

State of 911

Webinar Series

NATIONAL 911 PROGRAM

August 9, 2016

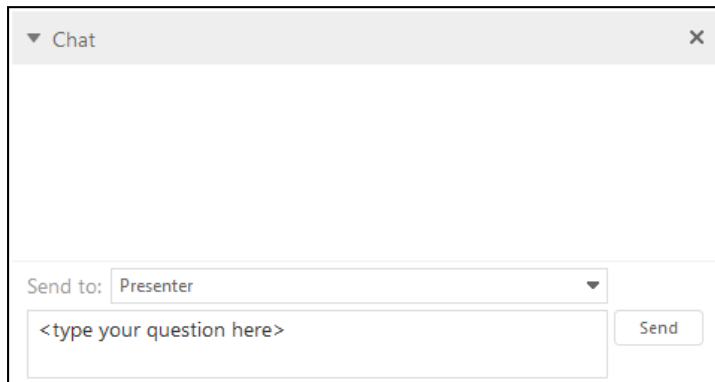
State of 911 Webinar Series

- Designed to provide useful information about Federal and State participation in the planning, design, and implementation of Next Generation 911 (NG911) coupled with real experiences from leaders overseeing these transitions throughout the country
- Webinars are held every other month and typically include presentations from a Federal-level 911 stakeholder and State-level 911 stakeholder, each followed by a 10-minute Q&A period
- For more information on future webinars, access to archived recordings and to learn more about the National 911 Program, please visit 911.gov
- Feedback or questions can be sent to: National911Team@mcp911.com

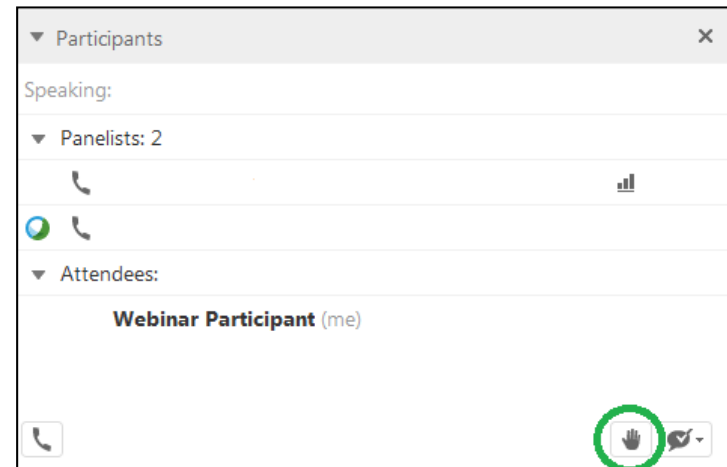
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Building a National Address Database

August 2016



Vision

“The National Address Database is an authoritative and publicly available resource that provides accurate address location information to save lives, reduce costs, and improve service provision for public and private interests”

Source: *The Need for a National Address Database*, a report submitted to the Federal Geographic Data Committee by the National Geospatial Advisory Committee, December 2012.

