

USGS and the Census Bureau: Successful Interagency Alignment of Operations – TIGER Roads

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Presentation Outline

- Background
- 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

- 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 or more rural areas
- 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

Review and Resolution Process

USGS
Denver, CO

US Census Bureau
Washington DC

USGS reviews TIGER roads against imagery in ArcMap



USGS creates error shapefile



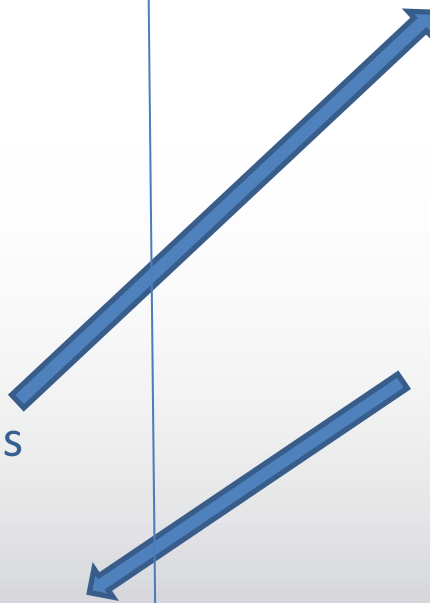
USGS sends error shapefile to Census

TIGER converted and uploaded to *TNM*

Census makes the edits in TIGER



Census sends updated TIGER to USGS



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

■ Second Digit: Type

Intersection Errors

- 0: Road should not connect to Interstate

Attribution Errors

