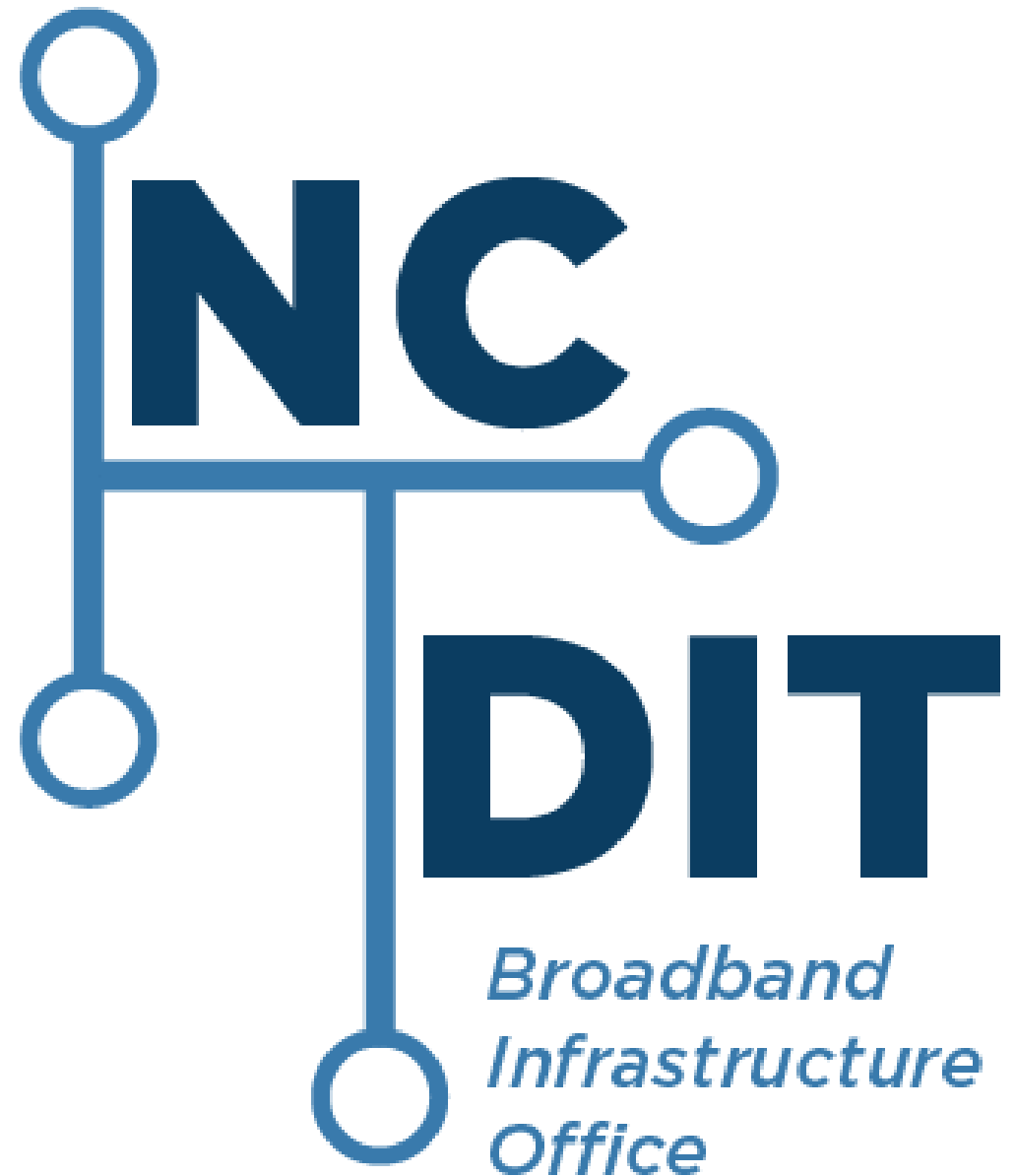
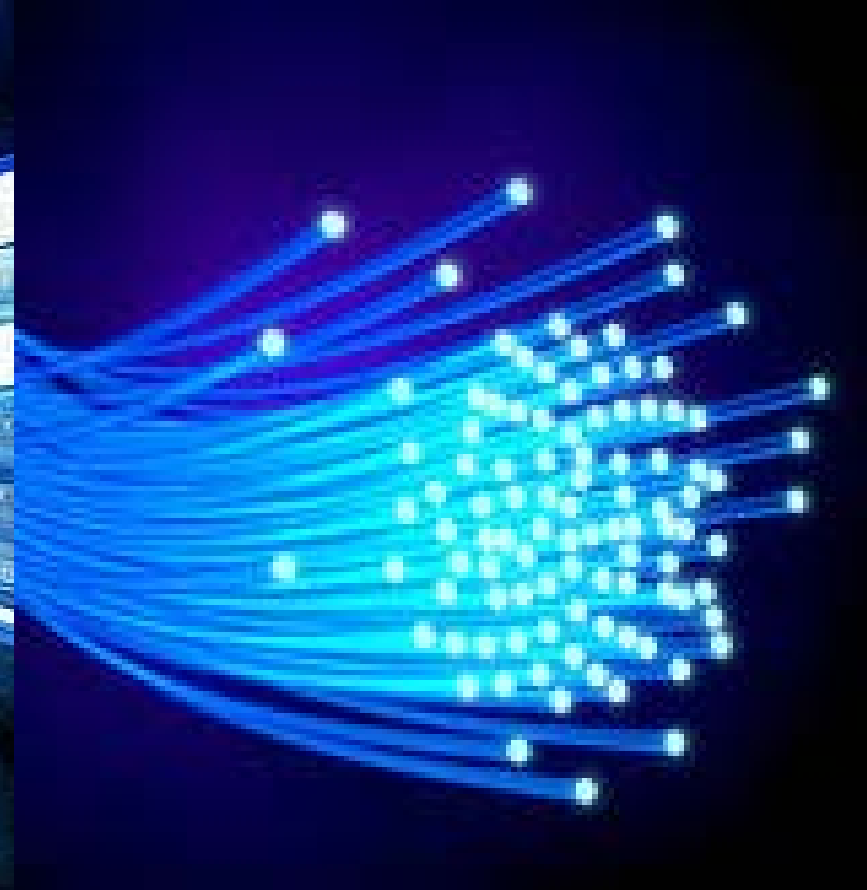


