Broadband Mapping in North Carolina

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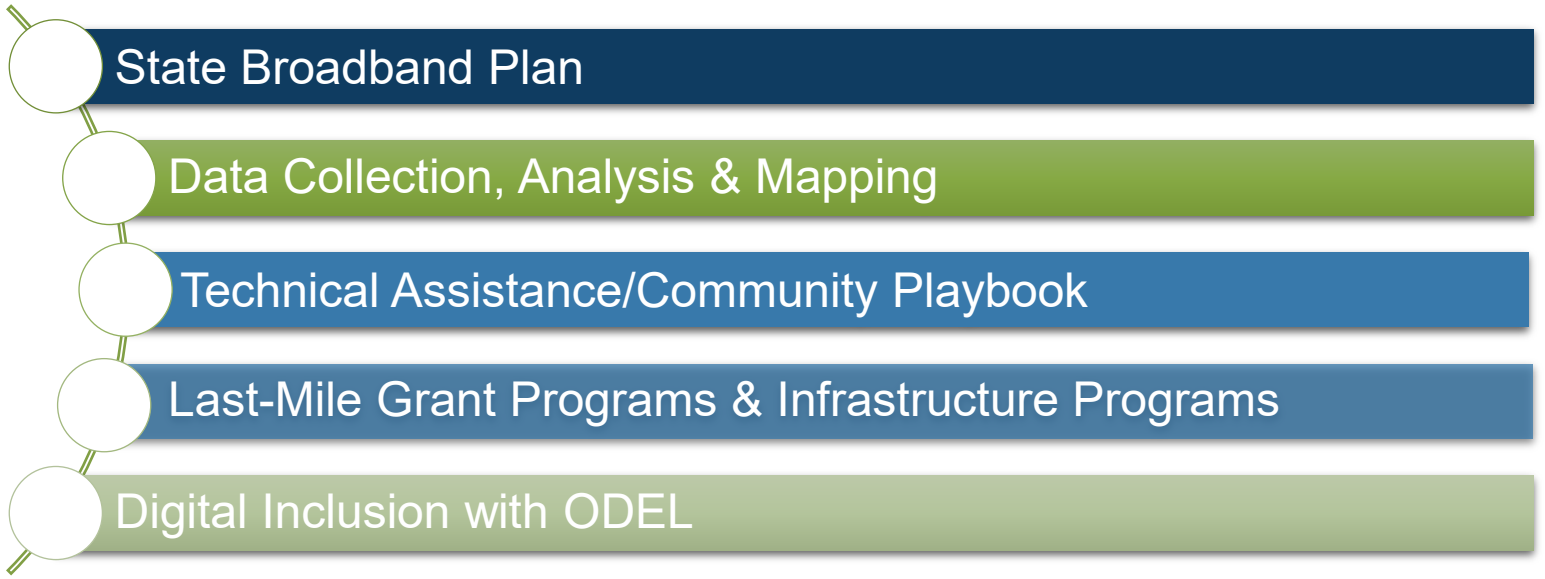
NC Center for Geographic Information & Analysis

Broadband Infrastructure Office

- NC Department of Information Technology - Broadband Division
    - Broadband Infrastructure Office
    - Office of Digital Equity & Literacy (new)

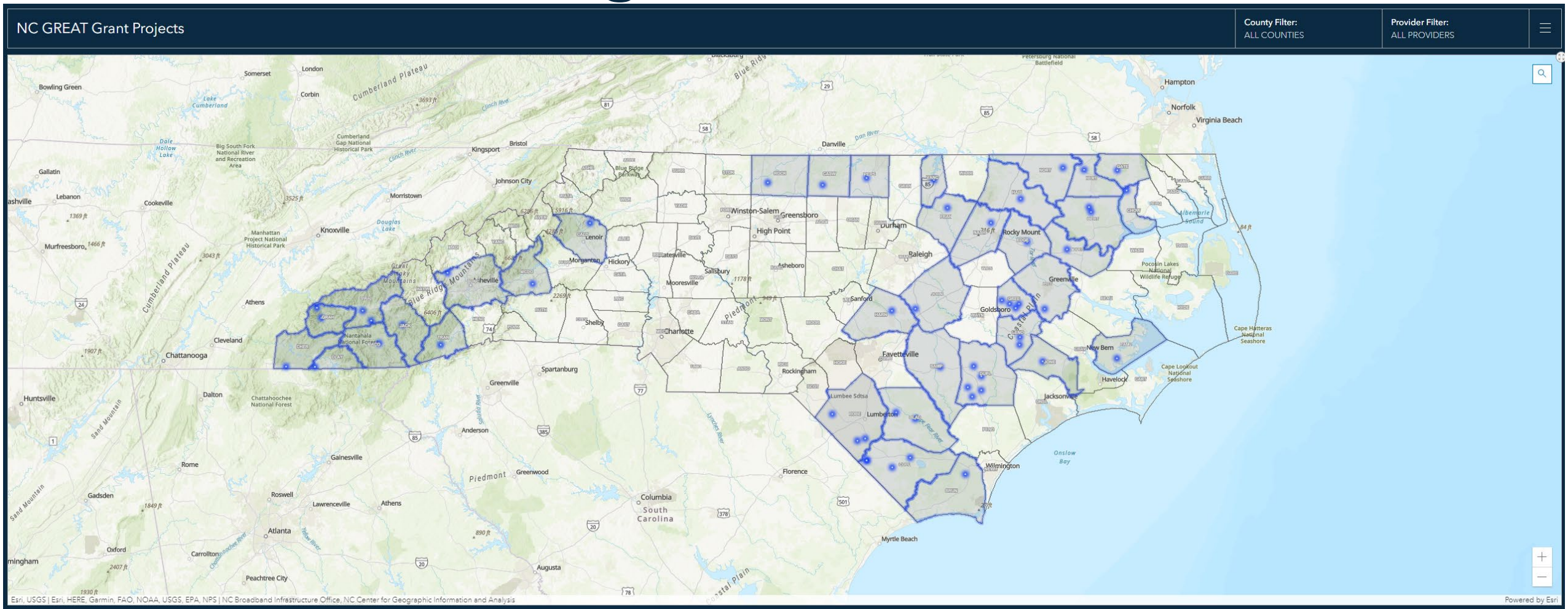
BIO Focus Areas:

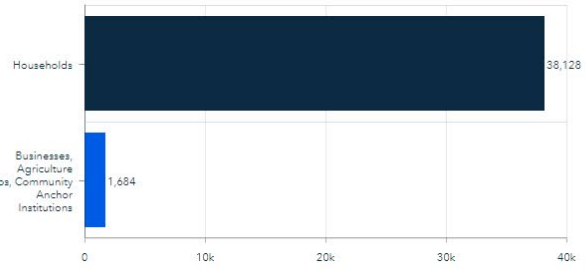


Broadband Mapping

- Mapping broadband: infrastructure itself, “coverage” information for fixed serves, “coverage” information for mobile services
- In 2018 – launched GREAT Grant program. Incenting private providers to deploy service to unserved locations. Requires location level.
- In 2021 – looking at 5-6 new infrastructure deployment programs with State ARP dollars. Requirements in both US Treasury Guidance and State legislation.
- FCC Digital Opportunity Data Collection

