sanborn geospatial

Broadband data mapping and analysis to strategize increased availability and quality of internet service in Deep East Texas

TX GIS Forum

November 8th, 2025

DETCOG

USDA Rural Development
U.S. DEPARTMENT OF AGRICULTURE

What We're Covering Today

- Introductions
- Project Background & Goals
- Broadband 101
- Current Status
- Identifying the Issues
  - Mapping Infrastructure
  - Improving Location Data
  - Survey Responses
- Next Steps
- Questions & Answers

With you today

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Project Background

DETCOG recognizes the importance of reliable broadband for rural communities and partnered with **Sanborn Map Company** to lead planning efforts.

Sanborn secured funding through the **USDA Broadband Technical Assistance Grant** and assembled a team of experts to support DETCOG:

- **Sanborn** – Broadband analytics & mapping
- **Fortitude Ventures** – Technical & regulatory expertise
- **ZK Engineers** – Infrastructure & resiliency
- **Sural Consulting** – Policy & program strategy
- **River Oaks Communication** – Telecom law and cable franchising experts

Together, this team is working on a strategy to help close the digital divide and expand connectivity across the region.

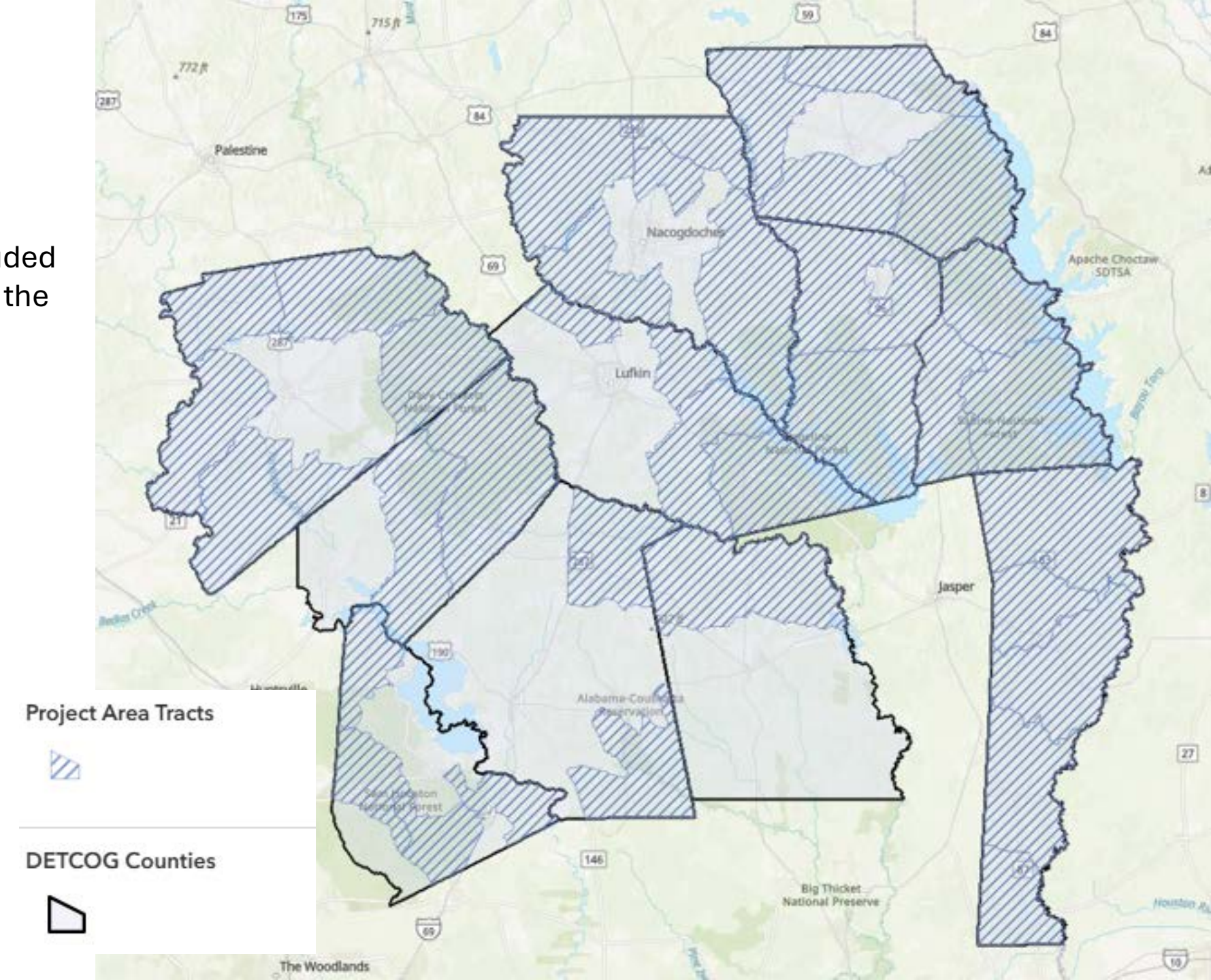
Project Goal

Creating a detailed framework and strategic plan for accessible, high-speed, dependable, and cost-effective broadband in Deep East Texas

- Improve broadband availability, quality, reliability, and speed across DETCOG communities
- Develop a long-term vision aligned with local connectivity goals
- Explore fiber and fixed wireless networks to connect public facilities
- Consider expanding existing networks to serve anchor institutions, residents, and businesses
- Address resiliency to ensure reliable service during emergencies

Project Area

Only certain census tracts are included in the project area since they meet the criteria for the USDA funding