# 5G, Fiber and Broadband: Opportunities for Your Community

## ELECTRICITIES of North Carolina CONNECTIONS SUMMIT

*Broadband Infrastructure Office  
Angie Bailey, Assistant Director  
February 20, 2020*





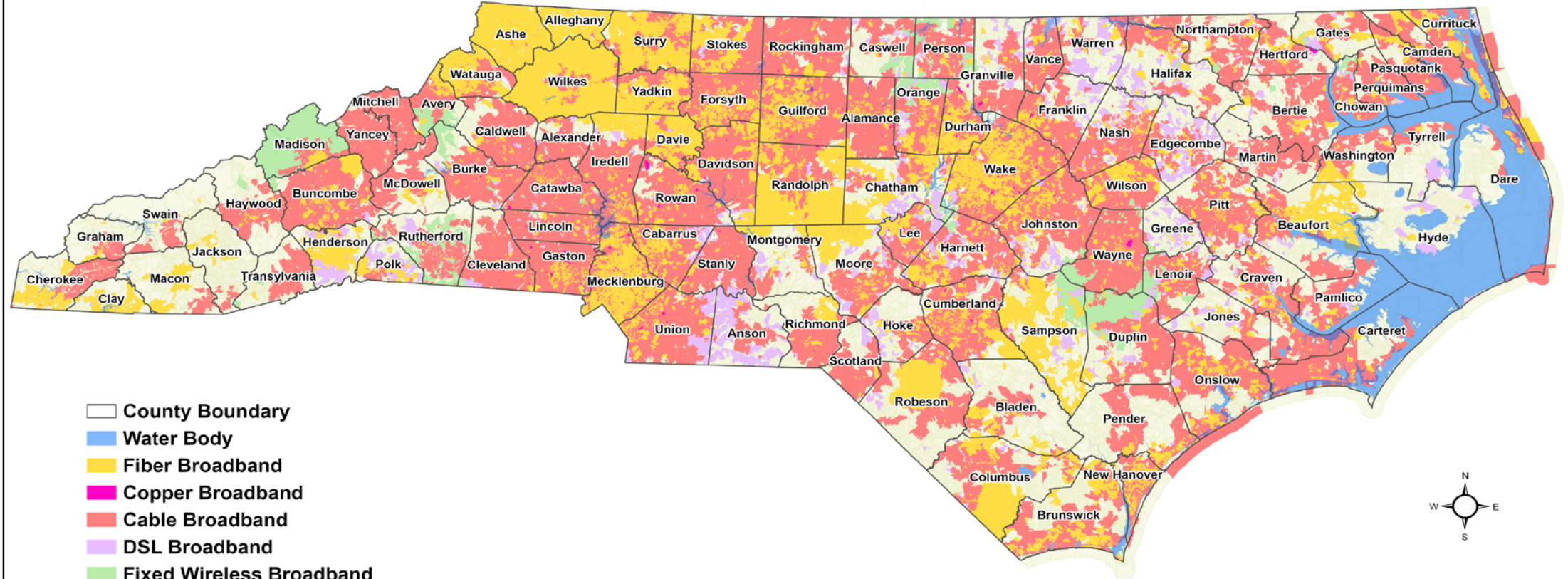
# What *is* Broadband?

