

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

Review and Resolution Process

USGS
Denver, CO

US Census Bureau
Washington DC

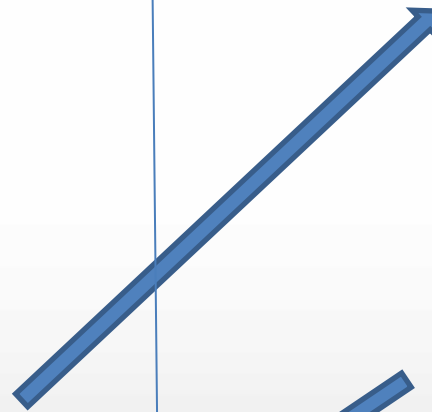
USGS reviews TIGER roads against imagery in ArcMap



USGS creates error shapefile



USGS sends error shapefile to Census



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

§ 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

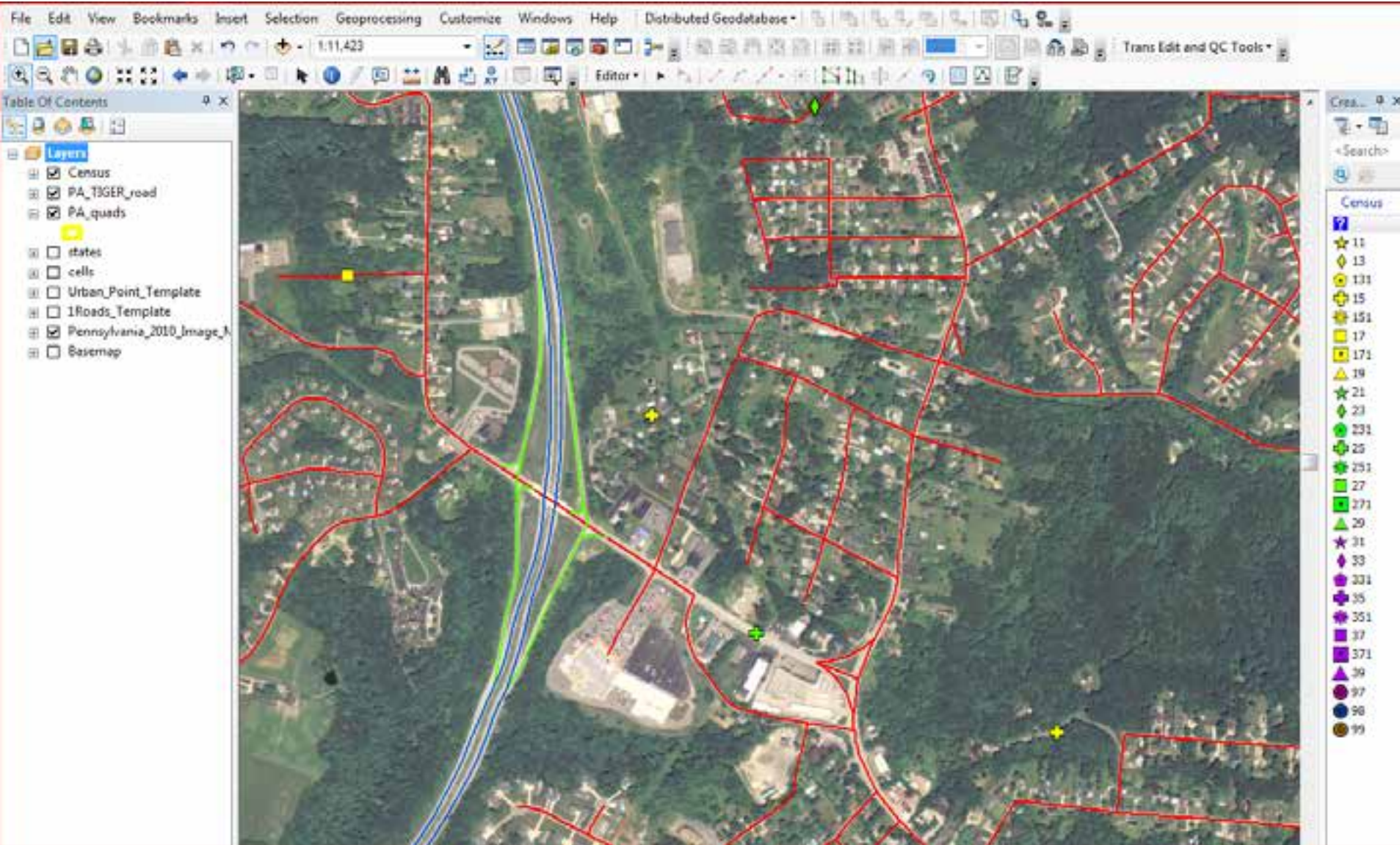
Spatial Alignment

§ 7 Interchanges

Road Does Not Exist

§ 8 Road Does not Exist

How were the Error Codes Used



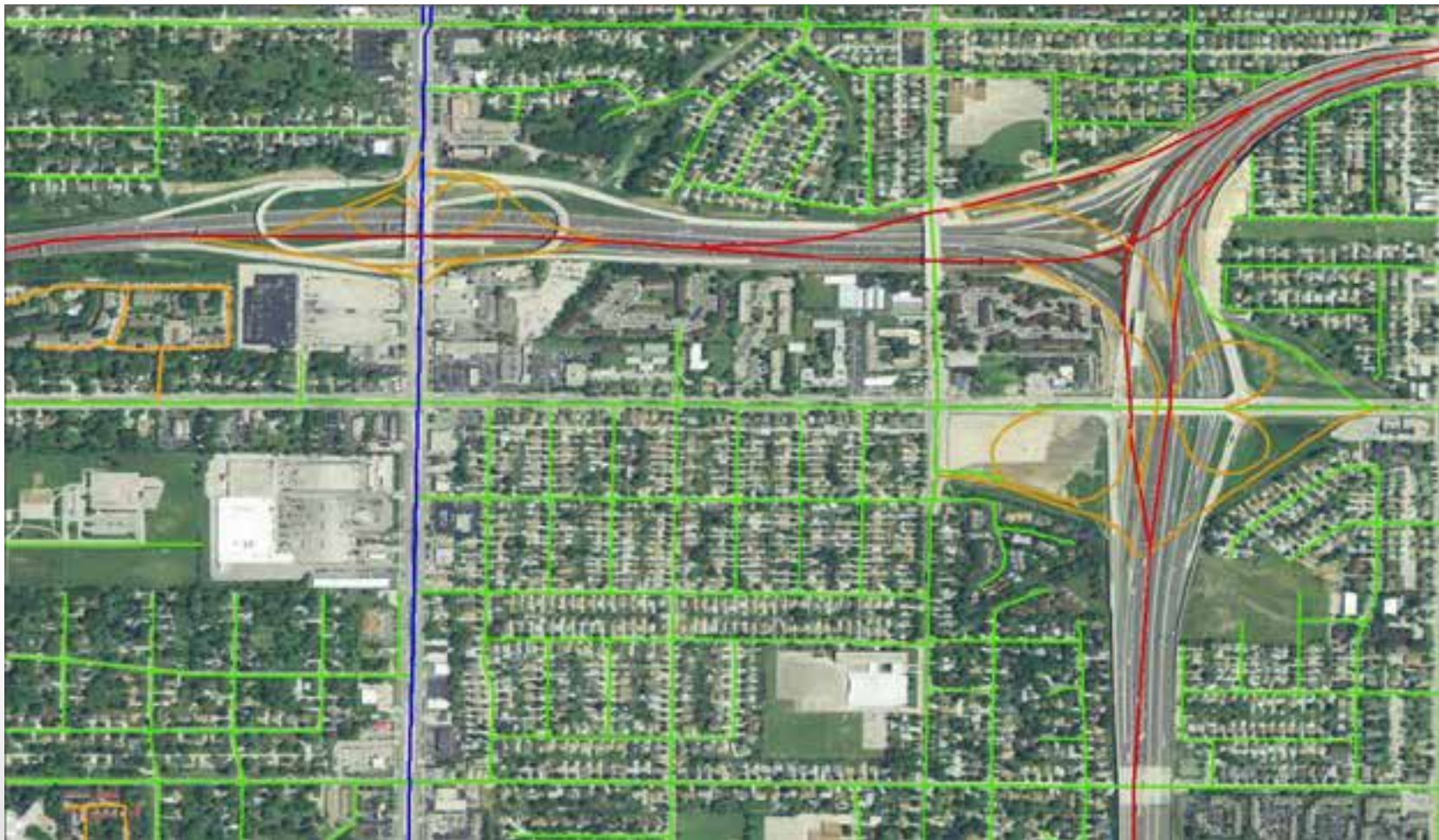
How were the Error Codes Used

Errors were compiled into workloads based on:

- § Levels
- § State
- § County (if needed)
- § Type (for Level 2)



Severe Misaligned Interchange (37)