GREAT Grant Program





Total Grant Amount

$54.8M

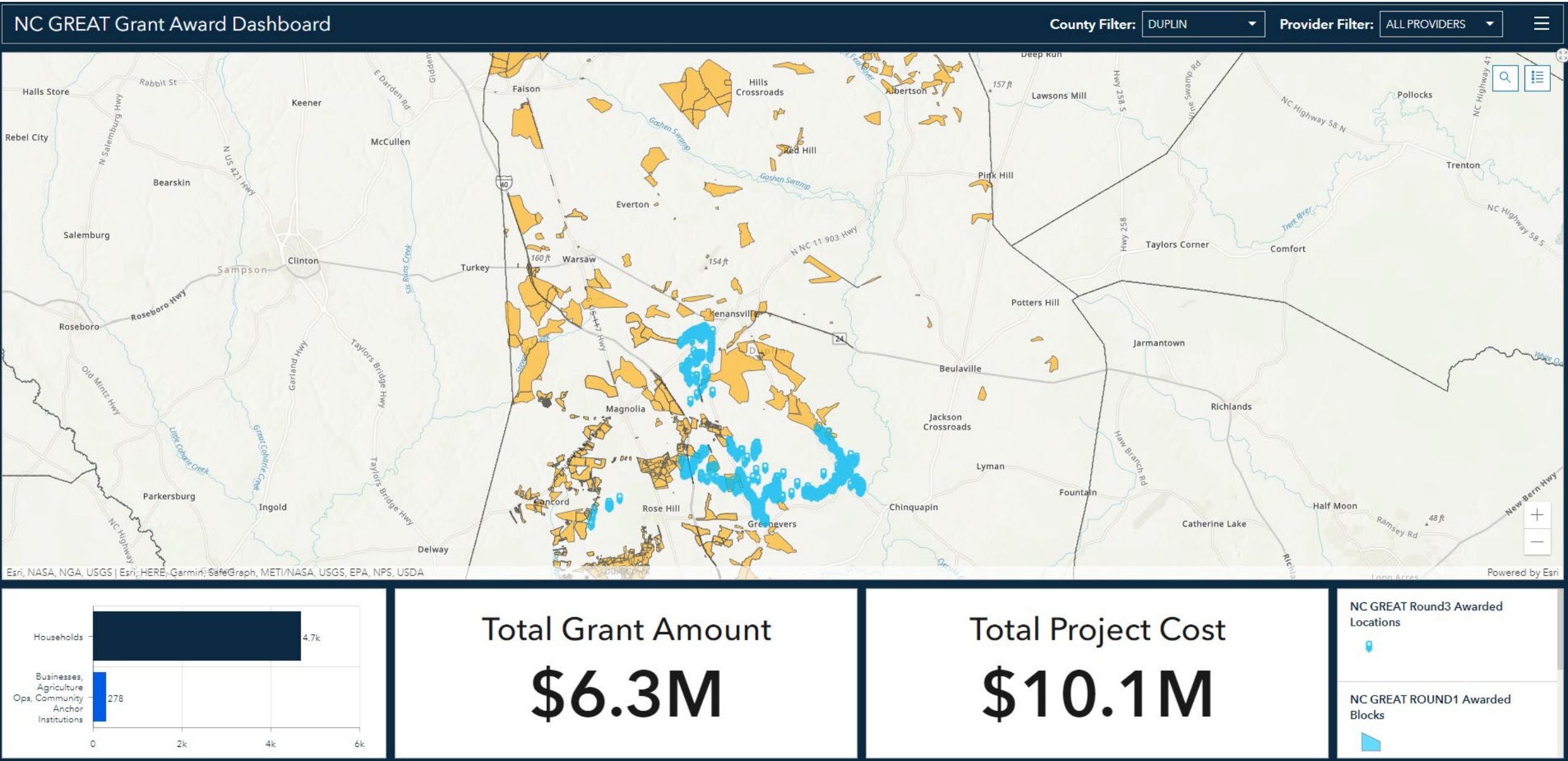
Total Project Cost

$90M

NCBIO GREAT awards summary

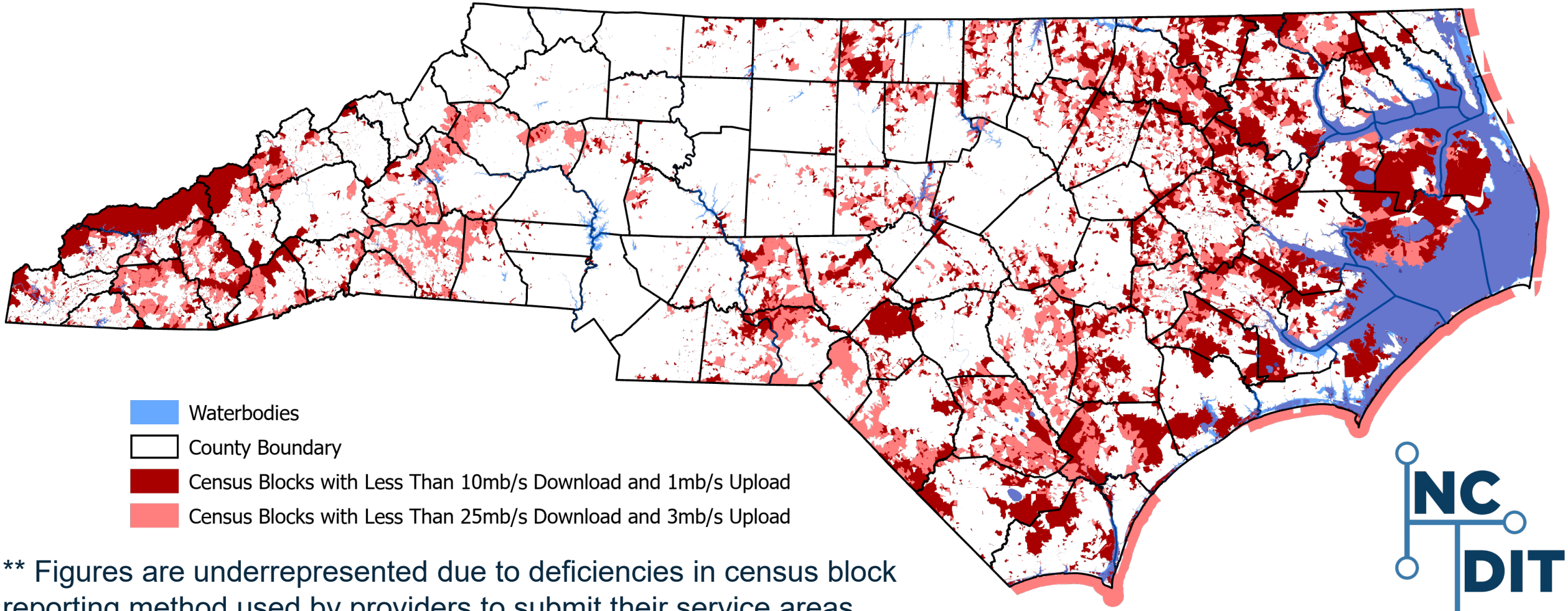
NC GREAT Award Counties

GREAT Grant Program



FCC Fixed Broadband Deployment Data

- Less Than 10/1 Service Availability – 79,955 Households**
- Less Than 25/3 Service Availability – 186,789 Households**