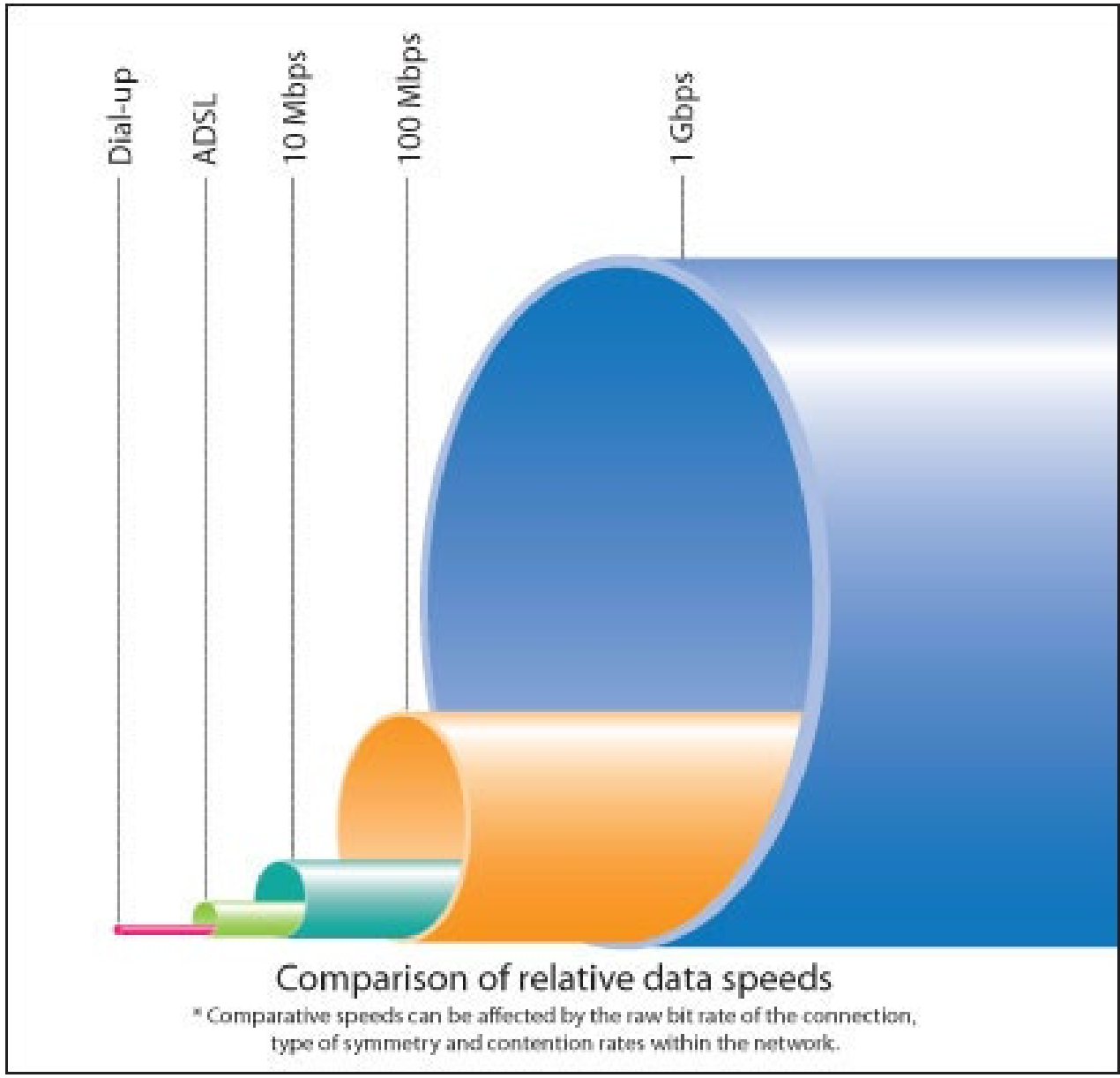
Broadband 101

Broadband 101

Broadband is high-speed internet that helps you work, learn, and connect to your community and beyond

Broadband 101
What is broadband?

- Broadband until recently was **25/3**
  - 25 megabits/sec download; 3 megabits/sec upload or 25/3
  - 3MB = 25 megabits
  - A typical attachment to an email could be 3MBs
  - If you could download a 3MB file in 1 second you had Broadband
- Broadband now is **100/20**
- 25/3 would be considered SLOW
- Most cell phones and homes in rural areas still have 25/3



Broadband 101
How is broadband delivered?

- Wireline
  - Fiber optic cable (future proof) - ★★★★
  - Coax Cable ★★
  - DSL ★
- Wireless
  - Cellular ★★★
  - Fixed Wireless ★★
  - Satellite ★

Broadband 101

Why can’t I get connected?