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

Missing Roads and Gaps

- 5 Ramps
- 6 Interstates

Spatial Alignment

- 7 Interchanges

Road Does Not Exist

- 8 Road Does not Exist

Error Codes

- Second Digit: Type

 - Intersection Errors

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 - Attribution Errors

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 - Missing Roads and Gaps

 - 5 Ramps
 - 6 Interstates

 - Spatial Alignment

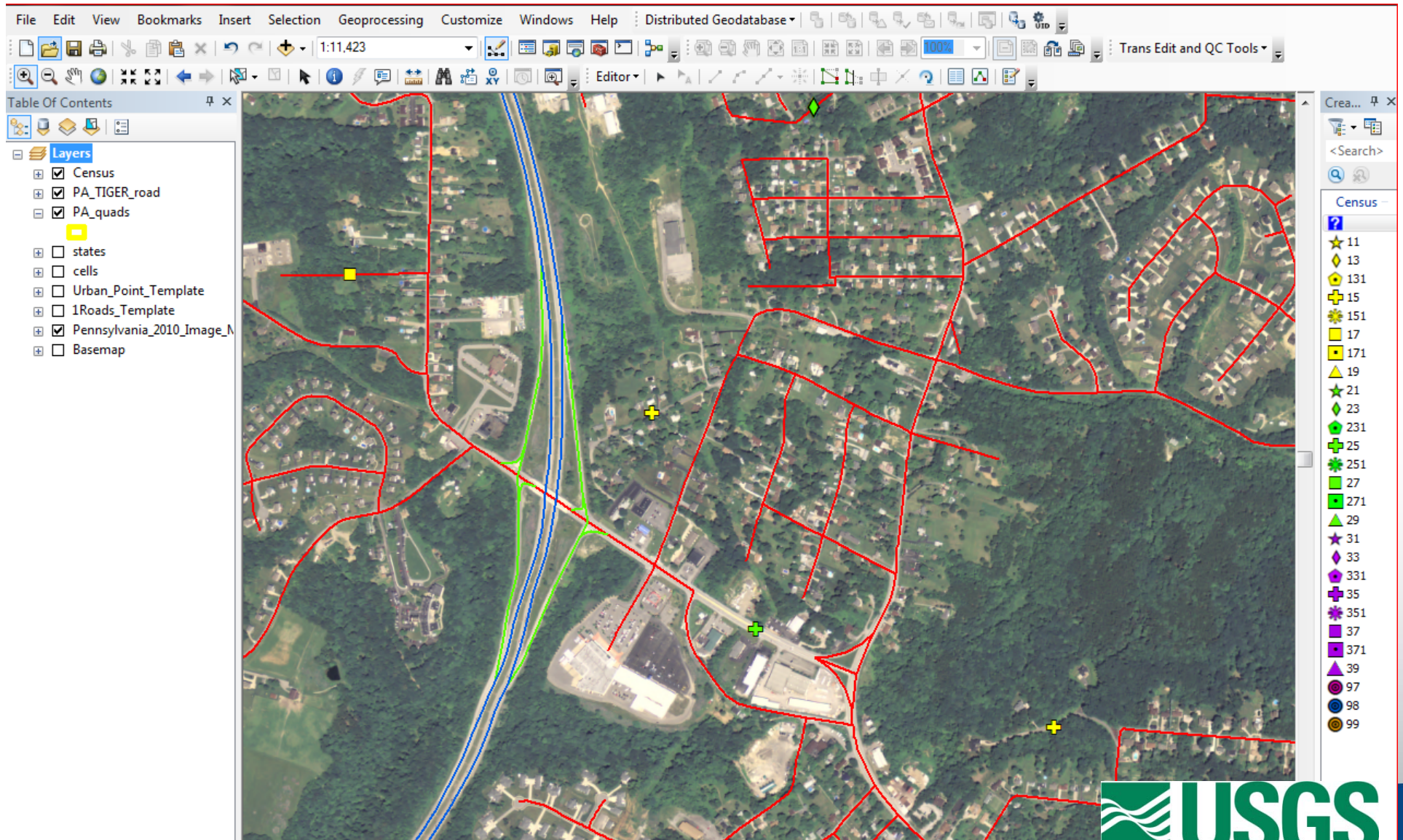
 - 7 Interchanges

 - Road Does Not Exist

 - 8 Road Does not Exist

- Third Digit (if any): Type – Multiple errors

How were the Error Codes Used

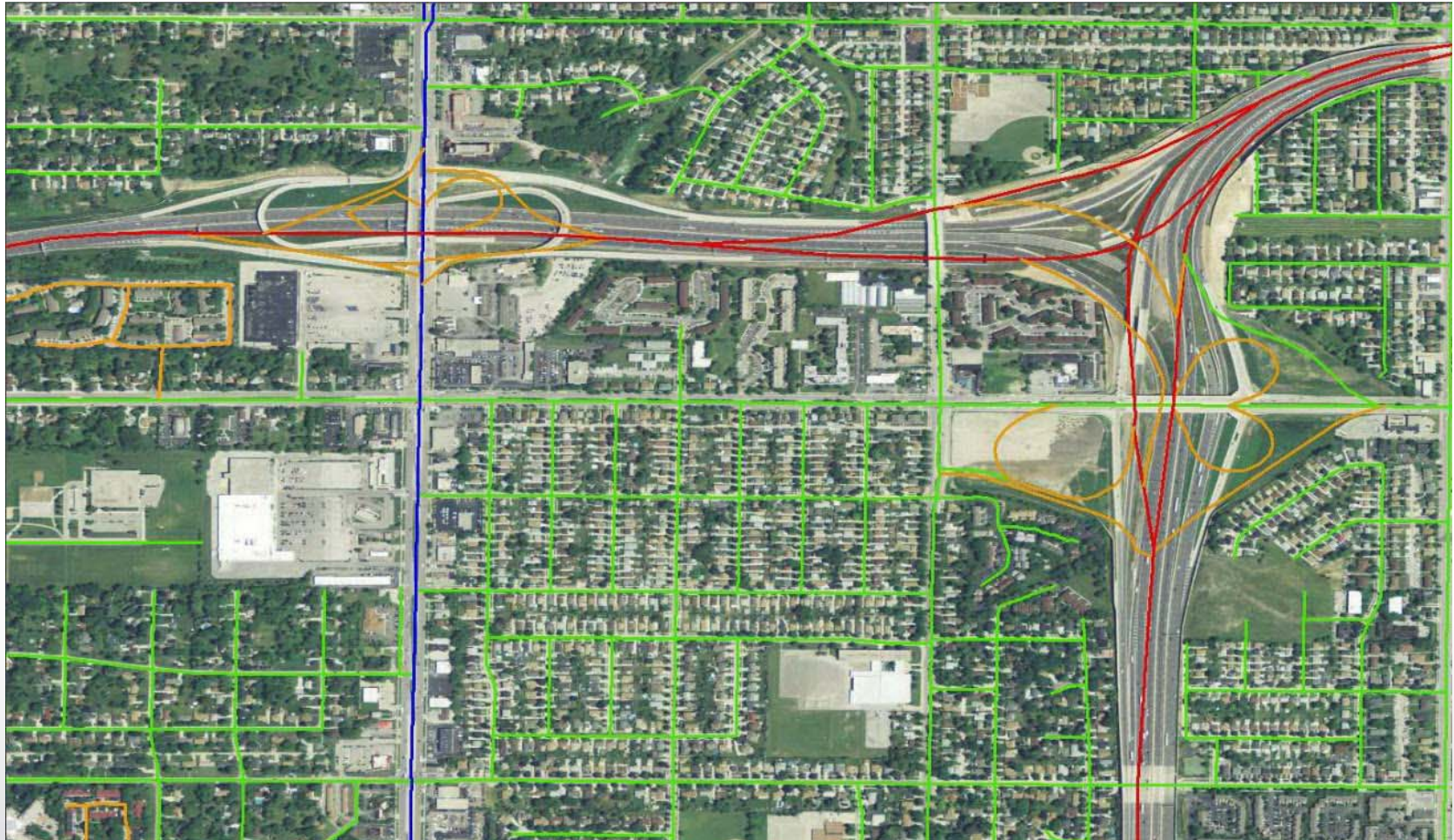


How were the Error Codes Used

Errors are compiled into workloads based on State and are imported to Census's in-house update software (GATRES) for interactive update.



Severe Misaligned Interchange (37)