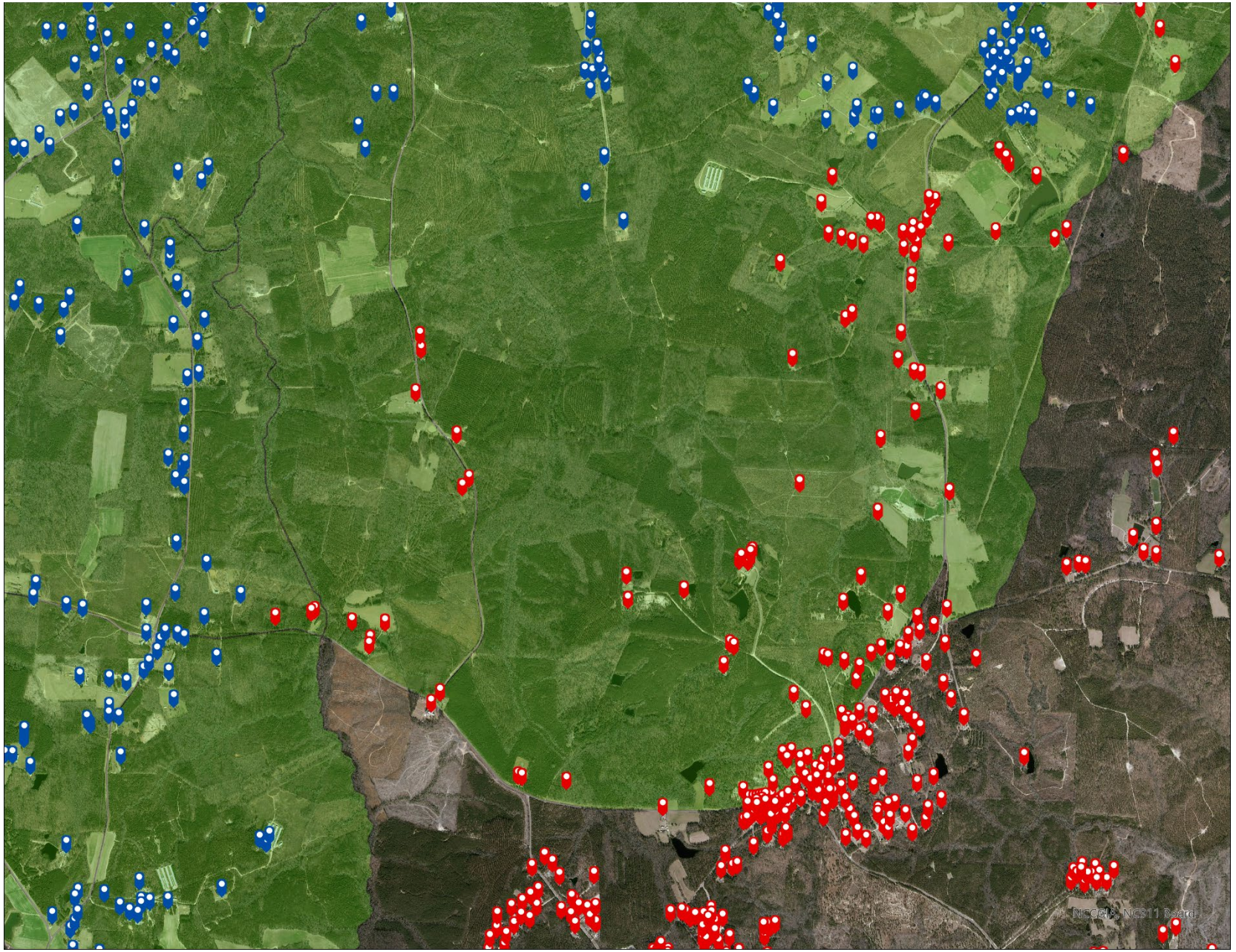


** Figures are underrepresented due to deficiencies in census block reporting method used by providers to submit their service areas.

NC DIT

FCC Fixed Broadband Deployment Data

- FCC Form 477 – Served Census Block
- Served Household
- Unserved Household



Community Surveys

https://www.ncbroadband.gov/broadband-nc/north-carolina-broadband-survey

All Survey Data | General Survey Data | Farm Survey Data | Phone Survey Data

NC DIT Broadband Infrastructure Office — North Carolina Department of Information Technology

About | Tool Tips

Broadband Survey Data (General, Phone, and Farm)

Select a category: All Counties

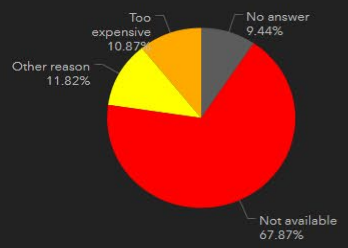
NC Broadband Survey Points (General, Phone, & Farm)

Service Level (calculated field):

- No Internet
- Under 25/3
- Under 25/3 (Fastest)
- Over 25/3
- Other

NC Counties

Primary Reason for No Internet

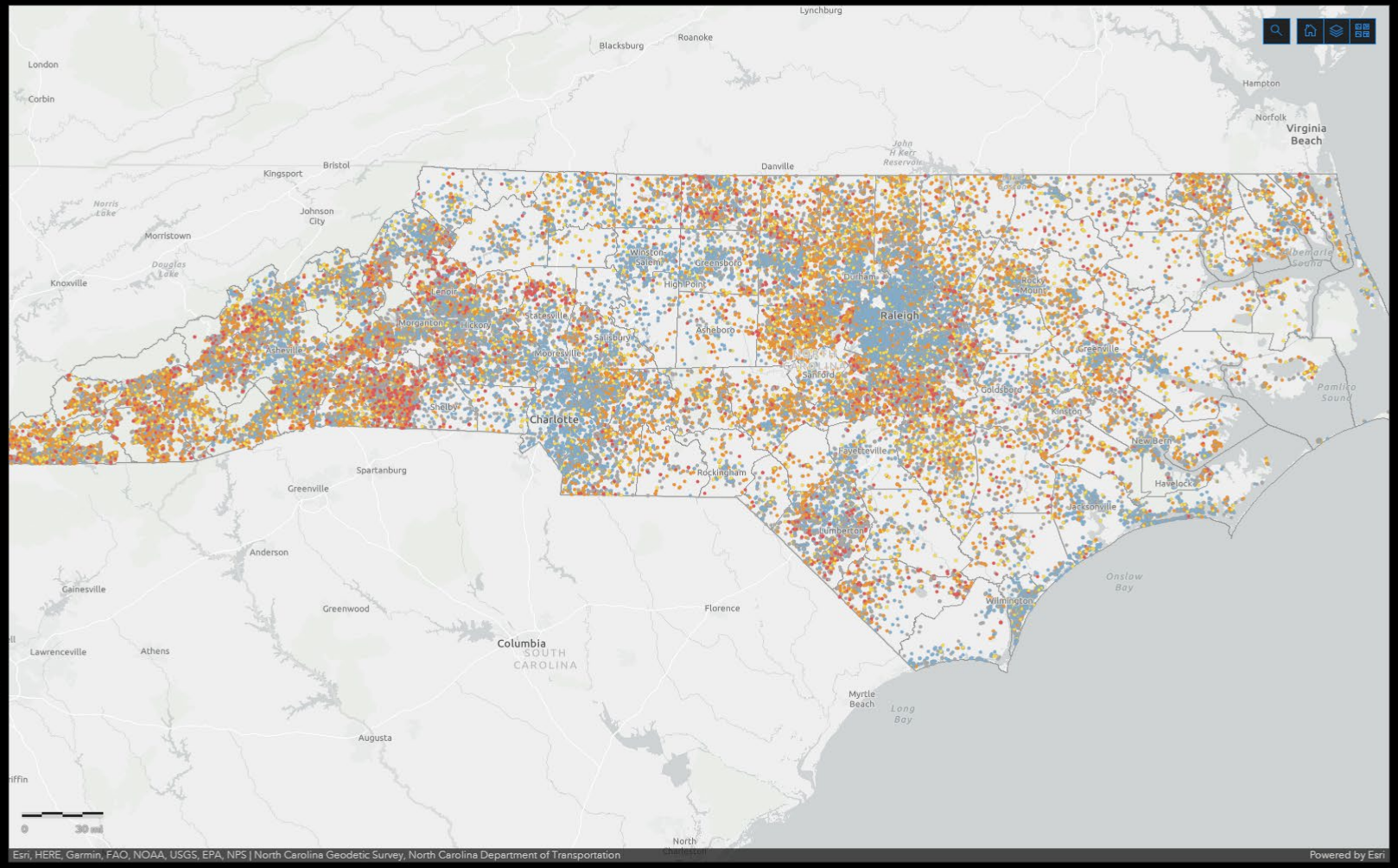


(Click slices to filter map survey points.)

