

# Census Bureau and Federal Highway Administration Pilot Project

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# Topics

- § Introduction
- § Background
- § Goals and objectives
- § Governance and timeline
- § Evaluation
- § Status
- § Next steps



# Catalyst for the Pilot

- § MAP-21 Highway Safety Improvement Program (HSIP) required the creation of all roads in digital form and provided funding
- § FHWA requested the digital roads as part of Highway Performance Management System (HPMS) submittals and will produce ARNOLD from the State DOT data
- § The result is a new potential source of roads data for the Census Bureau's TIGER database

# Background: The Geographic Support System Initiative (GSSI) Partnership Program

- § Launched in October 2012
- § Request address, housing unit structure, and street centerline data for purposes of updating the MAF/TIGER System
- § Apply quality checks to determine if partner-provided data meet our minimum requirements

# GSS-I Content Verification

## § Minimum and Optimal Guidelines

### § Features

- § Centerline data at a minimum

- § Topology is desirable

### § Name attributes

- § Complete road name and type at a minimum

- § Road name modifiers are desirable

### § Address Ranges

- § Orientation at a minimum

- § Parity is desirable

### § Metadata

- § Date Last Updated at a minimum

- § Complete metadata file is desirable

# GSS-I Feature Source Evaluation

## § Metadata Assessment

- § Content Checks: Codes, Crosswalks, and Paper Streets

## § Feature Source Evaluation

- § Accuracy

- § CE95

- § Topological Checks

- § Gaps, Overshoots, etc.