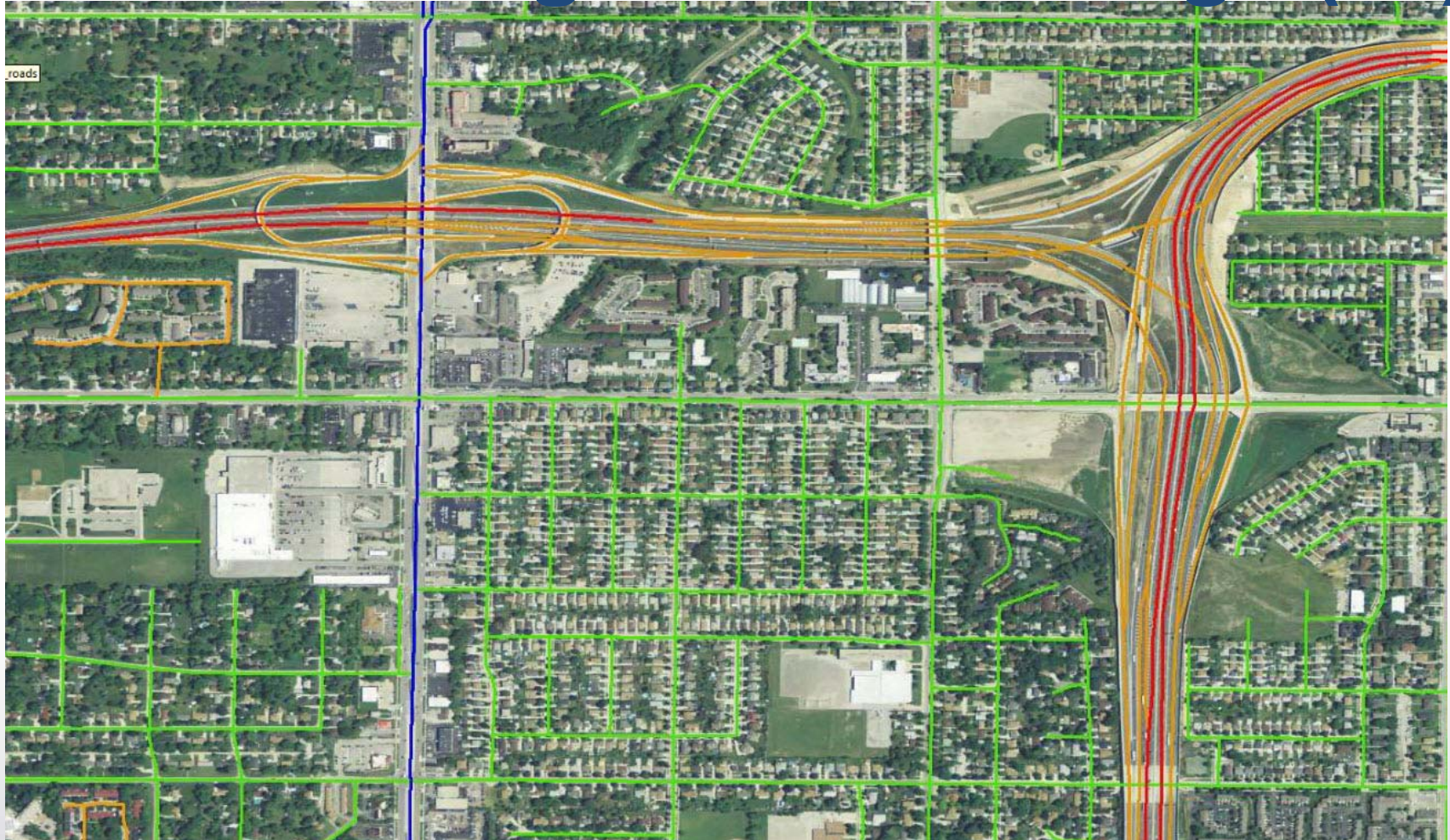
Red- Interstate

Blue- Secondary Roads

Green- Local Roads

Yellow- Ramps

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)

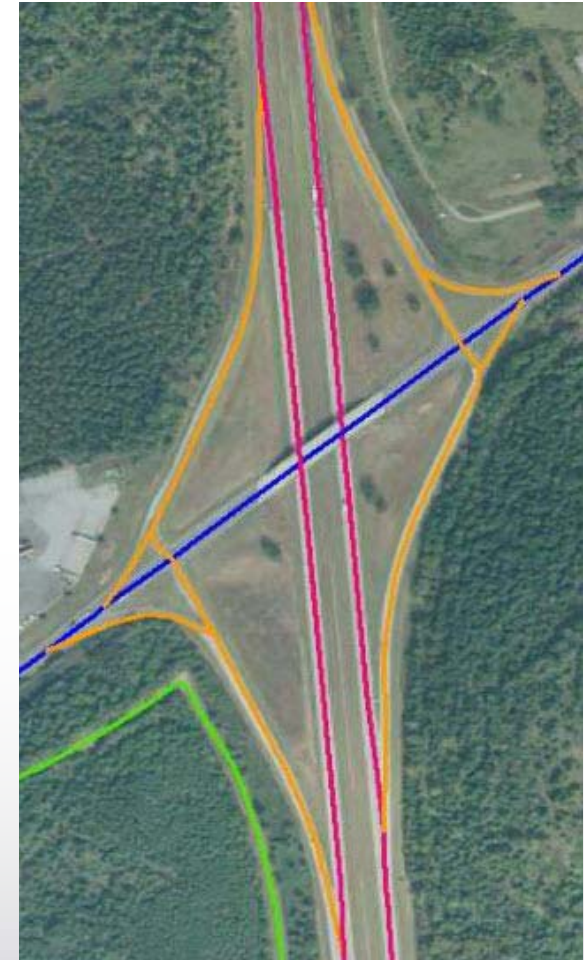


Red- Interstate

Purple- Service Roads

Green- Local Roads

Severe Miscoded Interchange(33)