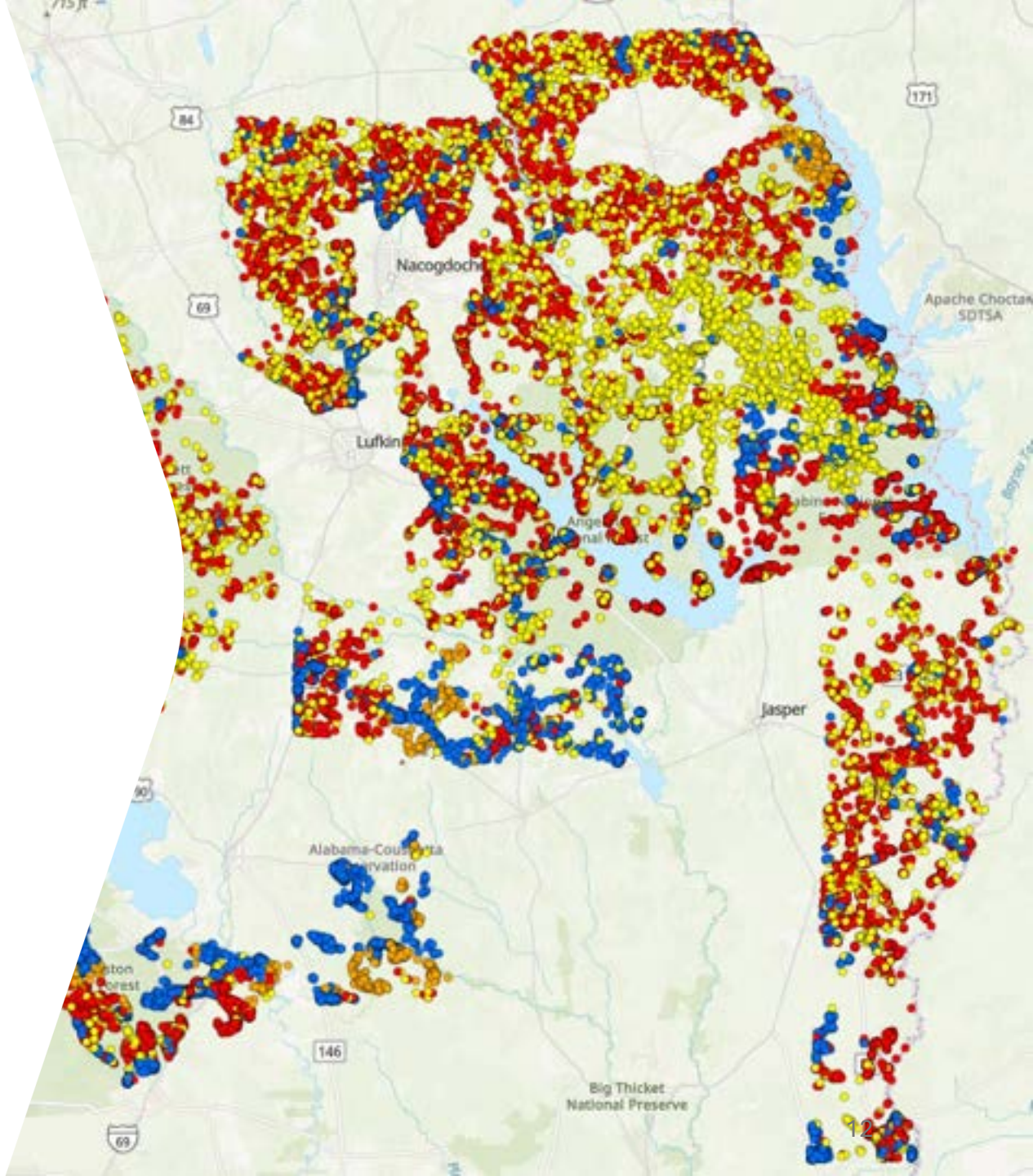
Common Barriers to Broadband Deployment

Capital Expenditure (CAPX)