The Mandate

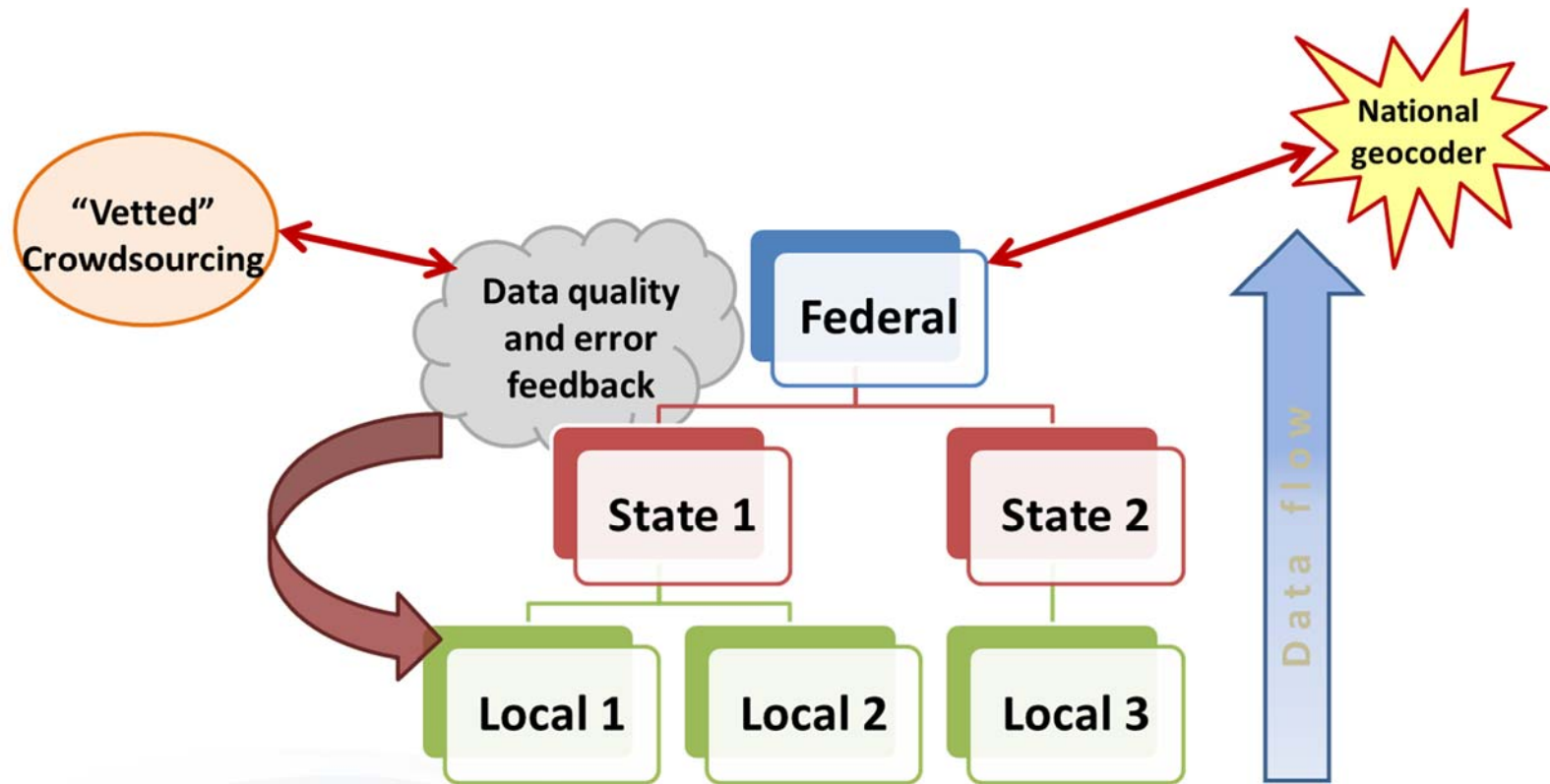
In February 2015, GAO published the report ***Geospatial Data: Progress Needed on Identifying Expenditures, Building and Utilizing a Data Infrastructure, and Reducing Duplicative Efforts***

- One of the recommendations from the report was to **Create an address data theme with associated subcommittees and working groups to assist in furthering a national address database.**
- The FGDC Steering Committee is the responsible party, but DOT and the Census Bureau have taken the lead.

First Step: The National Address Database Summit

- Held April 8-9, 2015 at the Maritime Institute in Linthicum, MD
- Funded by DOT
- Objective: To identify and discuss possible options for developing a National Address Database (NAD)
- Broad stakeholder representation
 - Government (Federal, State, Local, and Tribal)
 - Private Sector
 - Non-Profits and Trade Organizations

How it would work



Pilot Launch October 2015

Advisory Group Established – Key Stakeholders

DOT Funded

Goals

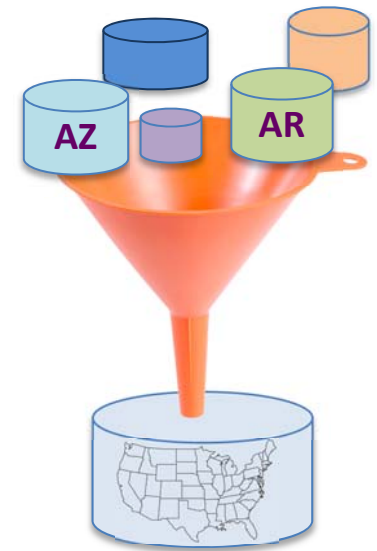
- Determine minimum content guideline
- Explore workflows
- Understand best practices for address roll-up
- Assess technical feasibility
- Keep NAD in the public domain

	A	B	C	D	E	F
1	Name	Address	Address2	City	State	Zip
2	John Doe	123 Anystreet		Anycity	MN	12345
3	Betty Johnson	456 That Road	#108	Sometown	KY	67890
4	Tom Anderson	789 Broad Street		Dullsville	CA	23456
5	Sally Stevens	1011 Main Street	Unit 3	Pleasantville	NY	17890
6	Richard Townsend	1213 Mulholand Drive		Anywhere	WA	34567
7	Maria Sanchez	1415 Circle Road	Apt. 2	Sometown	NV	28901
8	Antoine Dodson	1617 Oregon Trail		Nowhere	FL	45678
9	Jane Doe	456 Anystreet	Unit 7	Anycity	MN	12345
10	Bart Johnson	123 That Road		Sometown	KY	67890



Pilot Results in Brief

- Identified the “haves” and “have nots”
 - 30 states have programs with varying degrees of completeness
 - Also Gila River Indian Community, Navajo Addressing Authority, Dept of Navy¹
- Research on existing systems e.g. OpenAddresses.io, Community TIGER
- Identified minimum content guideline
- Schema comparison
 - FGDC and CLDXF
 - State schemas: AR, AZ, MA, NC, NY, RI, UT, VA, VT, plus DC & counties
- Identified best geocoding & address list data sources



¹ https://www.nsgic.org/public_resources/2014_09_17_08_SPAWAR-Jansen.pdf

Minimum Content Guideline – 3 Components

The Address itself

- Address Number
- Street Name
- Subaddress
- City/Town/Place
- County
- State
- Zip

Geographic Location of the address

- Lat/Long
- National Grid Coordinates

Metadata about the address

- Address authority
- Address source
- Address date
- Unique ID
- Type (residential, commercial, etc.)
- Placement (rooftop, driveway access, etc.)