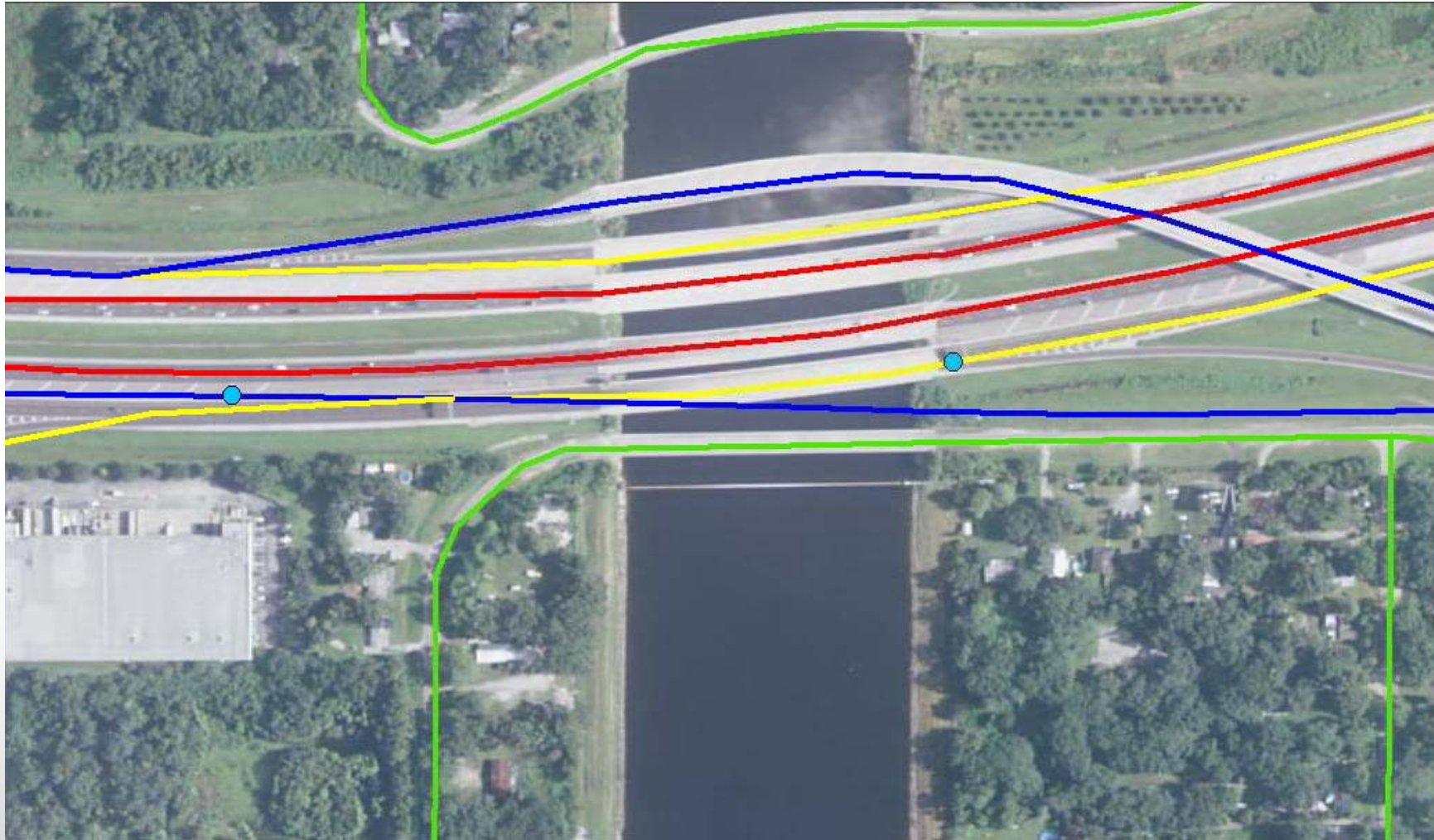
Red- Interstate

Blue- Secondary Roads

Green- Local Roads

Yellow- Ramps

Moderate Missing Ramps (25)