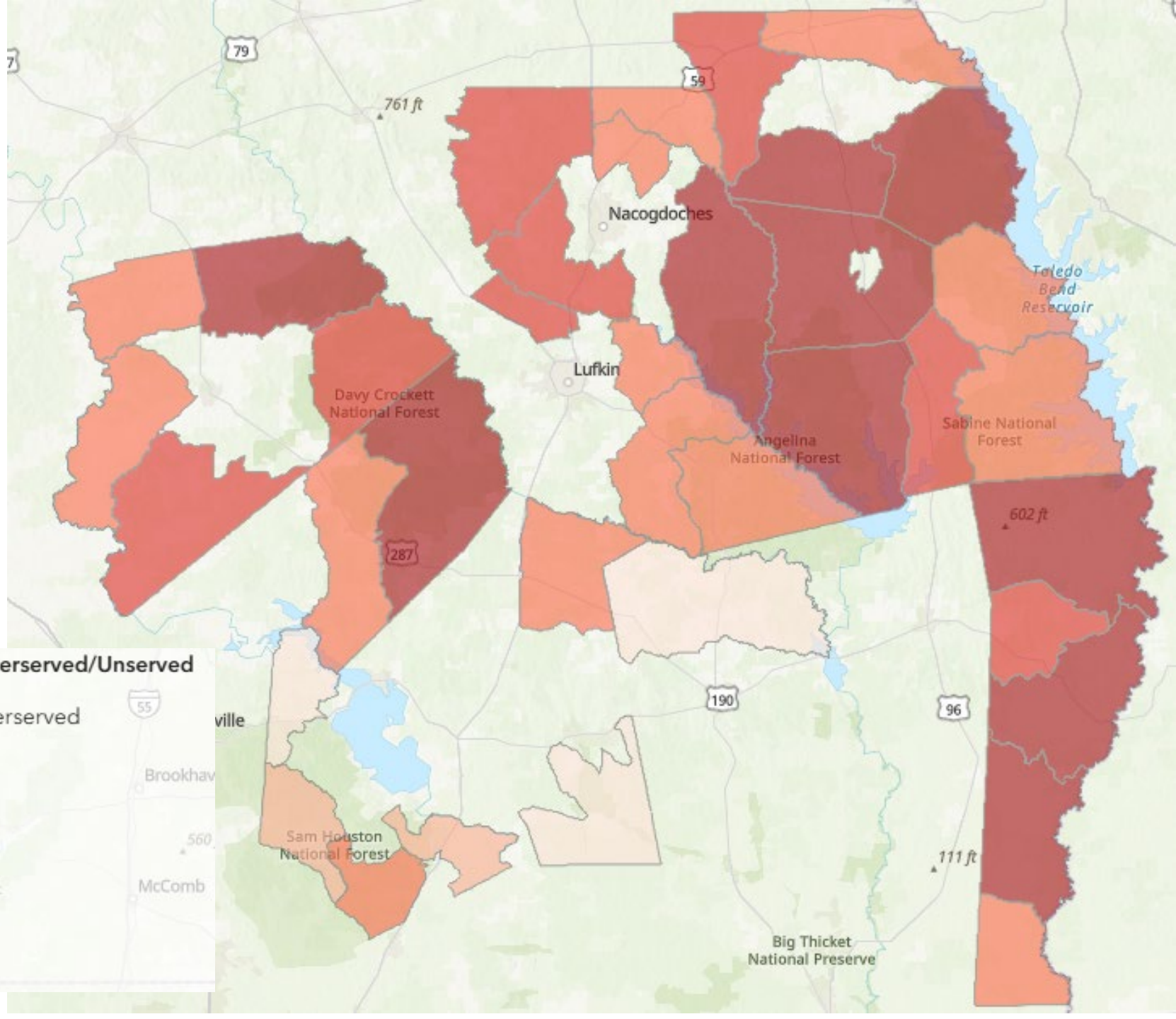
Population Density

- Several funding sources
- Rollout started however issues remain
- Challenges with data and changes in policy

Current Status



Project Area Broadband Availability



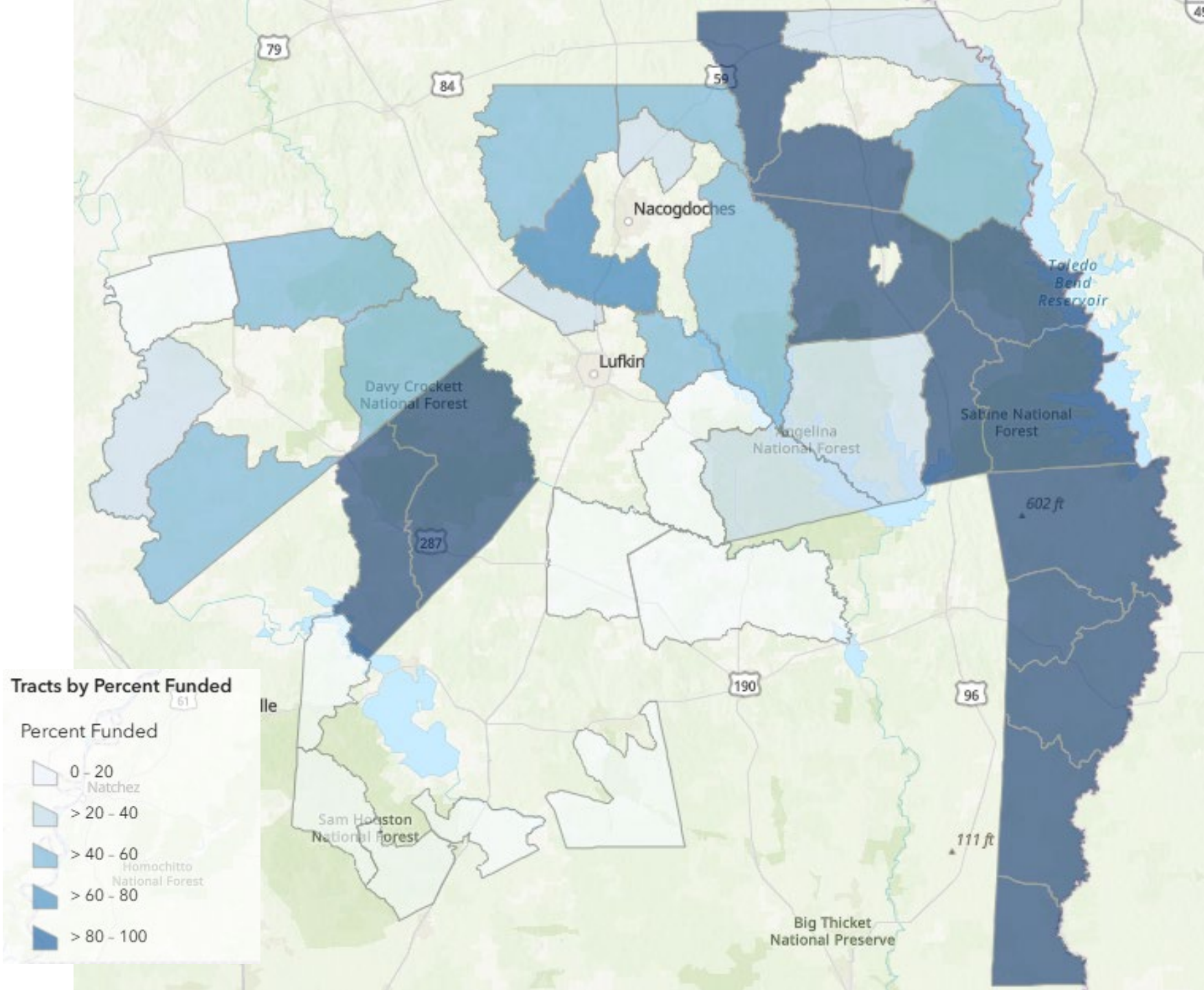
Project Area Broadband Funding

Funding Programs:

- RDOF
- BIP
- TBCP
- BOOT

BEAD

The TX Broadband Development Office is completing their subgrantee selection process and will be announcing awards in early October