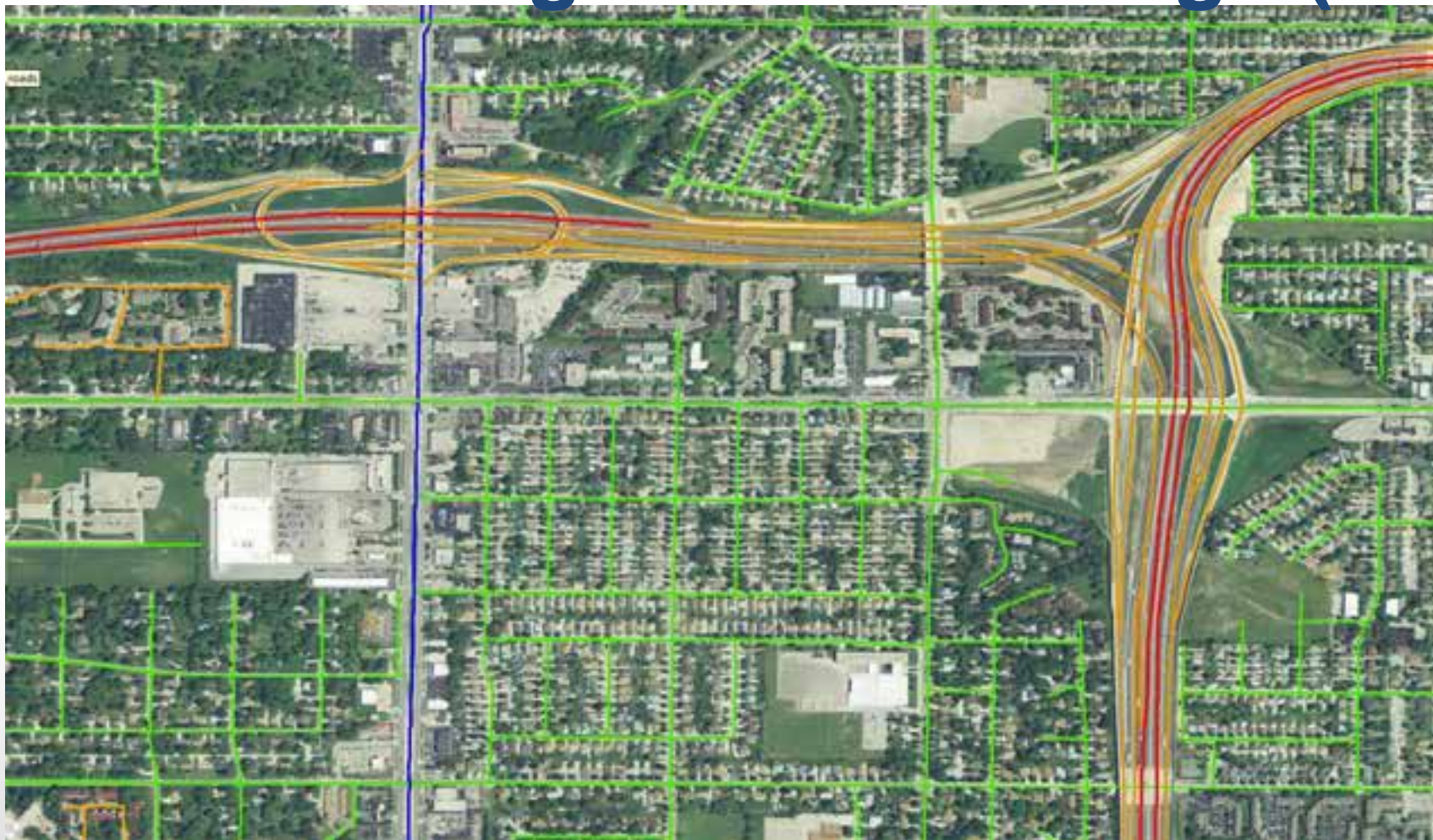
Red- Interstate

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 Misclassified Interchange(33)