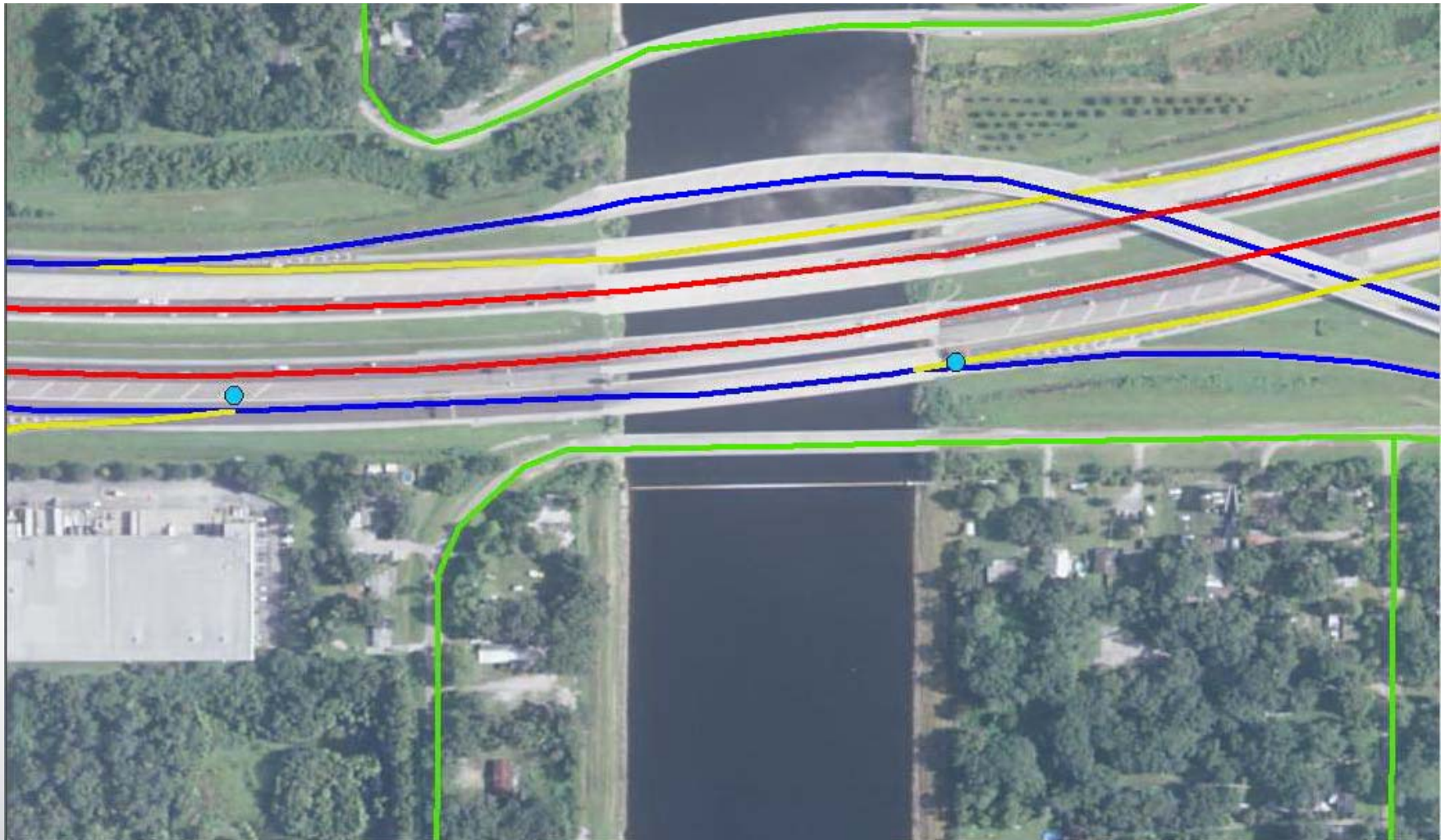
Red- Interstate

Blue- Secondary Roads

Green- Local Roads

Yellow- Ramps

Moderate Missing Ramps (25)