# North Carolina Broadband Service Inventory

## Advertised Speeds of at Least 25 Mbps Download and 3 Mbps Upload

Data derived from U.S. Federal Communications Commission Form 477 Data Release Dec. 2018.

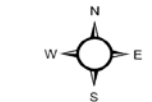
Note: A provider that reports deployment of a particular technology and bandwidth in a census block may not necessarily offer that service everywhere in the block.



- County Boundary
- Water Body
- Fiber Broadband
- Copper Broadband
- Cable Broadband
- DSL Broadband
- Fixed Wireless Broadband
- No Service at this Speed Threshold

In areas where multiple service options are available this map shows the coverage layers in the order presented above.

0 25 50 100  
Miles

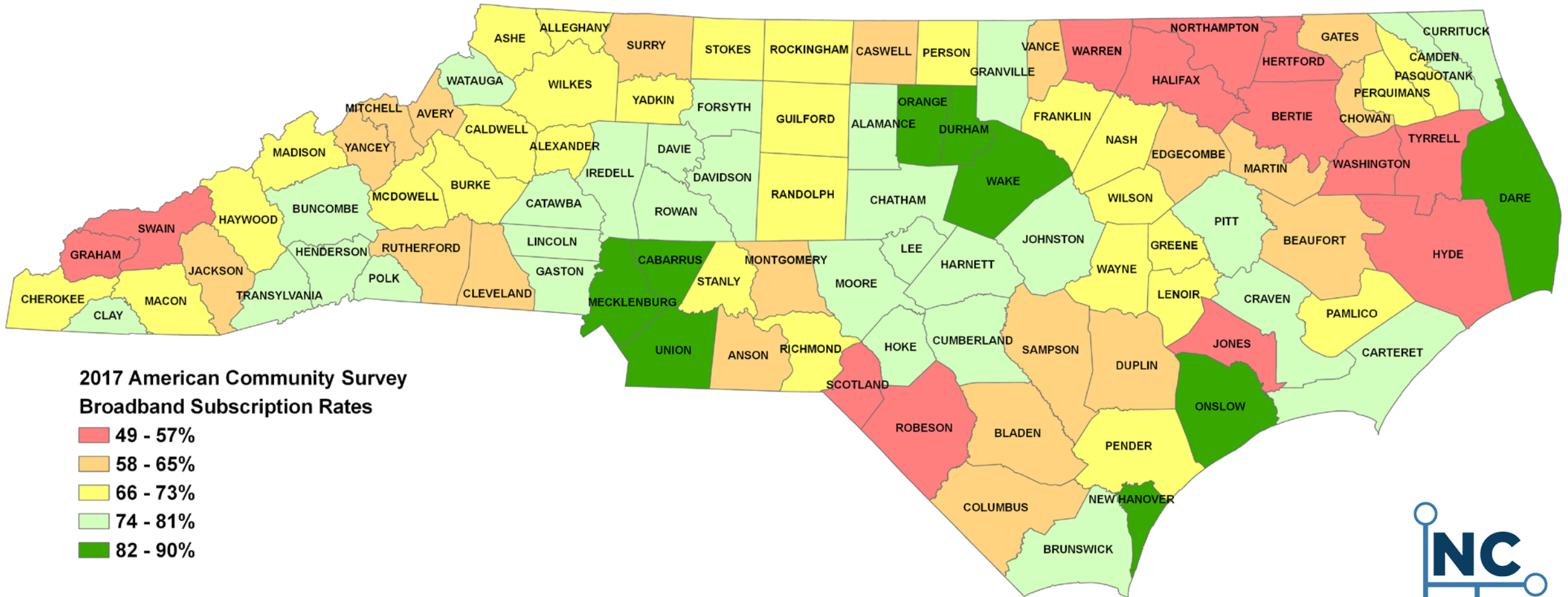


# Common Barriers to Broadband Deployment

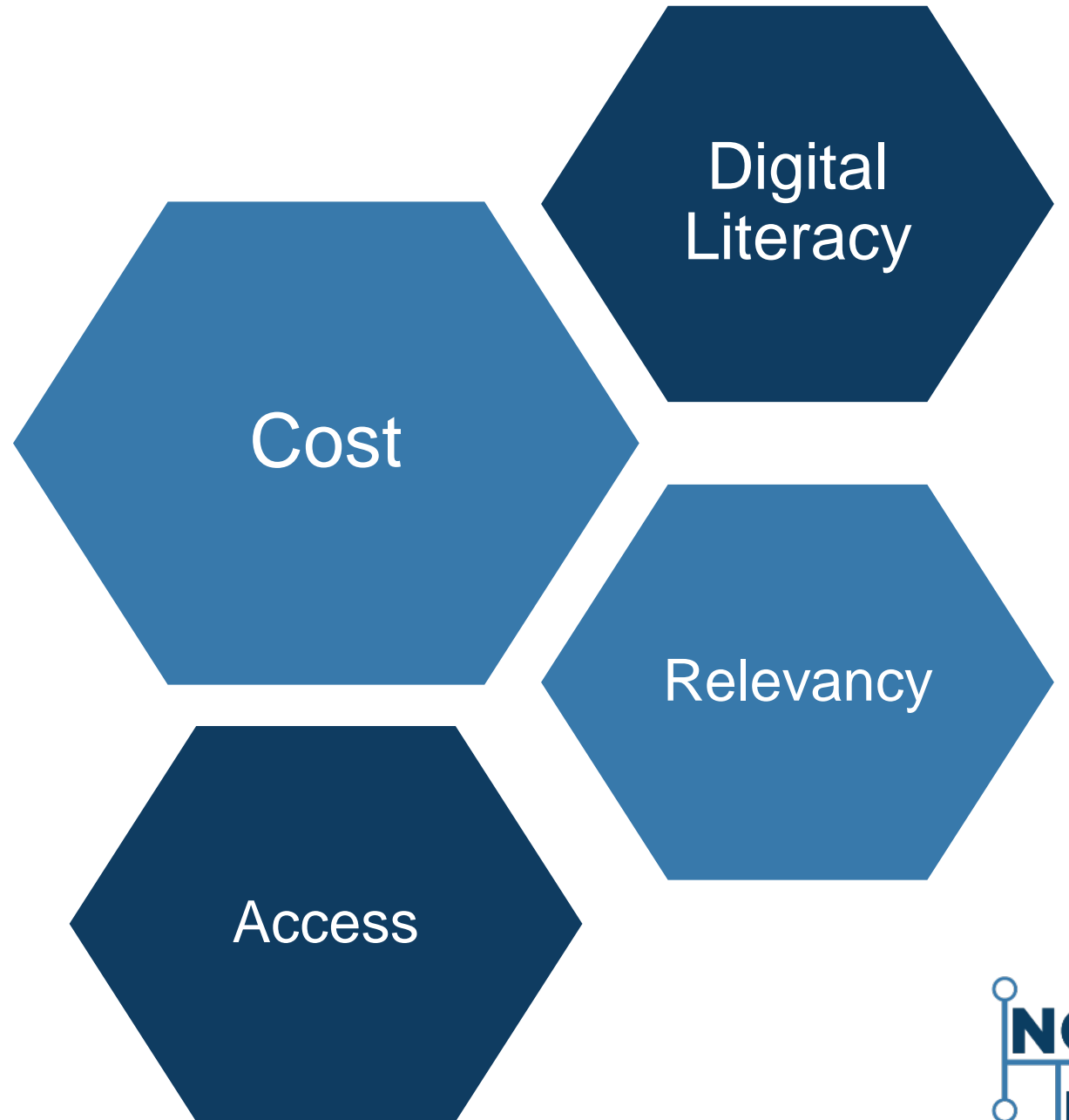
Capital  
Expenditures  
(CAPX)