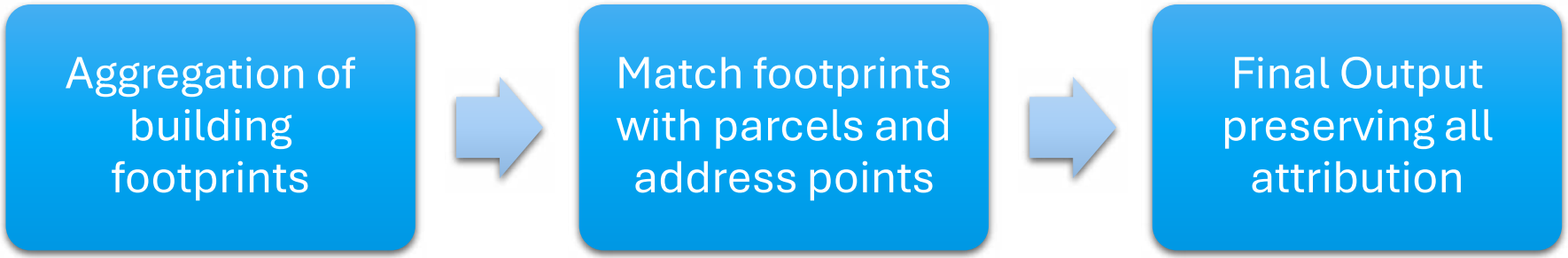


Identifying the Problem

Problem: Inaccurate Locations

- The FCC location data that is used for most of the Broadband mapping work has shortcomings
- We used advanced analytics to ***identify Broadband Serviceable Locations (BSLs) missing*** from the data, ***locations that should be removed***, and improve the relationship between 911 addresses, locations, and building footprints

Solution: Improving Location Data



Solution: Improving Location Data

Footprint Data Aggregation

Data source 1

Data source 2

Scripting aggregates multiple building footprint datasets into one layer by

- ***spatially matching***, ***merging***, and ***selecting the best footprint*** based on the dataset's order of apparent quality in the region

Challenges

- Tree cover, imagery acquisition year (missing/new footprints)