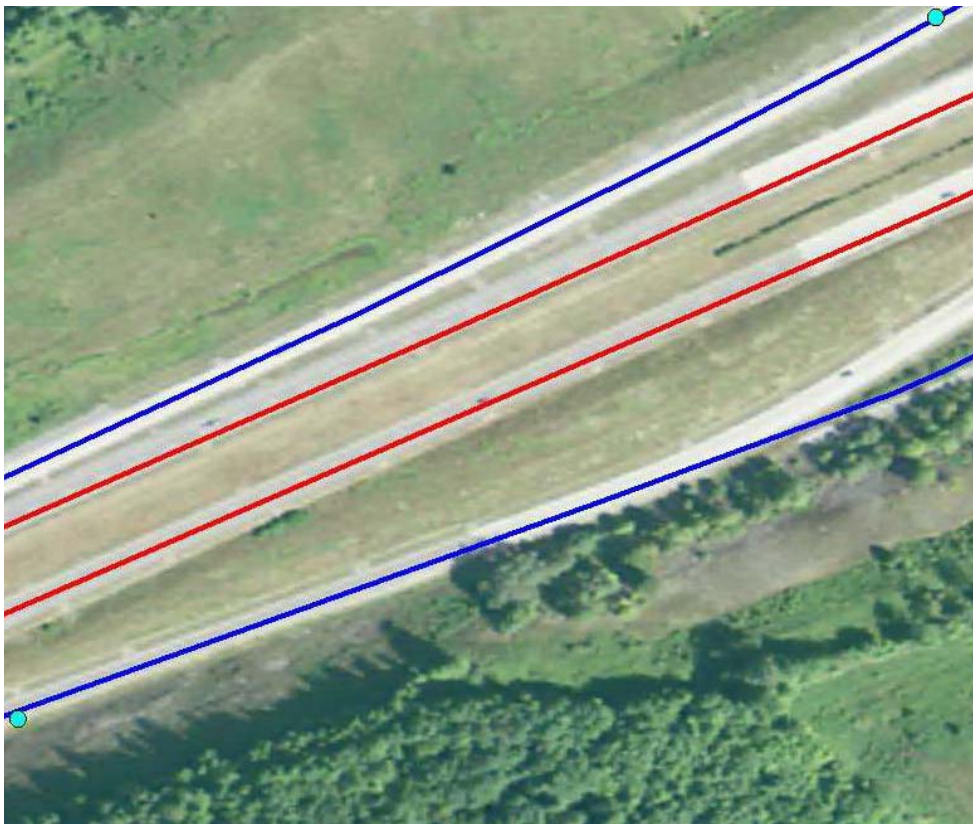
Red- Interstate

Blue- Secondary Roads

Green- Local Roads

Yellow- Ramps

Moderate Miscoded Ramp (21)