Number with Speeds Under 25/3

8.1k

out of 42.7k Surveys with Speed Test Results



Total Survey Responses

(General, Farm, & Phone)

63.3k

Number without Internet

(excluding cellular and satellite)

16.2k

out of 63.3k

Wireline | % Access: Internet

Number Without Access to Cellular Service

2.6k

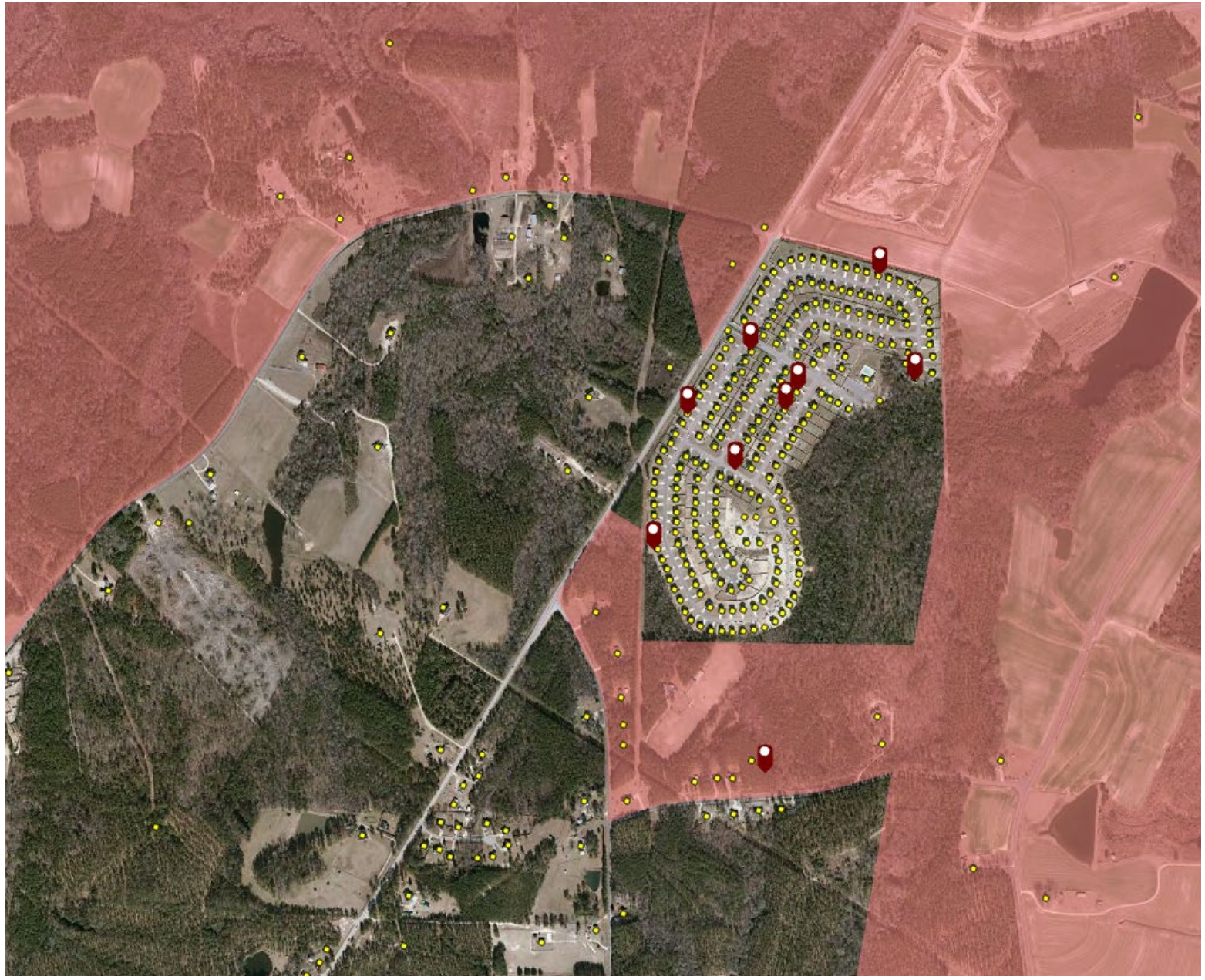
out of 63.3k

Cellular | % Access: Cell

About: *The NC OneMap dashboards provide location-based information on broadband availability, as collected from citizens. This Survey data consists of data collected through three specific online surveys: 1) General Survey, 2) Farm Survey, and 3) Phone-based Internet Reporting Tool. The dashboards are updated daily with new data gathered from newly surveyed North Carolinians. The dashboards were created in collaboration with Broadband Infrastructure Office, the NC Center for Geographic Information and Analysis (CGIA), and the Friday Institute for Educational Innovations at NC State University.*

Disclaimer: *Since those with poor connectivity are more likely to participate in these surveys, the dashboards may display survey results that do not reflect the full picture of the availability and accessibility of internet within North Carolina. These dashboards are*

Community Surveys



Community Survey with Less Than 25/3 Service

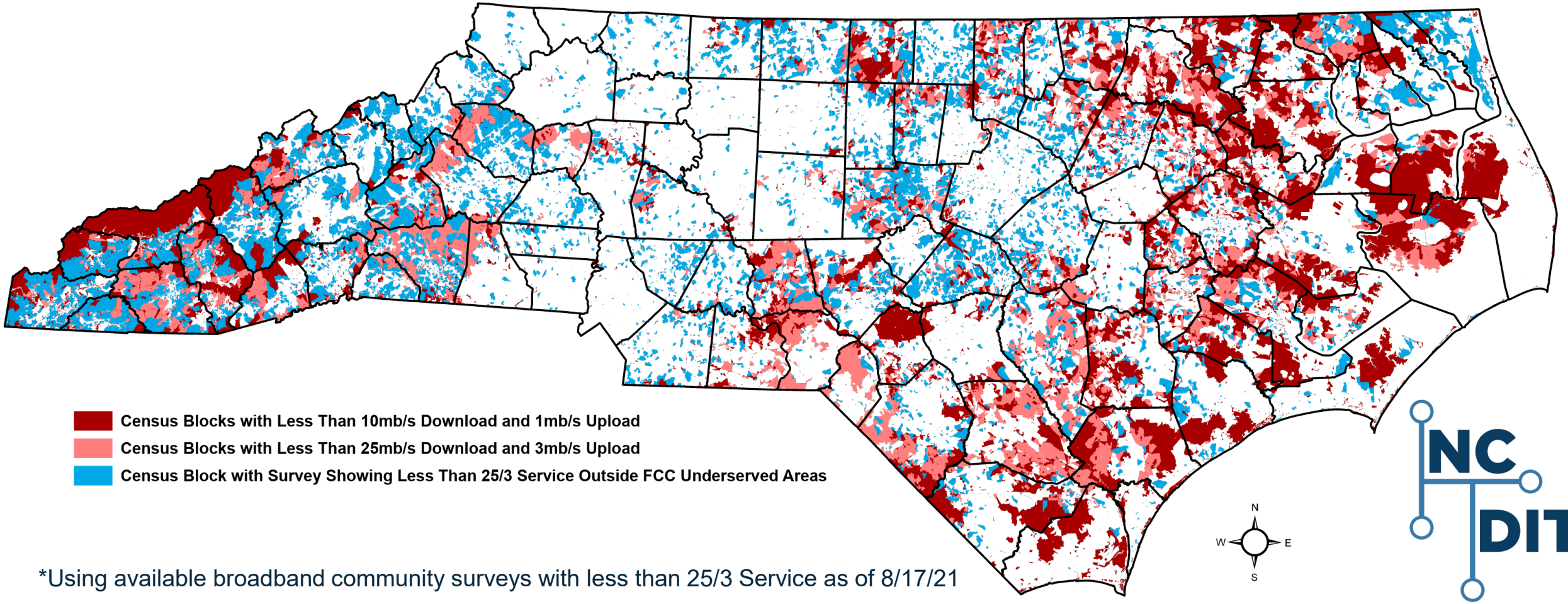
Address Point

FCC Form 477 – Underserved Census Block (Less Than 25/3)

NC DIT

Possible Underserved Census Blocks

- Less Than 10/1 Service Availability – 79,955 Households (1.8% of all households in NC)
- Less Than 25/3 Service Availability – 186,789 Households (4.3% of all households in NC)
- Blocks with at least 1 community survey showing Less Than 25/3 service – 457,732 Households* (10.5%)