NAD Schema

Identify from: <Top-most layer>

Location: -10,474,550.034 4,307,646.554 Meters

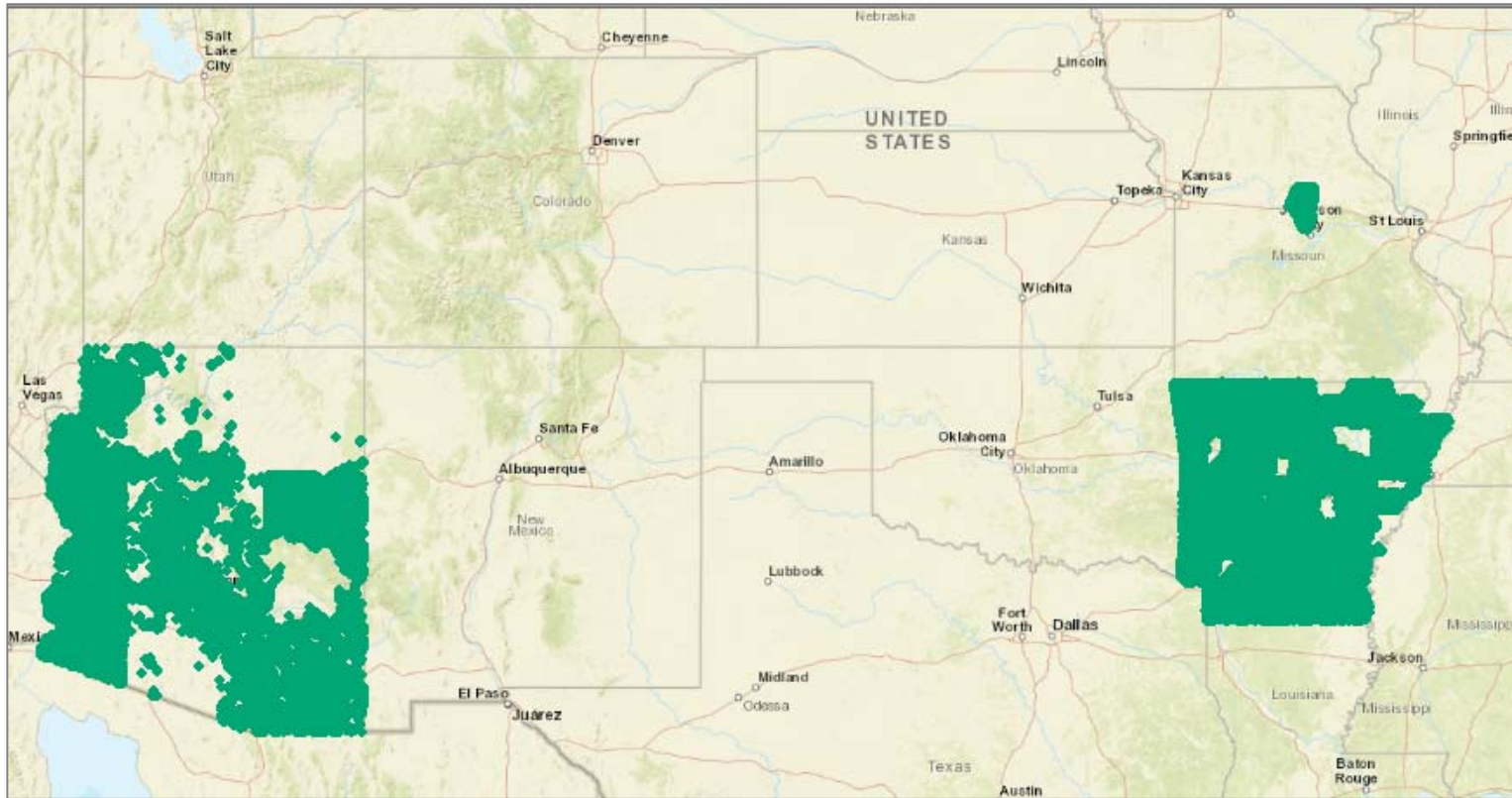
Field	Value
Shape	Point
State	AR
County	Washington
Incorporated Municipality	Fayetteville
Unincorporated Community	<null>
Neighborhood Community	<null>
Postal Community Name	<null>
ZIP Code	72701
Zip Plus 4 Addition	0500
Bulk Delivery ZIP Code	<null>
Bulk Delivery ZIP Plus 4 Addition	<null>
Street Name Pre Modifier (PRM)	<null>
Street Name Pre Directional (PRD)	South
Street Name (RD)	Keen
Street Name Post Type (STS)	Ln
Street Name Post Directional (POD)	<null>
Street Name Post Modifier (POM)	<null>
Address number prefix (HNP)	<null>
Address number (HNO)	1085
Address number suffix (HNS)	<null>
Landmark Name Part (LMKP)	<null>
Landmark (LMK)	<null>
Building (BLD)	<null>
Floor (FLR)	<null>
Unit (UNIT)	2
Room (ROOM)	<null>
Additional Location Information (LOC)	<null>
Milepost	<null>
Address Longitude	-93.1947
Address Latitude	36.05083
National Grid Coordinates	<null>
GUID	{CB827007-8DA2-48DE-B6F2-C...
Address Type	Residential
Address Placement	Parcel - Centroid
Address Source	Washington County GIS Office
Address Authority	Washington County
Unique Within	<null>
Date Last Updated	1/27/2014
Effective Date	<null>
Expiration Date	<null>