Solution: Improving Location Data

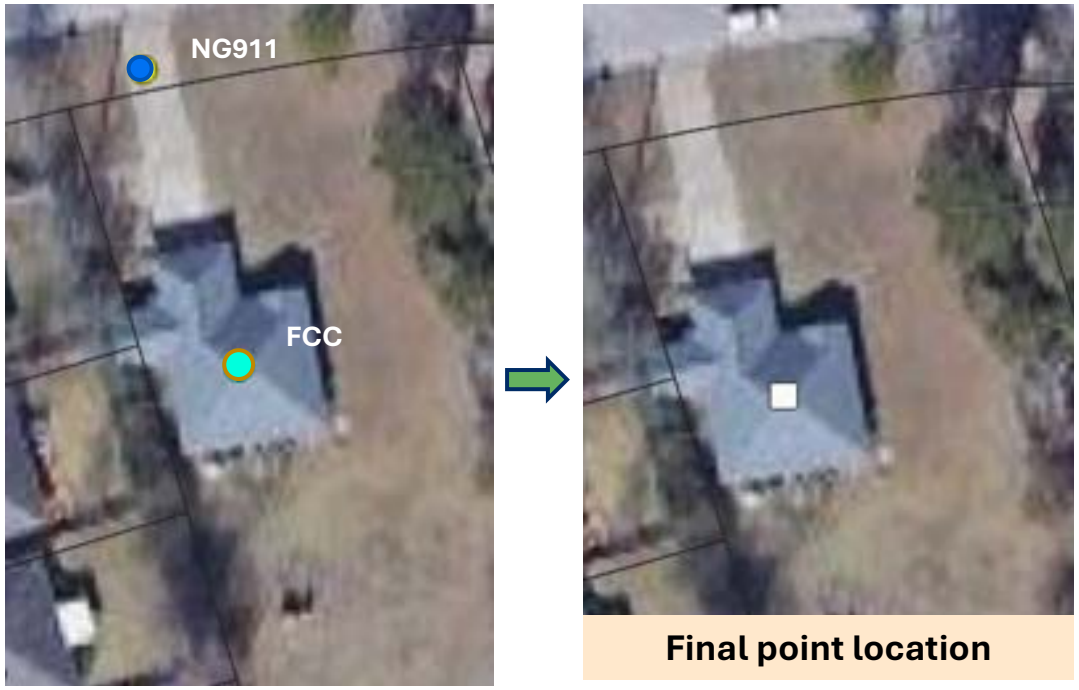
Address, parcel, & footprint matching

Identify anomalous and missing points

No address point in the parcel

Final point location

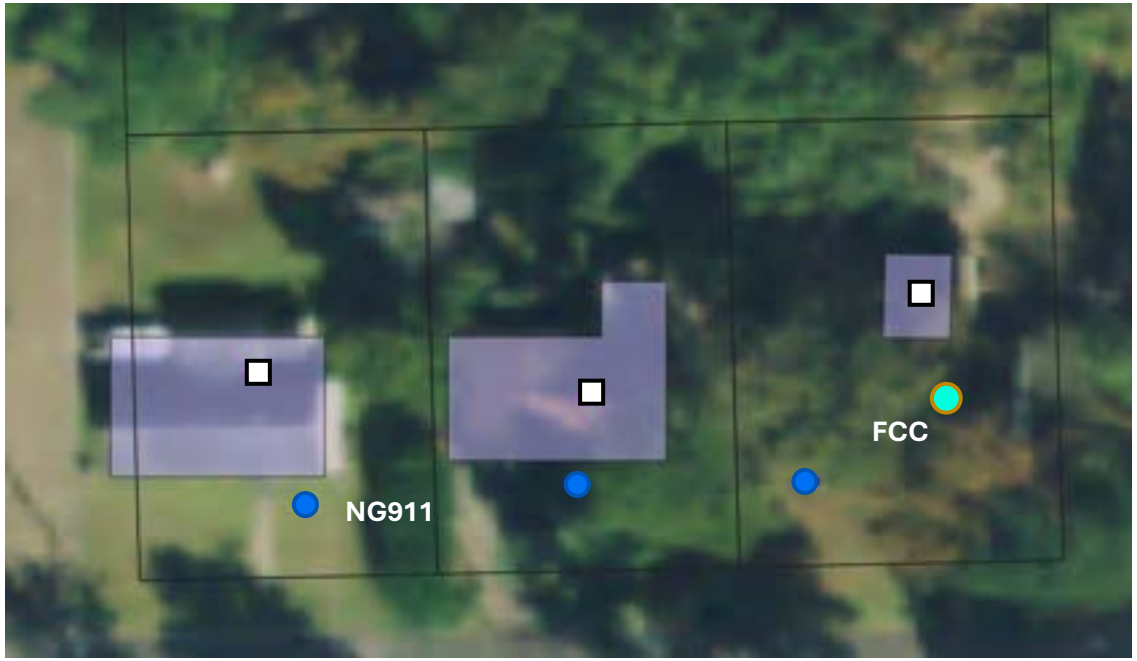
Match points to correct structure



Final point location

Solution: Improving Location Data

Address, parcel, & footprint matching



Solution: Improving Location Data

Final Output (preserving attribution data)

Address	Parcel Address	Lat/Long	Source
3403 Old Union Rd	3403 Old Union Rd	31.3199, -94.7686	NG 911
3403 Old Union Rd	3403 Old Union Rd	31.32014, -94.7687	FCC

Address NG911	Address FCC	Parcel Address	Lat/Long NG911	Lat/Long FCC	Final Lat/Long	Match Score
3403 Old Union Rd	3403 Old Union Rd	3403 Old Union Rd	31.32014, -94.7687	31.3199, -94.7686	31.3199, -94.7686	10

Solution: Improving Location Data

Process & Tools

Quality Score & Address Matching

- Matching & combining with natural language processing techniques and distance thresholds
- Assigning quality score to each point – lowest to highest validity of match
- Tools: Python, particularly Geopandas for points and polygon data

Address Normalization

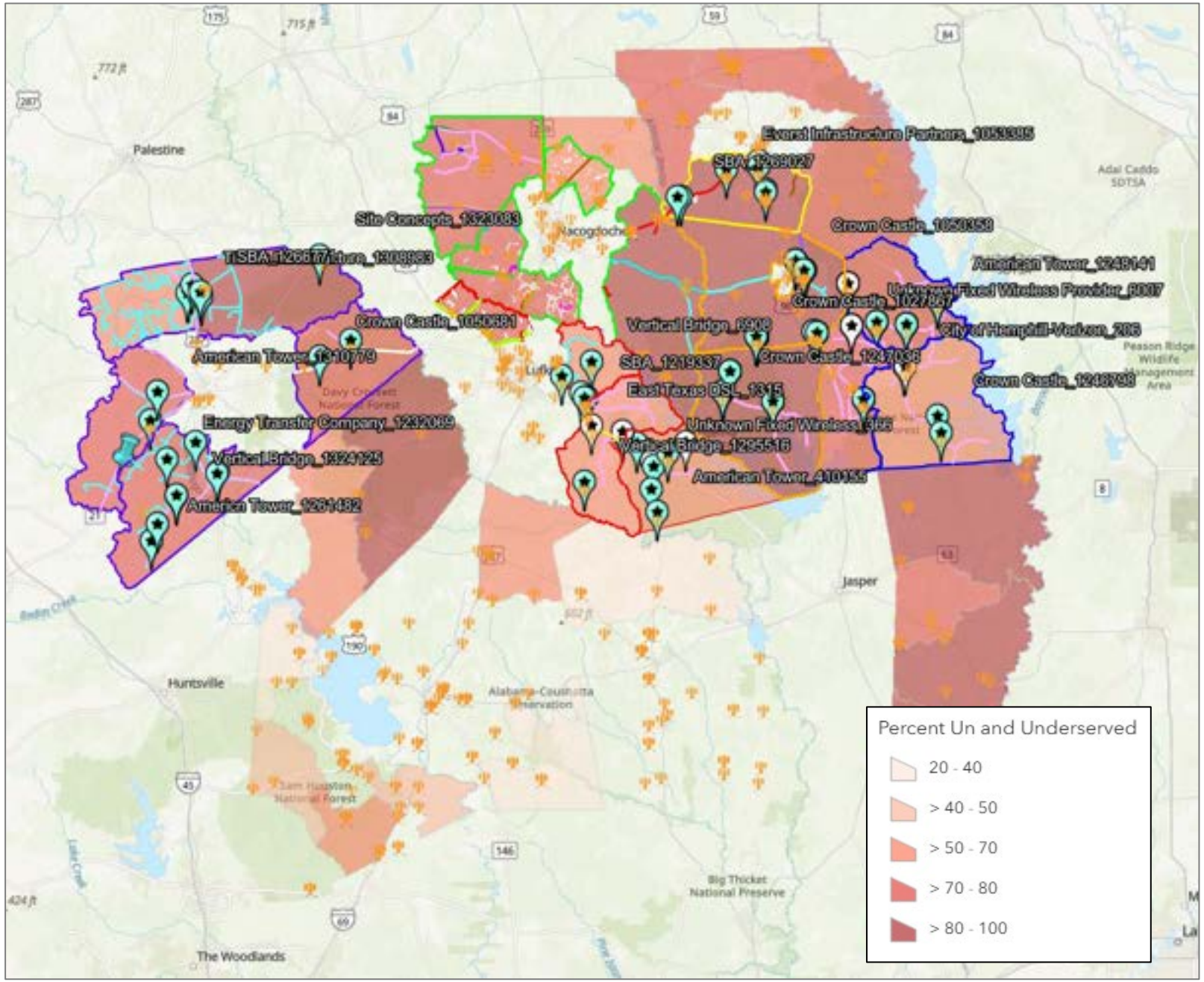
- Standardizing format with natural language processing algorithms
- Tools: Python – address parsing packages (fuzzwuzzy and usaddress)