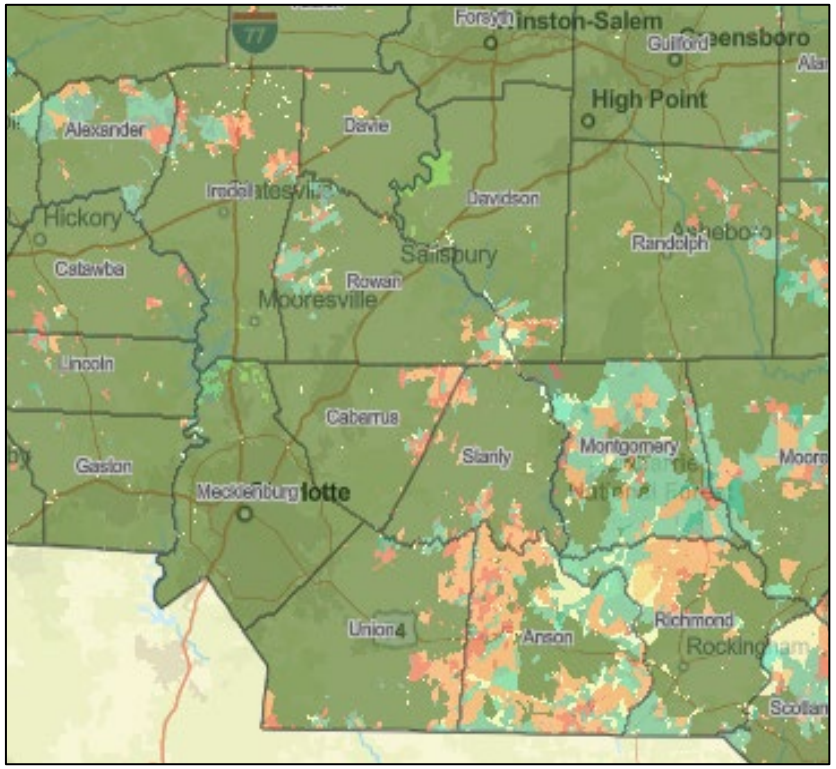


*Using available broadband community surveys with less than 25/3 Service as of 8/17/21

NC DIT

Defining Eligible Locations – Moving Forward

Fiber to the home (Tech Code 50) Cable (DOCSIS 3.1+) (Tech Code 43)	>= 300 Mb/s Download and 10 Mb/s Upload
Cable (DOCSIS 3.0) (Tech Code 42)	>= 100 Mb/s Download and 3 Mb/s Upload
Cable (DOCSIS <2.0) (Tech Codes 40 or 41)	>= 25 Mb/s Download and 3 Mb/s Upload
VDSL (Tech Code 12) Fixed Wireless (Tech Code 70) ADSL2, ADSL2+ (Tech Code 11)	>= 10 Mb/s Download and 1 Mb/s Upload
ADSL, all other Copper (Tech Codes 10, 20, or 30)	>= 3 Mb/s Download and 768 kb/s Upload



NC DIT

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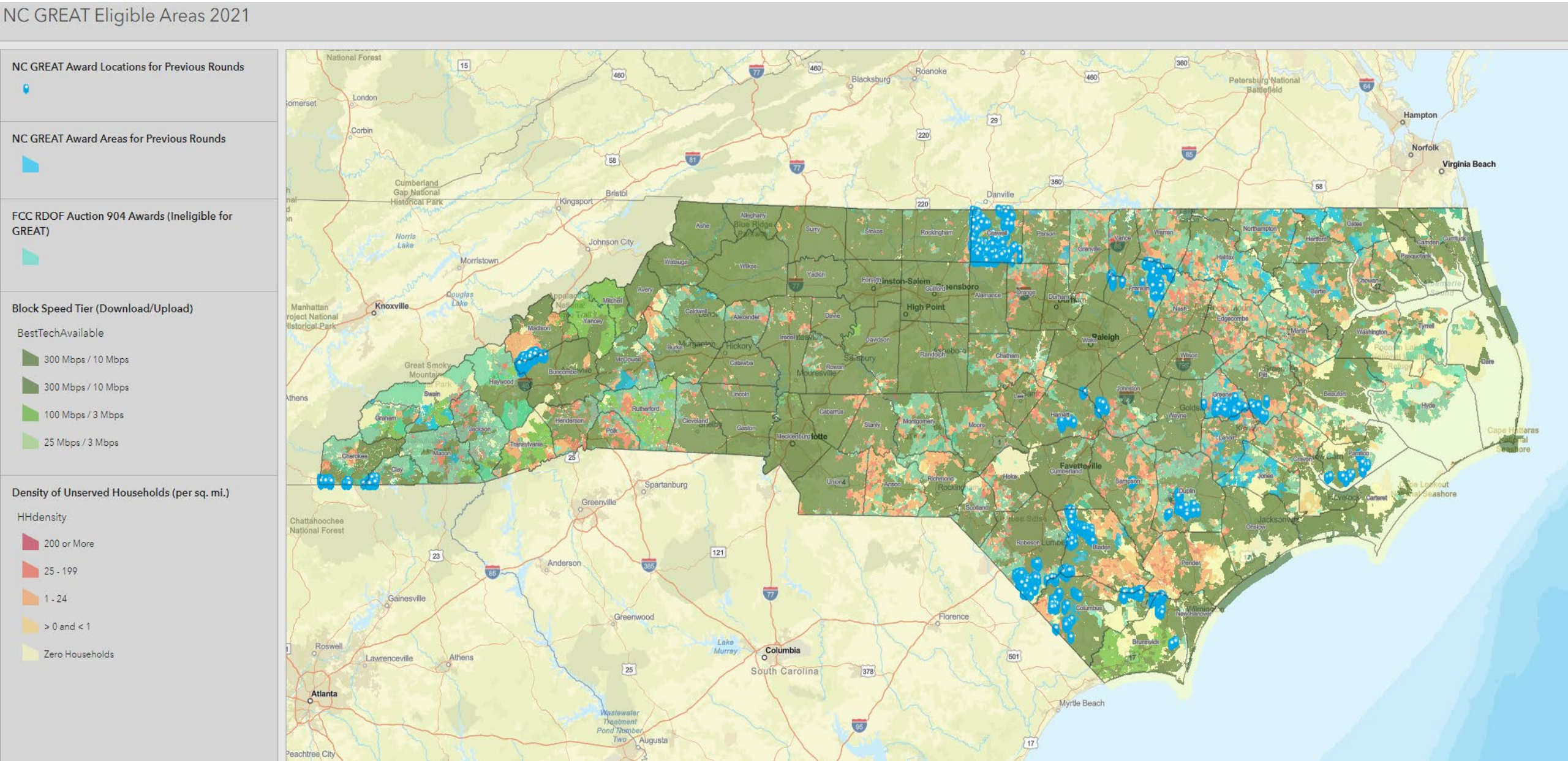
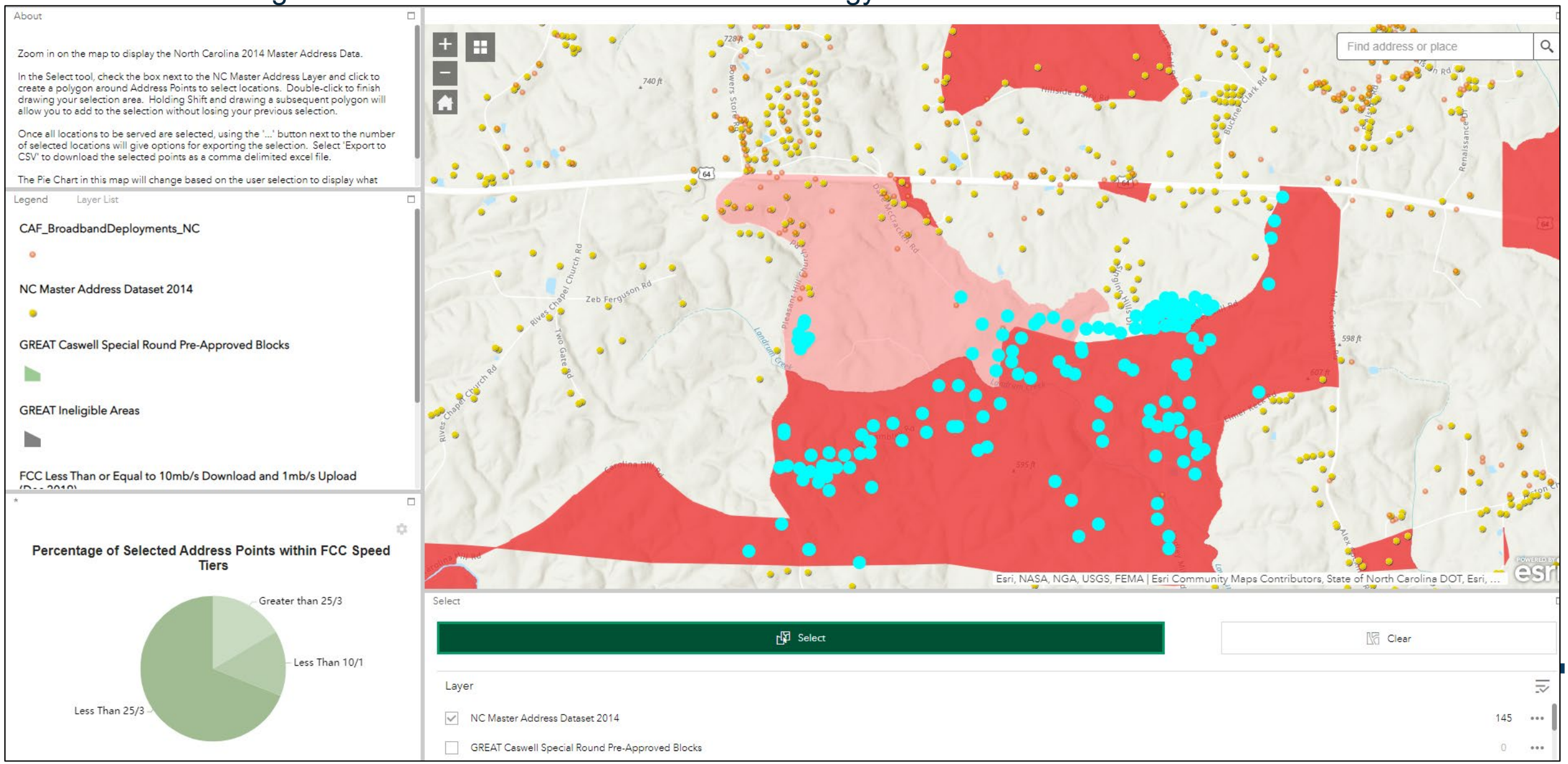