FGDC/CLDXF

Location

Metadata

Pilot Participants Compiled Into NAD Schema



“Have Not” Status

- Goal was to find agencies (likely counties or tribes) that haven't yet created their addresses
- Wanted entity that was **interested, motivated, and willing to work with us.**
- We did not want to create addresses that will then sit on a shelf.

✓ Jackson County, AR

AGIO was a helpful partner, they want to finish statewide addresses by plugging few remaining holes

Jackson County, AR - Data Sources

- **Countywide E911 Address List**
 - 18k records
 - Some missing zip/city info
 - Some basic data scrubbing needed
- **Countywide centerlines existed**
 - No data scrubbing needed!
- **Countywide parcels**
 - 79% had some address info
 - Data standardization was needed
 - E.g., for city name, address field, etc.

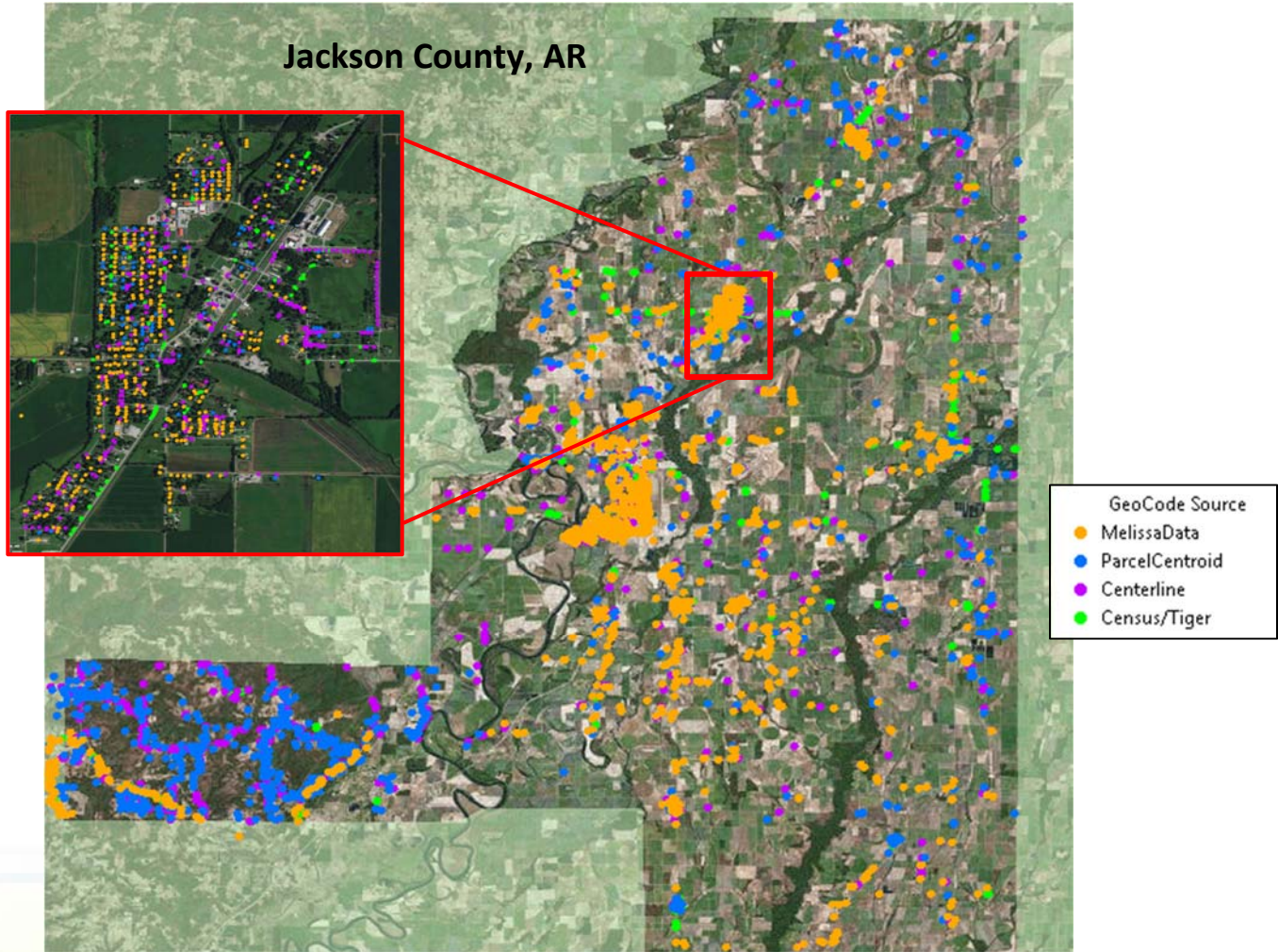
Jackson County, AR Geocoding Approach

- Multiple geocoding sources were used:
 - Melissa Data (commercial geocoding service)
 - County Parcels
 - County road centerlines
 - Census road centerlines
- If an address wasn't matched in one source, the next source was used.
- Achieved a 77% overall match rate from the 18,469 records

Final Jackson County Geocoding Results

Source	Total Records Matched	% Matched*
MelissaData	7,073	38%
Parcel Centroids	1,700	9%
County Centerline	4,112	23%
Census/Tiger Centerlines	1,347	7%
Totals:	14,232	77%

Jackson County, AR



Preliminary Pilot Findings

- Tribal participation is going to be a challenge
 - Lots of outreach, no explicitly contributed data
 - Gila River data is part of AZ statewide collection
- Data sharing agreements to make data publically available could be a challenge