Improving Location Data - Results

25%	26%	30%	20%
3K addresses outside parcels placed in correct one	of the data was highest quality match	of points in the dataset placed on a footprint	of the data points still do not have a footprint

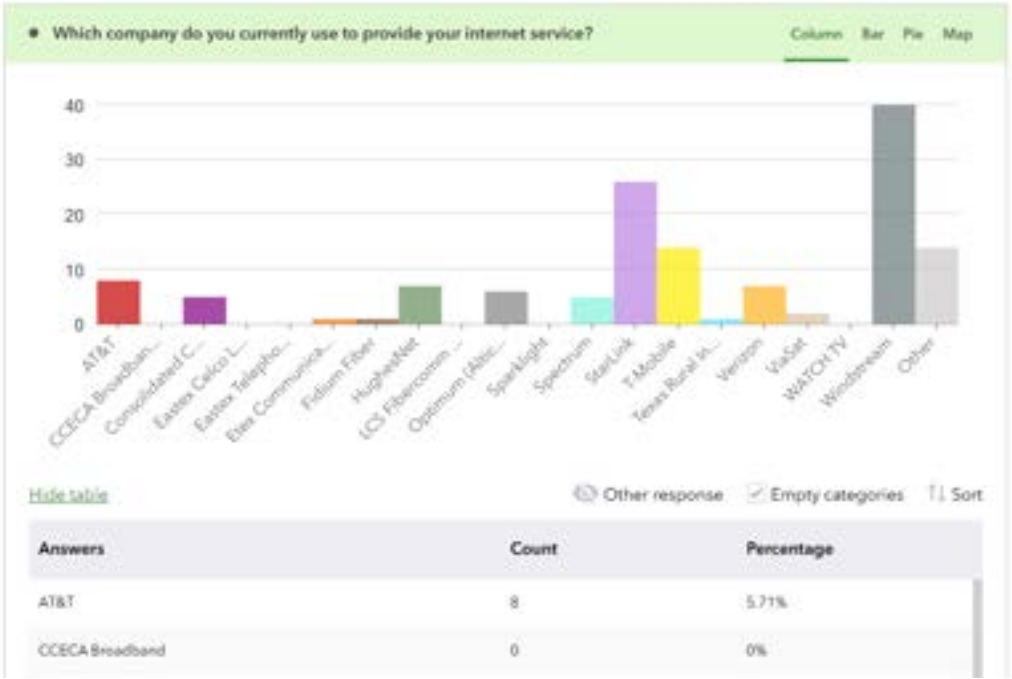
Broadband Infrastructure

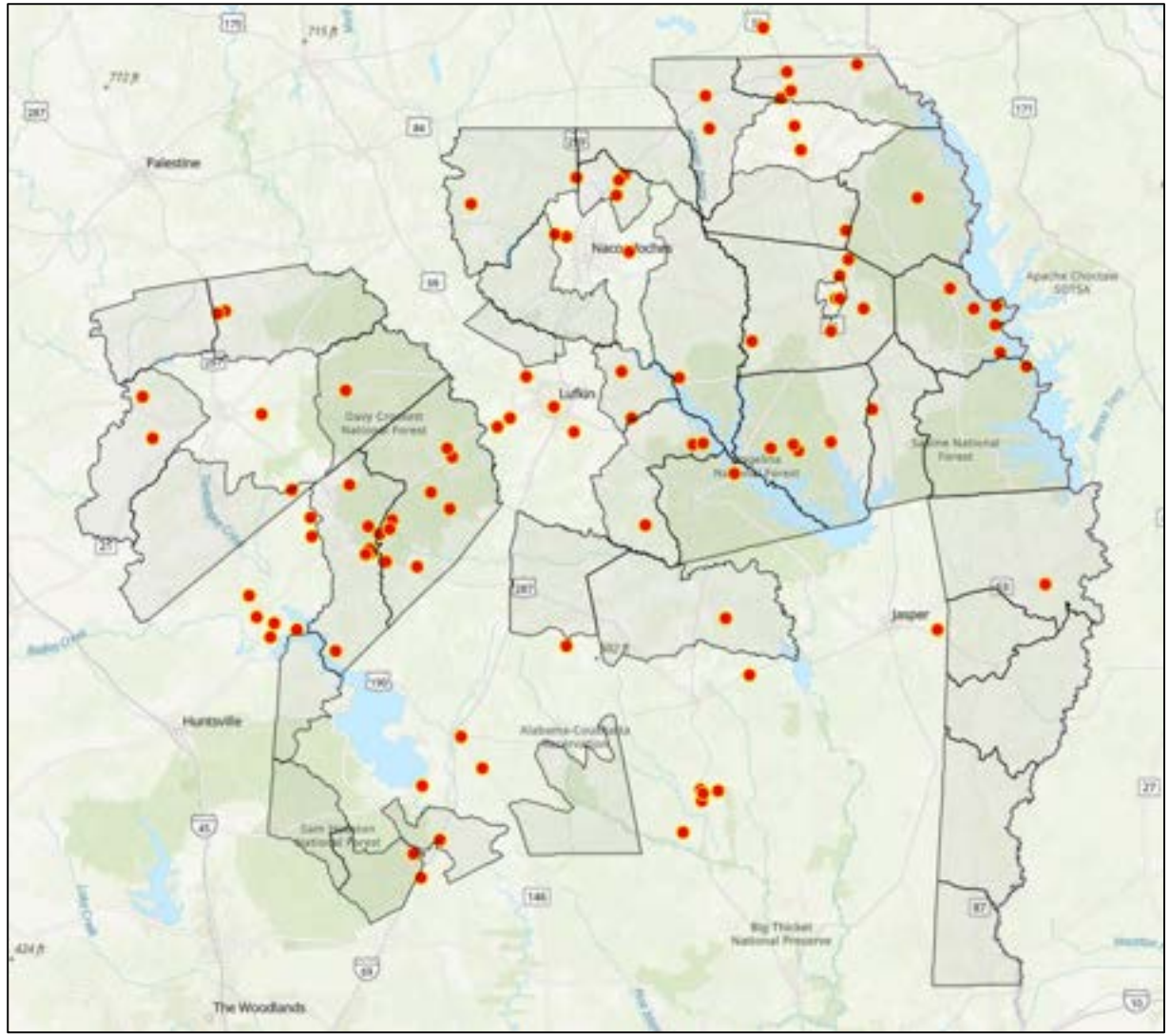
The project team has been mapping the project area broadband infrastructure to fill in the gaps in the data