GREAT Grant Program

- Growing Rural Economies with Access to Technology



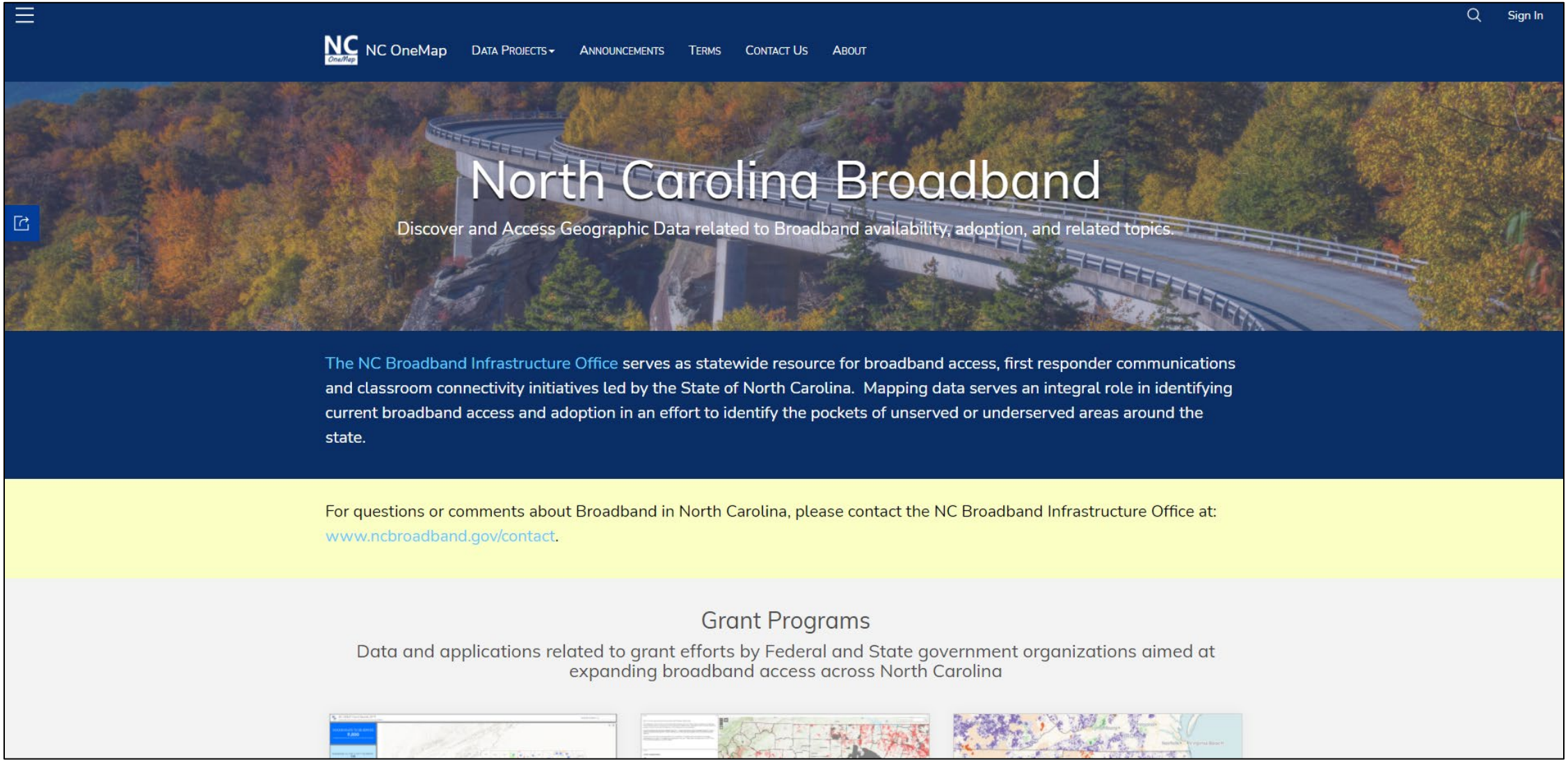
Statewide GIS Datasets and the Location Fabric

Addresses, parcels, and building footprints

Focus on specific locations and attaching the level of service at individual locations to the granular data.