 - AZ has yet to provide clearance for public release
- Aggregating existing statewide/have collections was straight forward
 - Five additional states have volunteered to ETL their own data for inclusion in the pilot NAD database
- The schema will likely evolve, but needs to remain consistent with leading address schemas to allow for streamlined ETL

What's Next

Pilot Phase

- Make available data with AZ, AR & Boone County, MO
- Finalize report Q3 FY16

Development

- Choose platform
- Initiate work with states that are prepared to develop ETLs (no cost)
- Identify funding to launch
- Launch Data Challenge for “have nots”

Data Challenge

- Goal: develop an app to gather crowd sourced address information
 - Must collect the items identified in the minimum content guideline
- App can be used by
 - Local police and fire
 - Real estate agents
 - Boy Scouts and Girl Scouts
 - FEMA Corps
 - Public
- Resulting address information would be used as “seed” data for local governments with no data and for QC/QA of existing data

For more information....

- On the NAD Summit:

<https://sites.google.com/a/appgeo.com/nationaladdressdatasummit/home>

- On the NAD Pilot:

<https://sites.google.com/a/appgeo.com/usdot-national-address-database-pilot-project/home>

Contact Info

Steve Lewis

Chief Geospatial Information Officer

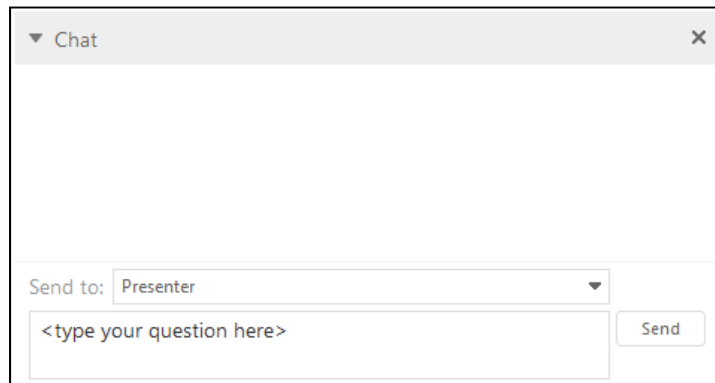
U.S. Department of Transportation

(202) 366-9223

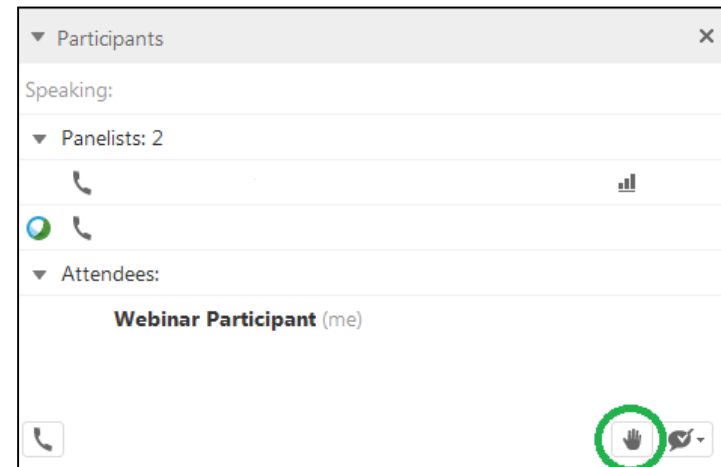
steve.lewis@dot.gov

Q&A Period

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National Capital Region NG9-1-1 Spatial Interface Project