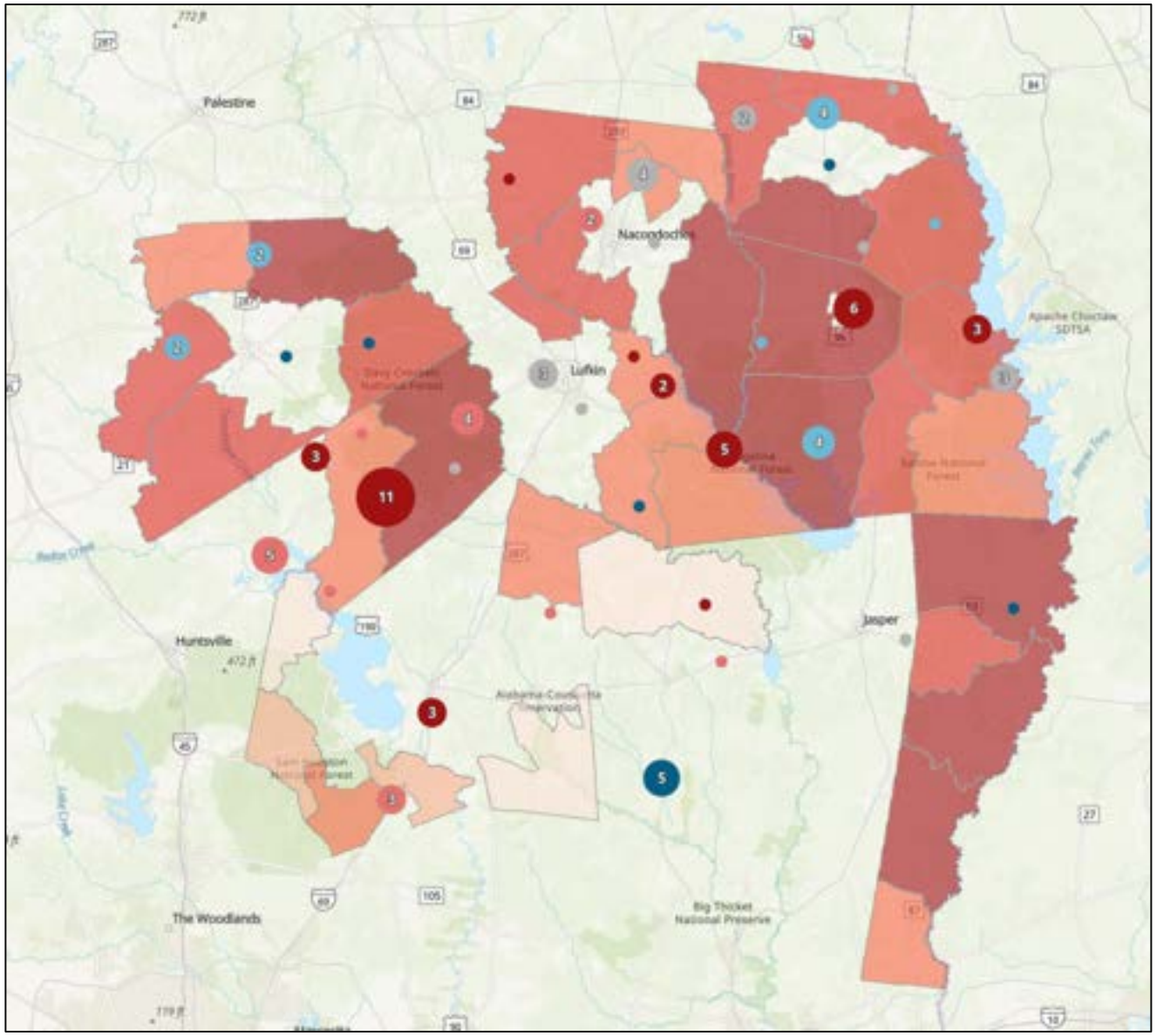


Survey of Residents

- We have launched a survey to better understand access and service issues
- 140 respondents have taken the survey so far across the study area







Survey Results

Overall, how satisfied are you with the speeds and options available from your internet provider?

Next Steps

Next Steps

- Community engagement
  - Public Meetings
  - Survey
  - Interviews with Stakeholders, Public officials
- Mapping & Data Collection
  - Mapping tower locations
  - Identifying opportunities for fiber network expansion
- Resiliency
- Strategic Plan

Help us promote the survey!

Surveys

You can help with this effort by completing one of the surveys below. Please complete the surveys by clicking the link below or by clicking the survey from the top menu.

Residential Survey Business Survey

Thank you!

https://detcog-broadband-detcogregion.hub.arcgis.com/

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