Population  
Density

# NC County Broadband Subscription, 2013-2017



# Common Barriers to Broadband Adoption



# Opportunities in Broadband

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## Broadband Expansion

- \$\$
- Emerging technologies
- Policies to reduce barriers & leverage assets
- Applications & utilization
  - Leveraging projects to reduce costs
  - Increased adoption/digital inclusion



# Federal Funding for Last-Mile Broadband

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Some primary sources of federal funding for last-mile deployments in NC

- FCC Connect America Funding & RDOF
- USDA Community Connect
- USDA ReConnect
- Appalachian Regional Commission

BIO works to help leverage dollars into NC, plus coordination of funding with GREAT



# USDA Invests \$23.7 Million in Rural Broadband for North Carolina Families

**CLINTON, N.C., Nov. 6, 2019** – Today, U.S. Department of Agriculture (USDA) Deputy Under Secretary for Rural Development Donald “DJ” LaVoy announced USDA has invested \$23.7 million in high-speed broadband infrastructure that will create or improve rural e-Connectivity for nearly 8,750 rural households in North Carolina. This is one of many funding announcements in the first round of [USDA’s ReConnect Pilot Program](#) investments.

## Press Release

Release No. 0174.19

Weldon Freeman (202) 690-1388

Wayne Maloney (202) 720-6103

# USDA Broadband Funding in NC

## Awards 2018-2019

### USDA Community Connect Awards (2018 and 2019)

• Camden	Eastern Shore Comms	\$ 1.8m
• Cherokee	Blue Ridge Mountain EMC	\$ 3m
• Madison	French Broad EMC	\$ 3m
• Columbus	Wilkes TMC	\$ 1.9m

### USDA ReConnect Awards (2019)

• Bladen & Sampson	Star Communications	\$23.7m
• Columbus	ATMC	\$ 7.9m

# GREAT Legislation

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## Session Law 2018-5 (Appropriations Act of 2018)

Growing Rural Economies with Access to Technology

### **GREAT** Grant Program

To expedite terrestrial deployment of broadband, by encouraging partnerships and competition between private broadband providers and cooperatives...and lease of State and local-government owned properties or facilities

# GREAT Grant Program

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## Eligible Areas:

- **Areas without Internet service providing transmission speeds of 10:1 Mbps (wireline or fixed wireless) - considered “unserved”**

# GREAT Projects – Awarded May 2019

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## 18 Counties, \$9.85m, plus private sector match

Bertie	Roanoke Connect Holdings
Bladen	Star Telephone Membership Corp
Caswell	Open Broadband, LLC
Chowan	JCMM Ventures
Columbus	Atlantic Membership Telephone Corp
Gates	Roanoke Connect Holdings
Greene	CenturyLink/Carolina Telephone & Telegraph and Nfinity Link Communications Inc.
Halifax	Olsen enterprises dba Cloudwyze
Hertford	Roanoke Connect Holdings
Jackson	Sky-Fi Inc.
Jones	Eastern Carolina Broadband
Lenoir	CenturyLink/Carolina Telephone & Telegraph and Eastern Carolina Broadband
Macon	Morris Broadband/Shivers Communications Corp
McDowell	Morris Broadband/Shivers Communications Corp
Northampton	Roanoke Connect Holdings
Person	North Carolina Wireless
Swain	Sky Wave, Inc.
Vance	Open Broadband, LLC

# GREAT Grant Program

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## Growing Rural Economies with Access to Technology (GREAT)

- New Program in 2018 (S.L. 2018-5)
- Re-authorized in H387, signed by Gov on 10/14/19
- H387 appropriates \$15m for each fiscal yr (19-20 thru 28-29)
- Tier One Counties for fy 19-20 (2019 Tiers)
- Tier Twos folded into subsequent yrs
- Eligible Applicants are Broadband Providers

To expedite terrestrial deployment of broadband, by encouraging partnerships and competition between private broadband providers and cooperatives...