Red- Interstate

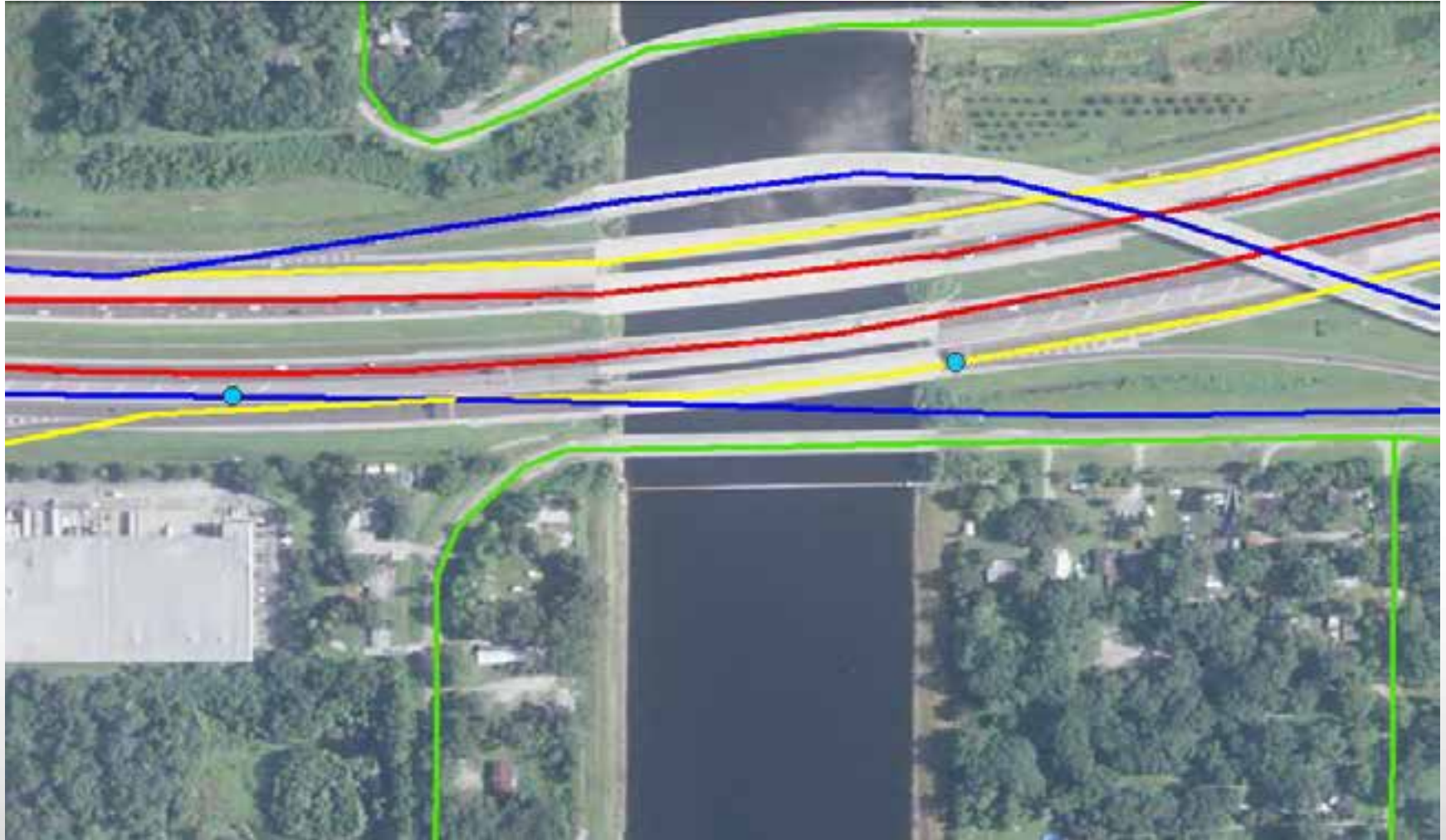
Blue- Secondary Roads

Green- Local Roads

Yellow- Ramps



Moderate Missing Ramps (25)