NC OneMap – Broadband Apps & Data

https://www.nconemap.gov/pages/broadband

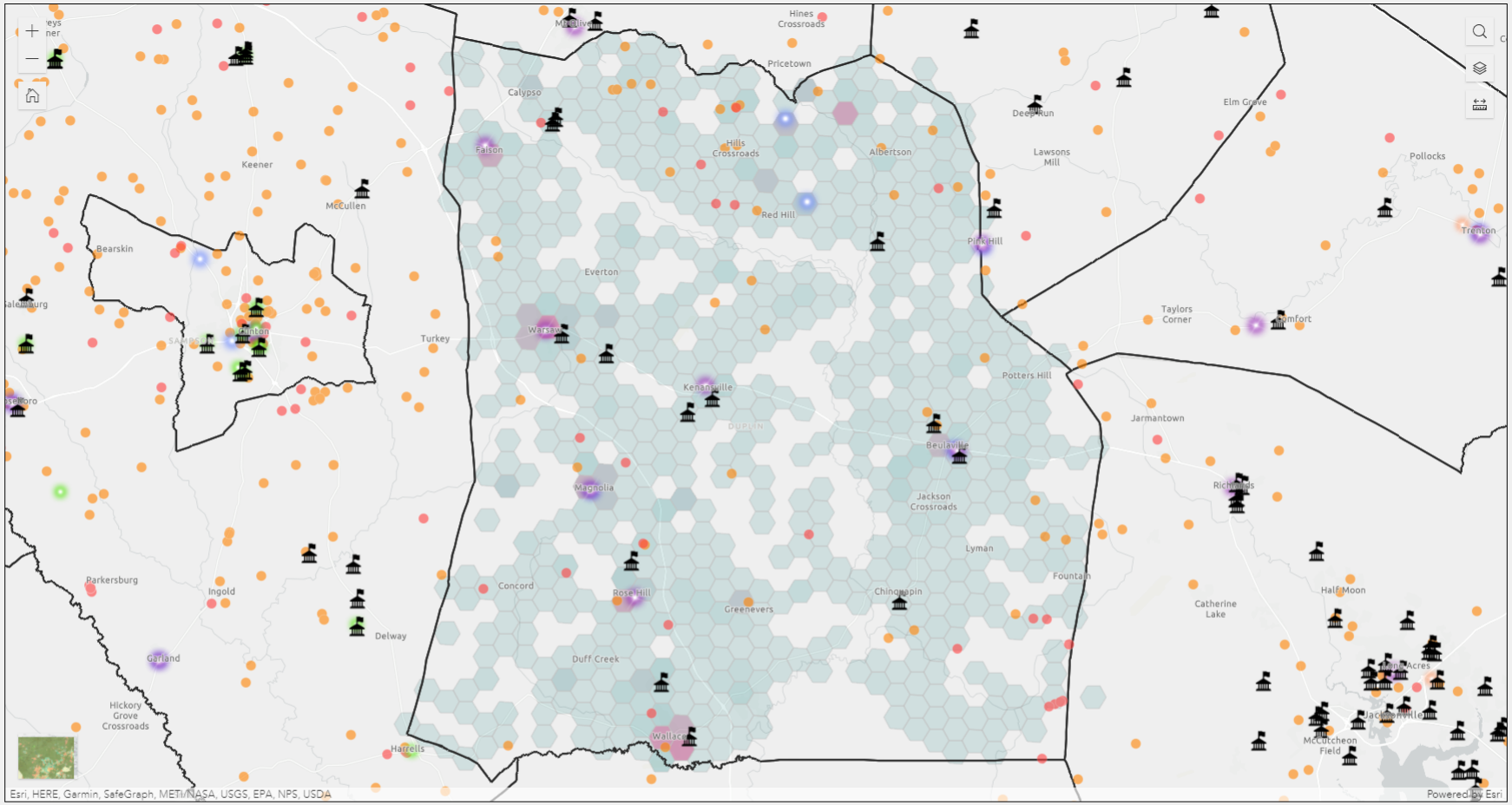


Remote Learning Working Group Dashboard

NC DIT
NORTH CAROLINA DEPARTMENT OF INFORMATION TECHNOLOGY
Center for Geographic Information and Analysis

Search

- Buncombe County
- Burke County
- Cabarrus County
- Caldwell County
- Camden County
- Carteret County
- Caswell County
- Catawba County
- Chatham County
- Cherokee County
- Chowan County
- Clay County
- Cleveland County
- Columbus County
- Craven County
- Cumberland County
- Currituck County
- Dare County
- Davidson County
- Davie County
- **Duplin County**
- Durham County
- Edgecombe County
- Forsyth County
- Franklin County
- Gaston County



Schools

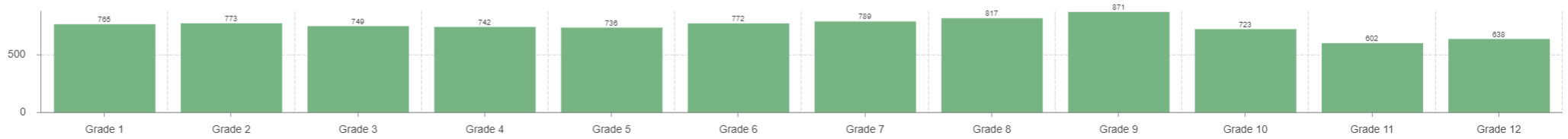
Public Wi-Fi Spots

- NC Public Wifi -Schools (2020)
- NC Public Wifi Spots - Libraries (2020)
- NC Public Wifi Spots - State (2020)
- NC Public Wifi Spots (2020)

Broadband Community Surveys

- Service Level: No Internet (Survey Points)
- Service Level: Under 25mb/s download and 3mb/s upload (Survey Points)

NCDPI 2020 21 StudentsAggregated Large Hexbins Merged



Students By Grade | Students By Race

Student Locations | Broadband Indices | Cellular | Data | ABOUT

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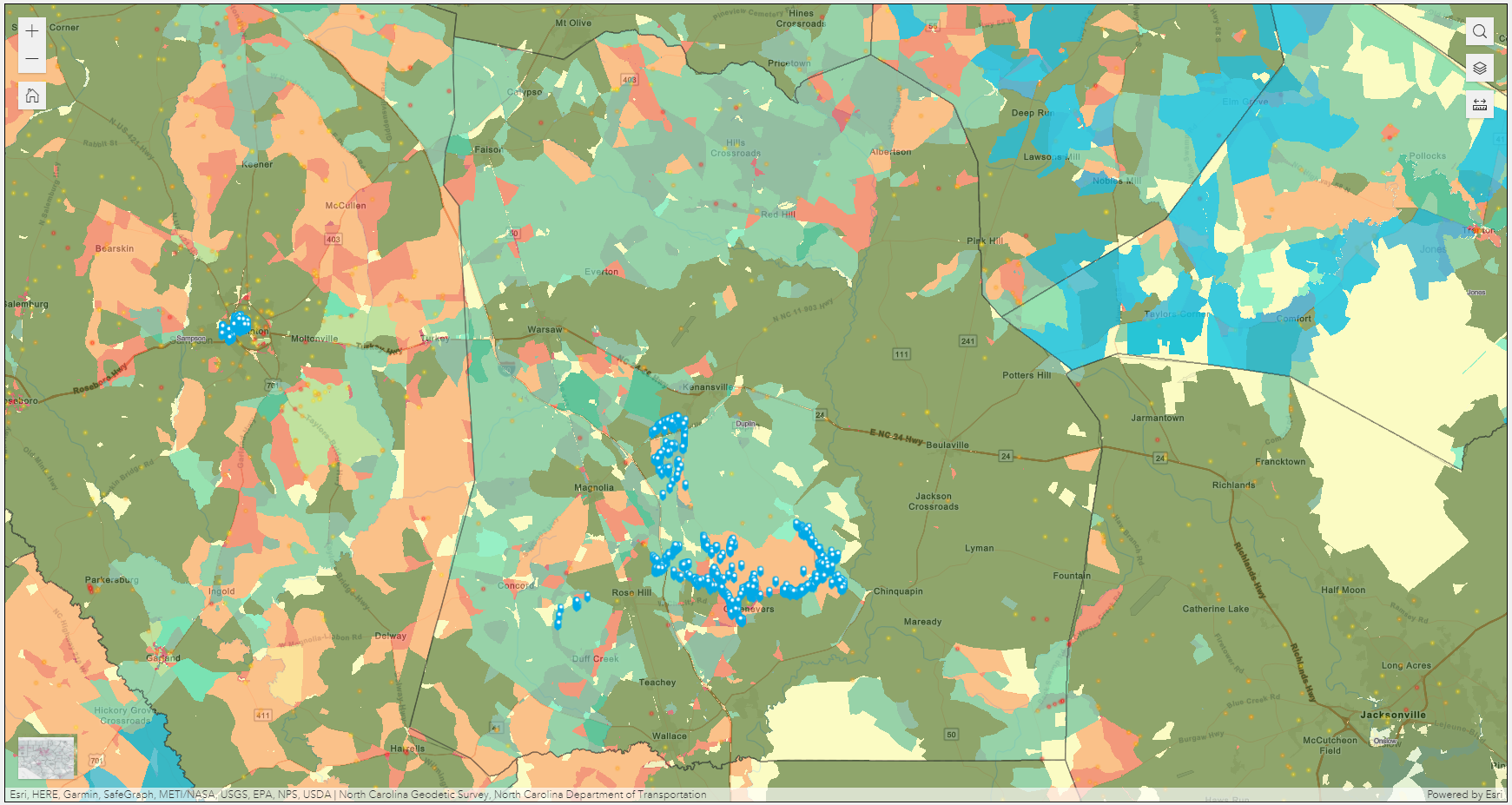