Thomas Conry, Fairfax County GIS Manager
Judy Doldorf, Fairfax County Public Safety GIS



NG9-1-1: A Paradigm Shift

- Organizationally & Technically **SUCCESS** involves significant changes
- NG911 is inherently regional – it is not a stand-alone solution
 - GIS Data must seamlessly match across jurisdictional boundaries
- Sustainability is essential
 - This is a production process that must work daily
- Governance approach/structure is crucial
 - NG911 should be considered/managed as an enterprise function
 - Ongoing relationships within the enterprise and across jurisdictions



National Capital Region

District of Columbia

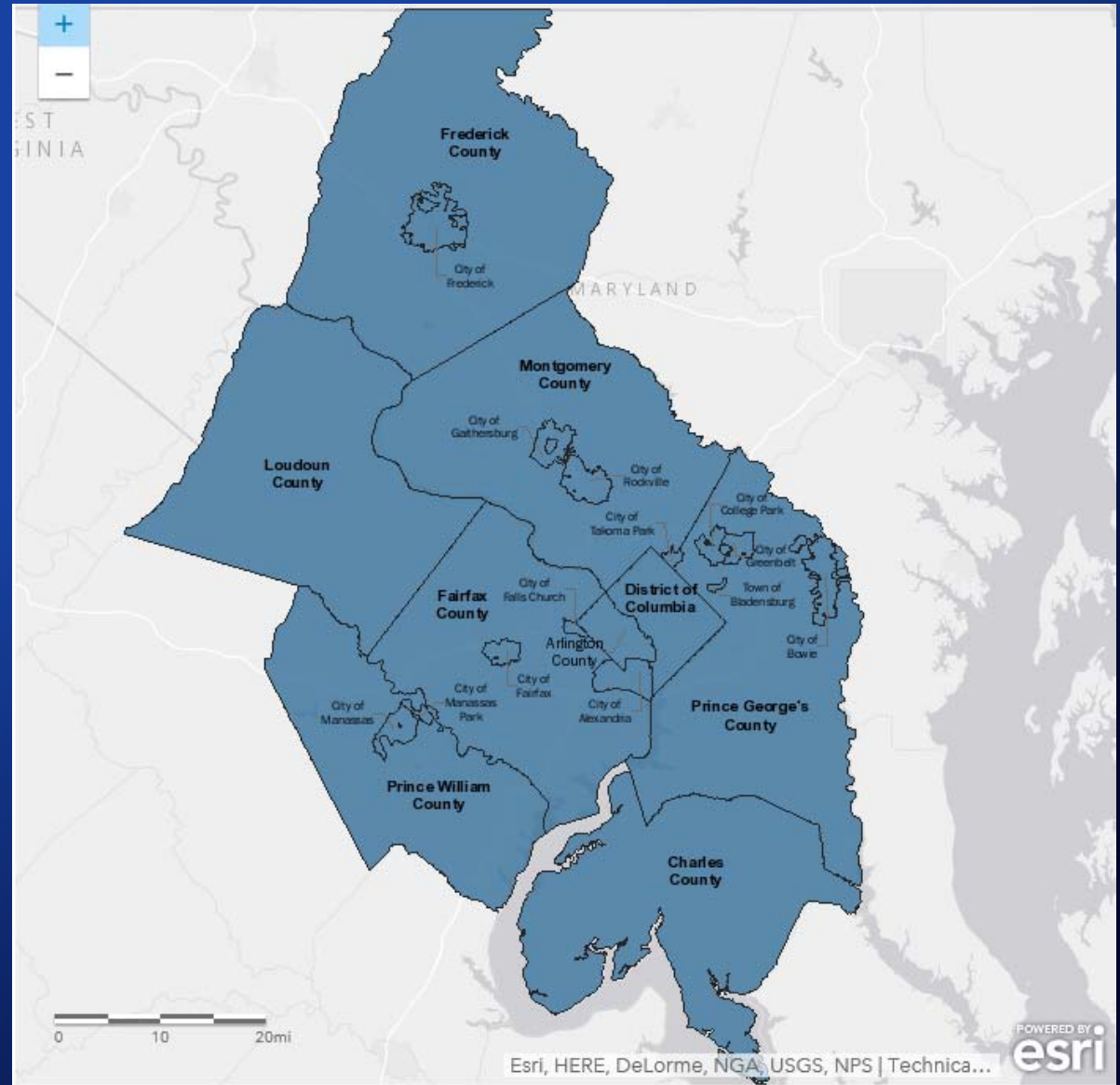
- District of Columbia *

Maryland

- Town of Bladensburg
- City of Bowie
- City of College Park
- Charles County *
- City of Frederick
- Frederick County *
- City of Gaithersburg
- City of Greenbelt
- Montgomery County *
- Prince George's County *
- City of Rockville
- City of Takoma Park