- § Roads

- § Representation

- § Names

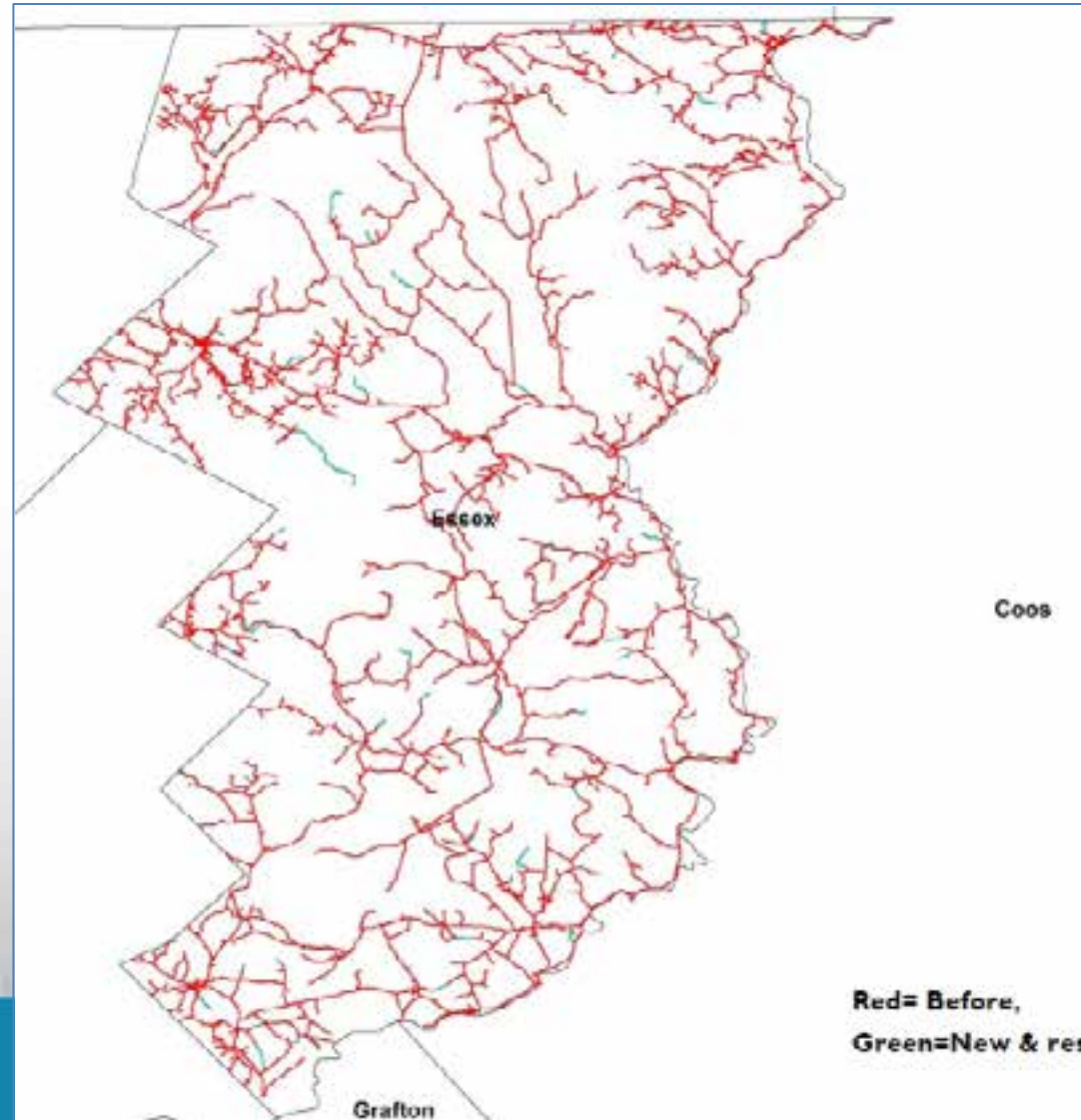
- § Change Detection

- § Verification

- § Suitability for Conflation

# GSS-I Results

- § 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



# Pilot Goals and Objectives

- § Evaluate the usability of State DOT data for updating Census Bureau TIGER database
  - § Compare State DOT data with local government data sets
  - § Evaluate overall quality using standardized Census Bureau procedures



# Pilot Governance Structure

- § Oversight Management Group (OMG)
  - § Meets quarterly
  
- § Technical Coordination Group (TCG)
  - § Core group meets weekly or bi-weekly
  - § Whole group meets as needed
  
- § Participants include the Census Bureau and FHWA staff as well as DOT and USGS representatives

# Pilot Milestones

- § Establish a project charter
- § Define evaluation criteria
- § Develop evaluation process
- § Complete evaluation
- § Prepare a report summarizing the findings, recommendations, next steps

# Data Components

- § Evaluation data layers
  - § State DOT data
  - § Local government roads data
- § Base map data layers
  - § Imagery
  - § TIGER boundaries
  - § Federal lands boundaries

# State DOT Data

- § Chose a few State DOTs for sample data
- § Considerations -
  - § Representative data sets
  - § Availability of corresponding local data sets
  - § Share a border
  - § Esri and Intergraph systems
  - § Data collection process
  - § Willing partners

# Two Evaluation Processes

- § Evaluate quality using standardized Census Bureau procedures developed as part of our Geographic Support System Initiative (GSS-I)
- § Compare State DOT data with local government data sets obtained through the GSS-I Partnership Program

# GSS-I Evaluation: Content Verification

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# GSS-I Evaluation: Feature Source Evaluation

- § Metadata Assessment
  - § Content Checks: Codes, Crosswalks, and Paper Streets
- § Feature Source Evaluation
  - § Accuracy
    - § CE95
  - § Topological Checks
    - § Gaps, Overshoots etc
  - § Roads
    - § Representation
    - § Names
    - § Change Detection
    - § Verification
  - § Suitability for Conflation

# Non GSS-I Evaluation Criteria

- § Basic evaluations conducted using ArcMap
  - § Feature-to-image fidelity as a proxy to accuracy
    - § Centerline representation
    - § Alignment
    - § Glaring errors
  - § Quantify and examine for assessment of completeness
    - § Features – total road mileage, road type count
    - § Attribution – count of named, unnamed roads



# Feature To Image Fidelity

- How do the roads line up against imagery?



# Road Types

- Are local roads present and are roads classified correctly?



# Road Names

- Do the roads have complete names and road type?



# Status and Next Steps

- § Establish a project charter - completed
- § Define evaluation criteria - near completion
- § Develop evaluation process – near completion
- § Complete evaluation - 8/29
- § Prepare a report summarizing the findings, recommendations, next steps - draft 9/30, final 12/31

# Questions and Comments



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