NC OneMap

About

Feedback

Terms



Sign In



## Grant Programs

Data and applications related to grant efforts by Federal and State government organizations aimed at expanding broadband access across North Carolina



GREAT Grant Awards

### 2019 NC GREAT Grant Awards

View the results of the 2019 Growing Rural Economies with Access to Technology (GREAT) grant program administered by the NC Broadband Infrastructure Office.

Data

View



Grant Eligible Areas

### Identification of Grant Eligible Locations

Identify areas that are eligible for various grant programs aimed at expanding broadband access across the state.

Data

View



Federal Grant Data

### Federal Connect America Fund Grant Program

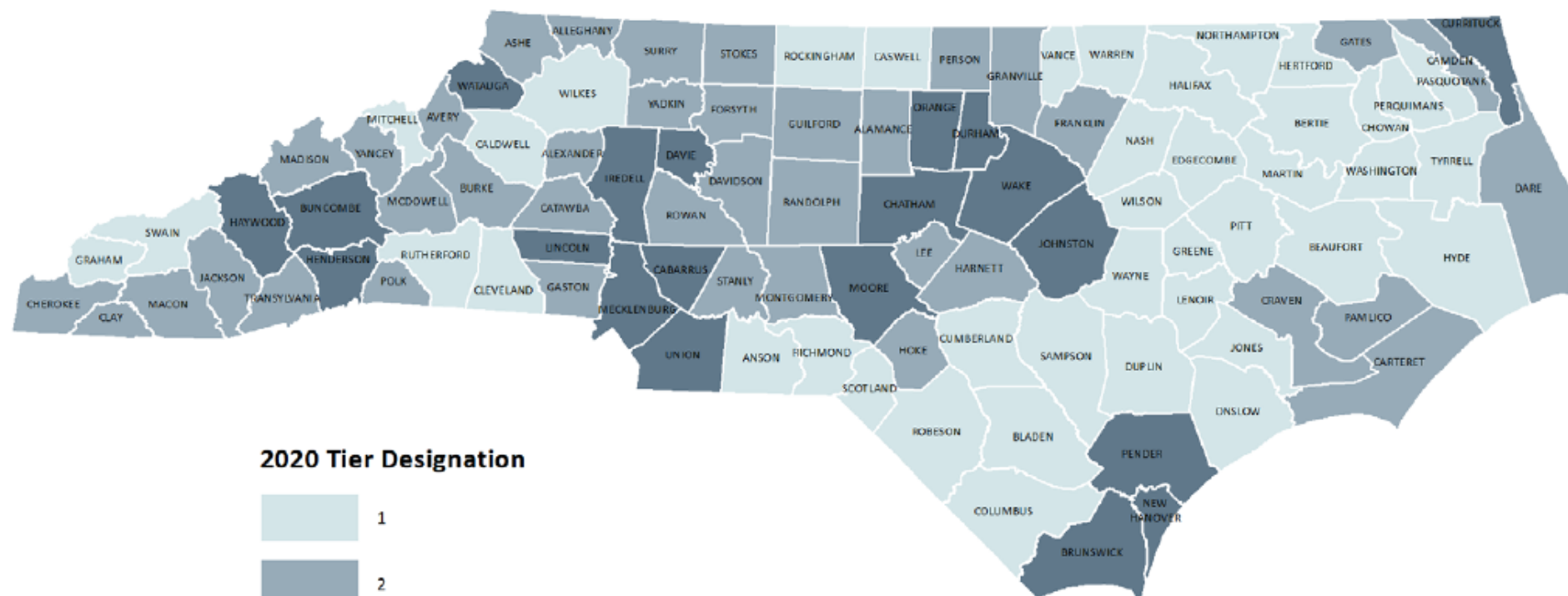
The Connect America Fund (CAF) Broadband Map displays the locations where providers receiving CAF support have built out mass-market, high-speed Internet service.