Virginia

- City of Alexandria *
 - Arlington County *
 - City of Fairfax
 - Fairfax County *
 - City of Falls Church
 - Loudoun County *
 - City of Manassas *
 - City of Manassas Park *
 - Prince William County *
- (+ Stafford * & Fauquier* for NG911)



Regional GIS Coordination

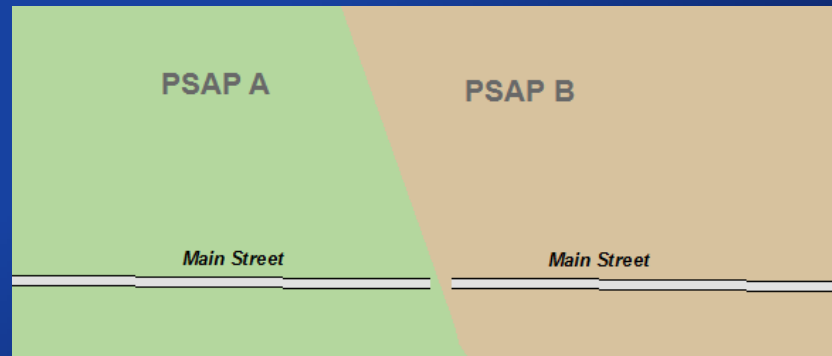
- Two regional groups to engage to accelerate & sustain the process
 - Northern Virginia Regional Centerline Group
 - Washington Metropolitan Council of Governments
- Northern Virginia Regional Centerline Group
 - Created in 2009 to create a regional centerline model
 - Group has met on a regular basis since formation
 - Advantages:
 - **Communication:** Primary GIS POCs were already identified and involved in regional initiatives
 - **Management:** Project leads/coordinators already established
 - **Data Standards:** Established regional centerline data standards for seamless data
 - **Workflow:** Established a workflow to provide data from the local level to the State and back to the local level
 - **Error Reporting:** Established an error reporting mechanism



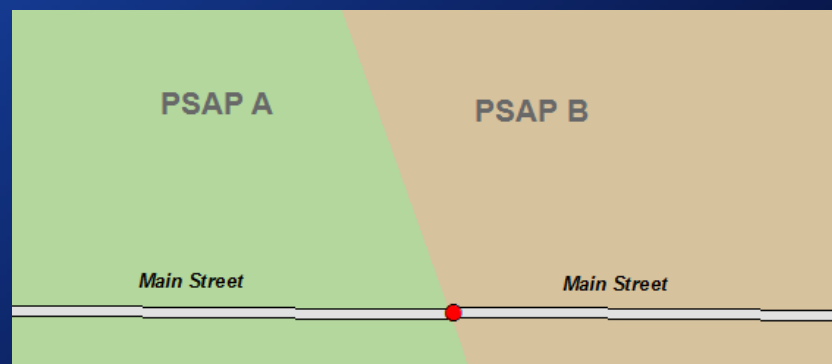
Regional Data Considerations

- Boundary XY / Snap Points
 - Establishes agreed upon points which each jurisdiction snaps their centerline to ensure edge matching at the borders

Before:



After:



Regional Data Considerations

- Roadway Geometry
 - Established that divided roadways be represented by dual centerlines
- Established data maintenance agreements
 - Established edge matched centerlines across borders
 - Defined maintenance responsibilities
 - Established regular schedule for data updates



NCR SI Project Status

- Data Synchronization Process
 - GIS Readiness
 - No data loss with GIS based call routing
 - MSAG/ALI vs GIS Centerlines and Address Points
- Tiered Approach
 - Discrepancy Review
 - Discrepancy Resolution
- Parallel Workflow
 - Internal and External Collaboration
 - Timeframe



PSAP Boundary

- Source of NG9-1-1 Call Routing
- Driven by PSAP Business Requirements
 - GIS Support