NC GREAT Award Locations for Previous Rounds

NC GREAT Award Areas for Previous Rounds

NC Broadband Survey Response

c_Service_Level
- No Internet
- Under 25/3 (Fastest)
- Under 25/3

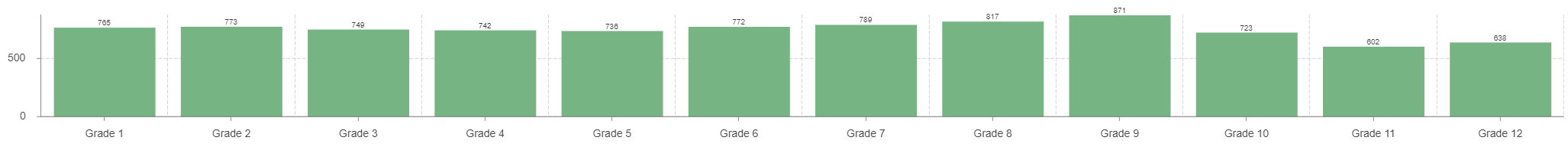
FCC RDOF Auction 904 Awards (Ineligible for GREAT)

Block Speed Tier (Download/Upload)

BestTechAvailable
- 300 Mbps / 10 Mbps
- 300 Mbps / 10 Mbps
- 100 Mbps / 3 Mbps
- 25 Mbps / 3 Mbps

Density of Unserved Households (per sq. mi.)

HHdensity
- 200 or More
- 25 - 199
- 1 - 24
- > 0 and < 1



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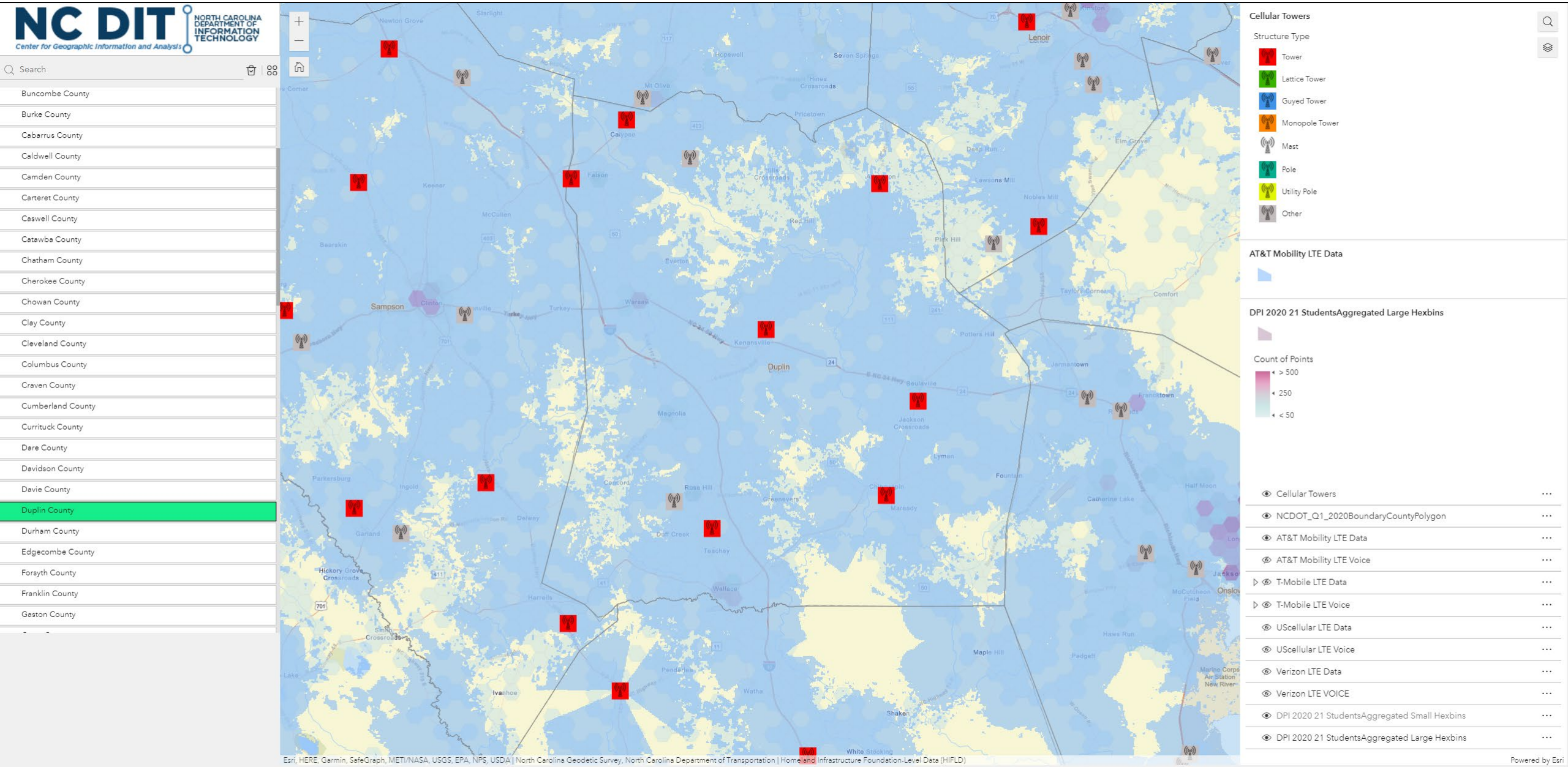

Defining Eligible Locations – Moving Forward

- Depending on final State budget, NC is anticipating investing almost $1B in broadband deployment through multiple infrastructure programs funded with American Rescue Plan dollars
- NC will also continue the State-appropriated GREAT Grant program
- “Eligible Locations” will need to be determined through both US Treasury Guidance for ARP and requirements in State legislation related to speeds, technologies, etc.
- Generally federal and State rules won’t allow funds to be invested in areas with other deployment projects. Tracking of other deployments with federal funds (FCC RDOF, USDA ReConnect, NTIA grants…) and local funds will be critical.
- BIO and CGIA are also assessing how to fold in other data sources to identify unserved areas in partially-served census blocks:
    - NC Broadband community surveys https://www.ncbroadband.gov/broadband-nc/north-carolina-broadband-survey
    - Ookla data
    - Data from grant applicants or potentially counties…

Moving Forward - Future Steps

- GREAT Grant awards
  - Leverage new Next-Gen 911 Addresses
- Sunsetting the FCC Form 477 Census Block data collection
  - Implementation of new coverage area polygon collection by FCC
- Partnering with National Telecommunications and Information Administration
  - Working on improvements to Broadband Availability Map

- Continue development of Address-level data model for Broadband
    - AddressNC – implement by leveraging NextGen 911 data
    - Parcels – continue quarterly update cycle and improve attribution
    - Building Footprints – update NC Emergency Management dataset

Questions?

www.ncbroadband.gov

https://www.nconemap.gov/pages/broadband

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