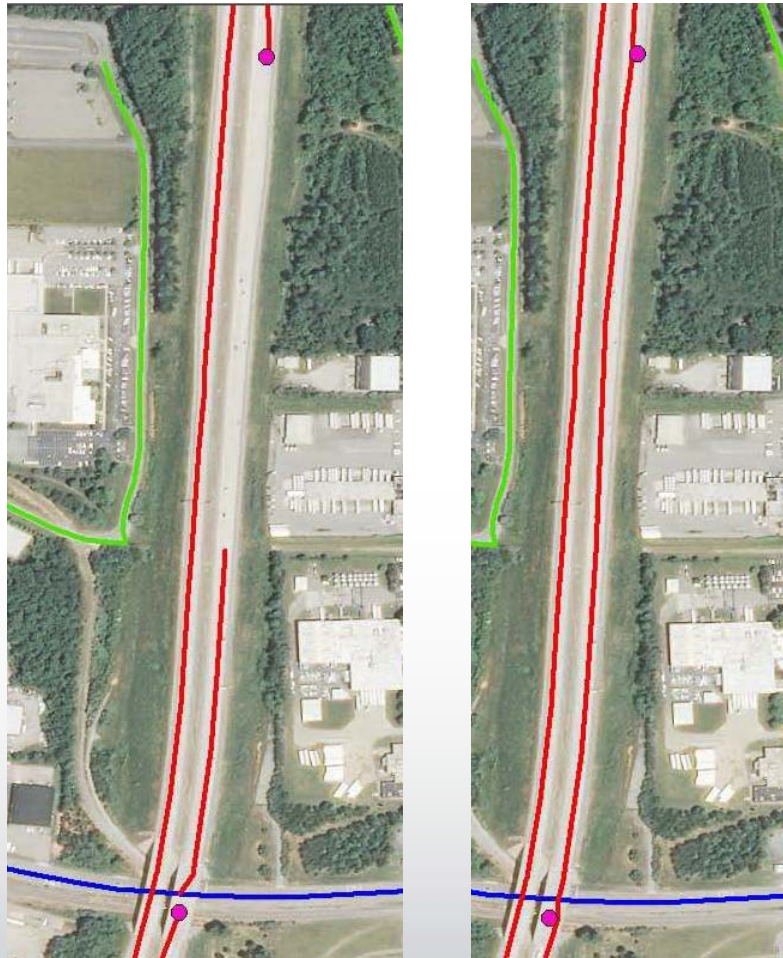


Red- Interstate

Blue- Secondary Roads

Yellow- Ramps

Moderate Missing Interstate (26)



Red- Interstate

Blue- Secondary Roads

Green-Local Roads

Transmitting Resolved TIGER

- States are updated in accordance with the US Topo Schedule
- States are benchmarked on the fly for this process and sent to USGS
- Therefore updates made after shipment will not be reflected in the *TNM*

Moving Ahead: Census and USGS

- Continuing GSS-I Updates of TIGER at Census ^{c3}
- Completion of Major Blunder review ^{c4}
- Update Limited Access Highways based on new MTFCC description
- Continue to improve quality of TIGER based on US Topo production schedule
- Working with Federal Highways
 - FHWA ARNOLD => Census TIGER=> *The National Map*

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c3

Is this still active

cpmatthys, 5/29/2016

c4

"Major Blunder" is probably not the best description of this review

cpmatthys, 5/29/2016

TNM Goals

- **FY16**
 - Produce ## US Topo maps with Census TIGER as the sole source for roads outside of USFS national forest and grasslands.
 - Continue to update USGS Topo web base map service

- **FY17** – Produce ## US Topo maps with Census TIGER as the sole source for roads outside of USFS national forest and grasslands.

- **FY18** – Complete national coverage, excluding Alaska, of US Topo maps with TIGER as the source

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c2

Update slide

cpmatthys, 5/29/2016