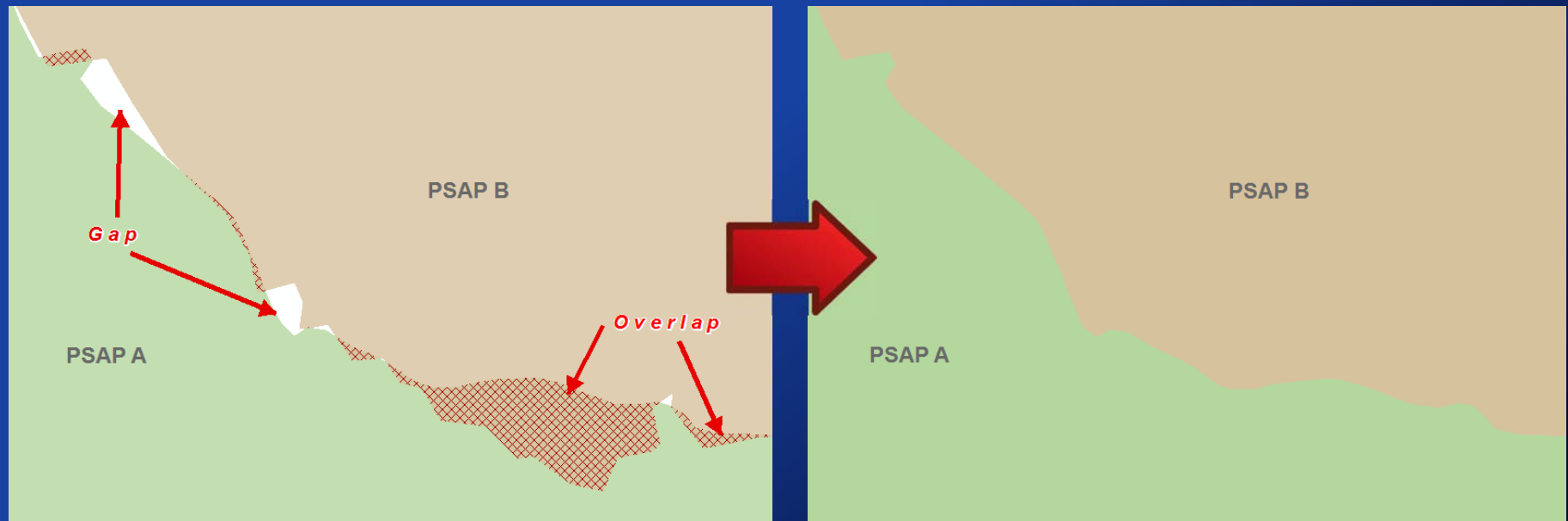


Locate call on map
of PSAP boundaries



PSAP Boundary

- Determine Data Source
 - Define Preliminary Boundary



- Refine Throughout Data Synchronization Process
 - What does this mean?
 - Coordination/Agreement with Neighbors
- Maintenance



Next Steps

- Data Synchronization
 - Discrepancy Resolution
 - Impacts on GIS Data
- PSAP Boundary
 - One on One Meetings
 - Long Term Maintenance
- Regional NG911 Dataset
- Regional Workflow
 - Who, What, When, Where?

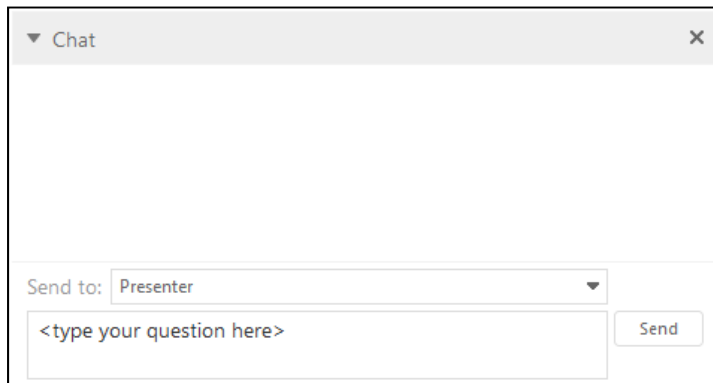


THANK YOU

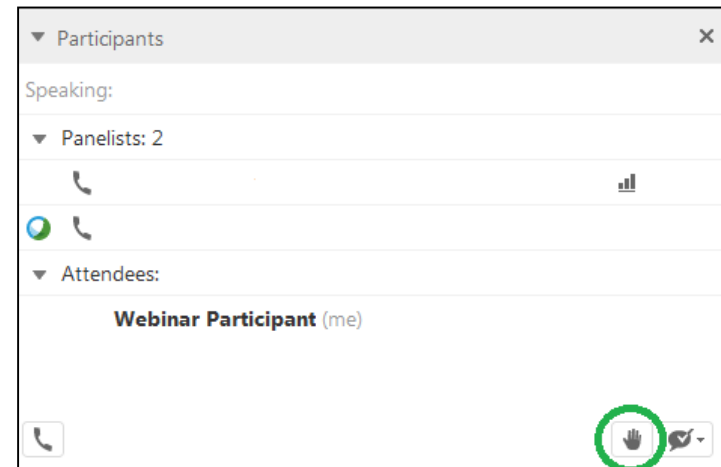


Q&A Period

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Future Webinars

- Next Scheduled Webinar: Tuesday, October 11, 2016 at 12 noon ET
- To register, visit: www.911.gov/webinars.html and click on “Upcoming Webinars”
- All previous State of 911 webinars are available at: www.911.gov/webinars.html

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