNM

2. Urban
   - First Round: Top 100 Cities by Population

3. Rural and Backcountry
   - Backcountry areas have fewer roads and less population
What Edits Will Be Reflected

- Intensive Interstate Review and Cleanup done from November 2013- August 2014
  - 100% of the Level 3 Interstate errors were resolved
  - 85% of the Level 2 Interstate errors were resolved
<table>
<thead>
<tr>
<th>USGS</th>
<th>US Census Bureau</th>
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</thead>
<tbody>
<tr>
<td>Denver, CO</td>
<td>Washington DC</td>
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- USGS reviews TIGER roads against imagery in ArcMap
- USGS creates error shapefile
- USGS sends error shapefile to Census
- Census makes the edits in TIGER
- Census sends updated TIGER to USGS
- TIGER converted and uploaded to TNM
Error Codes: Creating the Error Shapefile

- Goal 1: X,Y Coordinates of the Error Location
- Goal 2: Classify the Error on Severity
- Goal 3: Classify the Error based on Type

Result: Error Code

Note: There will be different codes for each review cycle
Error Codes

First Digit: Level (severity)

3 Severe
2 Moderate
1 Minor
Error Codes

β Second Digit: Type

Intersection Errors
β 0: Road should not connect to Interstate

Attribution Errors
β 1: Ramp Miscoded
β 2: Service Road Miscoded
β 3: Interstate Miscoded
β 4: Interstate/US Highway Do Not Match

Missing Roads and Gaps
β 5 Ramps
β 6 Interstates

Spatial Alignment
β 7 Interchanges

Road Does Not Exist
β 8 Road Does not Exist
How were the Error Codes Used
How were the Error Codes Used

Errors were compiled into workloads based on:

- Levels
- State
- County (if needed)
- Type (for Level 2)
Severe Misaligned Interchange (37)
Severe Misaligned Interchange (37)

Red- Interstate  Blue- Secondary Roads  Green- Local Roads  Yellow- Ramps
Severe Misaligned Interchange (37)

Red- Interstate
Purple- Service Roads
Green- Local Roads
Severe Misaligned Interchange (37)

Red- Interstate  Purple- Service Roads  Green- Local Roads
Severe Miscoded Interchange(33)

Red- Interstate  Blue- Secondary Roads  Green- Local Roads  Yellow- Ramps
Moderate Missing Ramps (25)
Moderate Missing Ramps (25)

Red- Interstate  Blue- Secondary Roads  Green- Local Roads  Yellow- Ramps
Moderate Miscoded Ramp (21)

Red- Interstate  Blue- Secondary Roads  Yellow- Ramps
Moderate Missing Interstate (26)

Red- Interstate     Blue- Secondary Roads Green-Local Roads
Resolving Interstate Errors

β Approximately 37% of counties had Level 3 errors

β Errors generally occurred as clusters

β Most Level 3 Errors: NJ, PA, CA, TX, MO

β Least Level 3 Errors: VT, ME, ND, RI, MT
Transmitting Resolved TIGER

Census sends approximately five states a week to USGS for conversion

States are benchmarked on the fly for this process

Shipments began 6/6/14 and will last through 8/15/14

Therefore updates made after shipment will not be reflected in the TNM
What will *TNM* Viewer Reflect in January 2015?

**Interstates:**
- Improved data
  - Intensive cleanup of approximately 12,000 errors

**Urban:**
- No specific USGS edits were implemented
- Other than Interstates in urban areas
- Continuing updates from Census’ GSS-I program

Note: Total Mileage in TIGER is roughly 6.3 million miles
Moving Ahead: Census and USGS

- Continuing GSS-I Updates of TIGER at Census
- Completion of Urban Area Review by USGS
- Start of Urban Area Resolution at Census
- Working with Federal Highways

  FHWA ARNOLD => Census TIGER=> The National Map
Moving Ahead: **TNM Goals**

- **FY15 Q1** – New Census roads data is in our Transportation Overlay Service and in our Transportation Download products.

- **FY15 Q2** – New Census roads incorporated into our integrated vector data download products

- **FY15 Q3** – Incorporated into USGS Topo web base map service.

- **FY15 Q4** – Incorporated into USGS Imagery Topo web base map service

- **FY16** – Incorporated into US Topo maps
Any Questions?

The National Map: http://nationalmap.gov

For any questions:

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