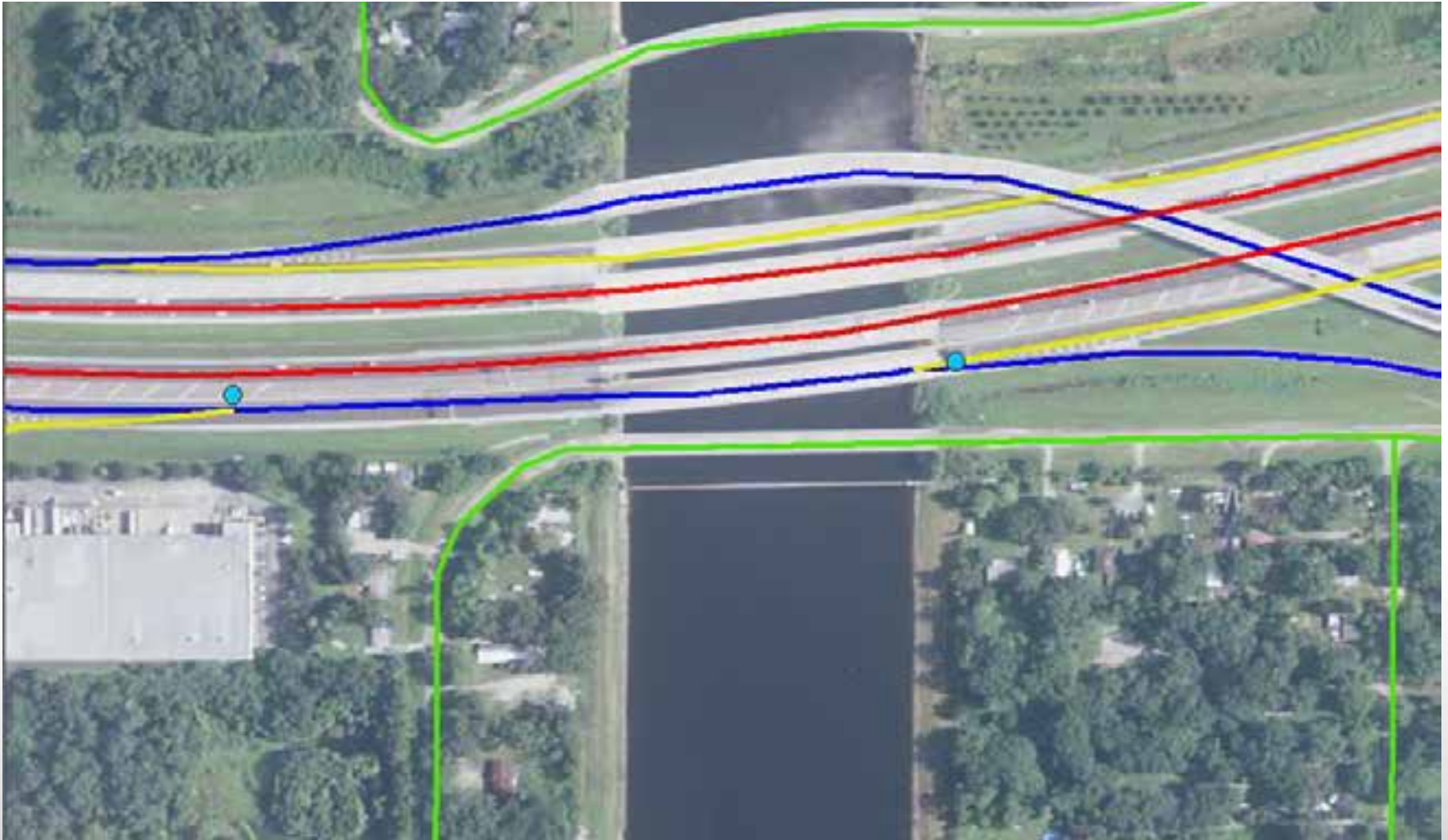
Red- Interstate

Blue- Secondary Roads

Green- Local Roads

Yellow- Ramps

Moderate Missing Ramps (25)



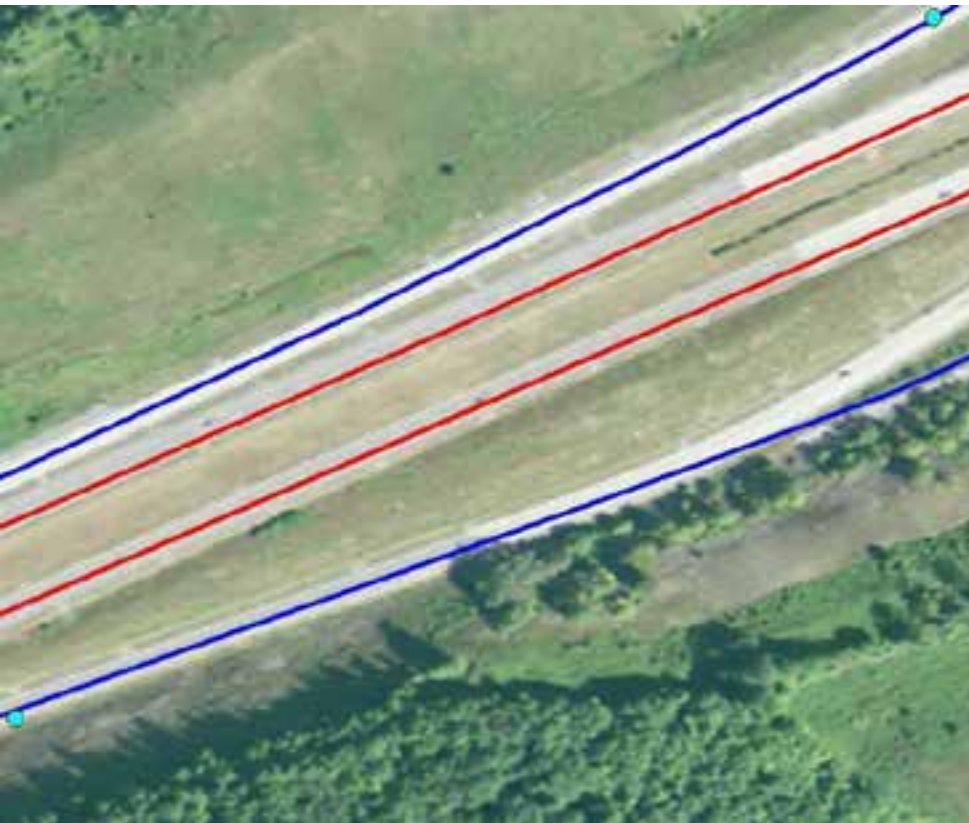
Red- Interstate

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

Resolving Interstate Errors

§ Approximately 37% of counties had Level 3 errors

§ Errors generally occurred as clusters

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

§ 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.
- § **FY15Q4**- 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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