Data

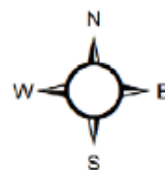
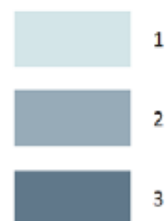
View



## 2020 County Tier Designations



### 2020 Tier Designation



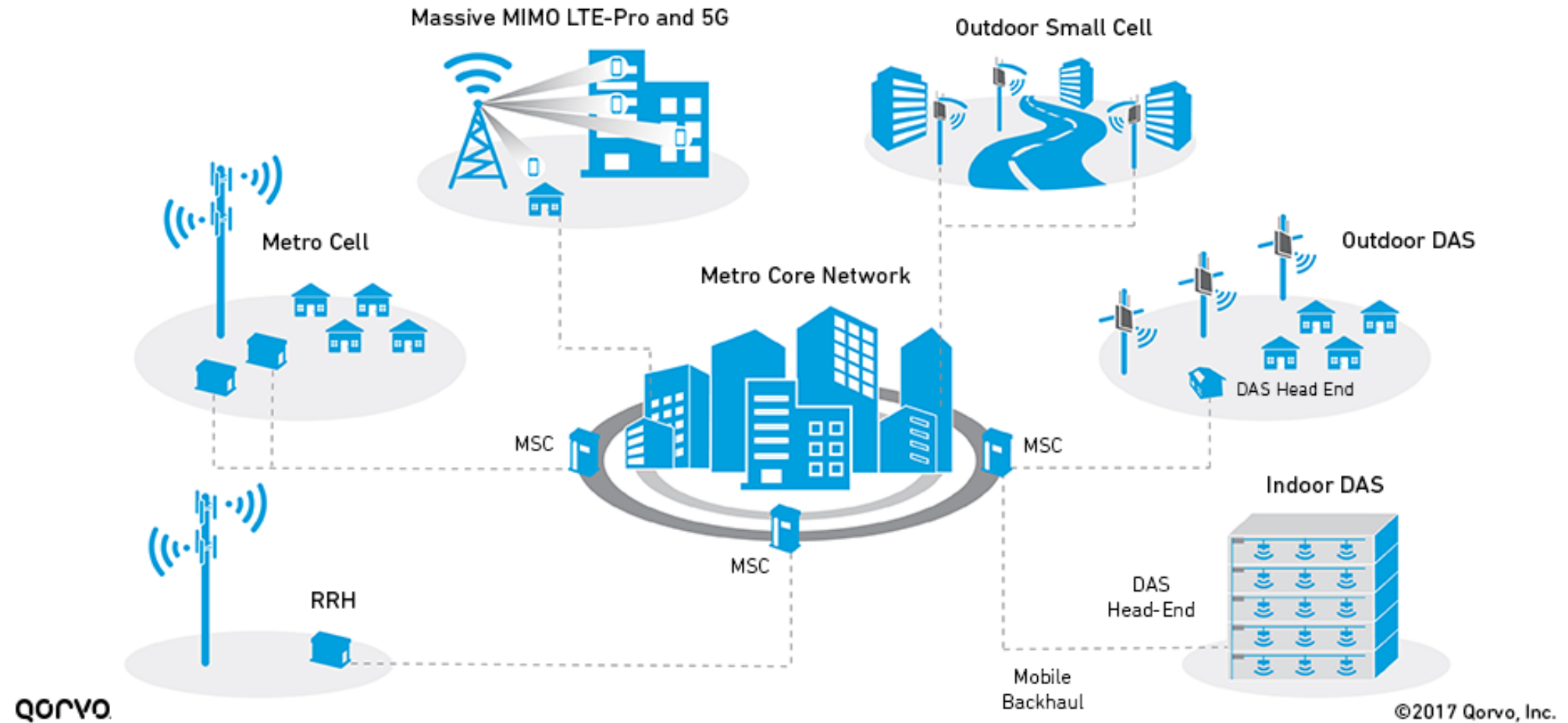
0 15 30 60 90 120 Miles

Map Created November 2019



# Emerging Technologies – Mobile Wireless – 5G

## Wireless Infrastructure: A Heterogeneous Network



# Emerging Technologies – Ideas for Deployment



**PHILIPS**



Source: American Tower/Philips

# Emerging Technologies

## Non-Terrestrial Networks

### Definition of NTN



# Policy Considerations

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County authority to build and lease infrastructure is somewhat grey.

Bill introduced in the past to clarify and allow broader authority to grant money.

Municipal authority based on S.L. 2011-84 (H129).

Cities can build and operate for municipal purposes and offer free service to public.

Some cities: excess capacity is surplus property and can be leased; bills in NCGA to clarify including S.L. 2018-5. (FIBER NC Act, H431)

Small Cell Siting – S.L. 2017-159 outlines requirements/sets fees and timelines for permit approval.

NCLM and UNC School of Government = resources.

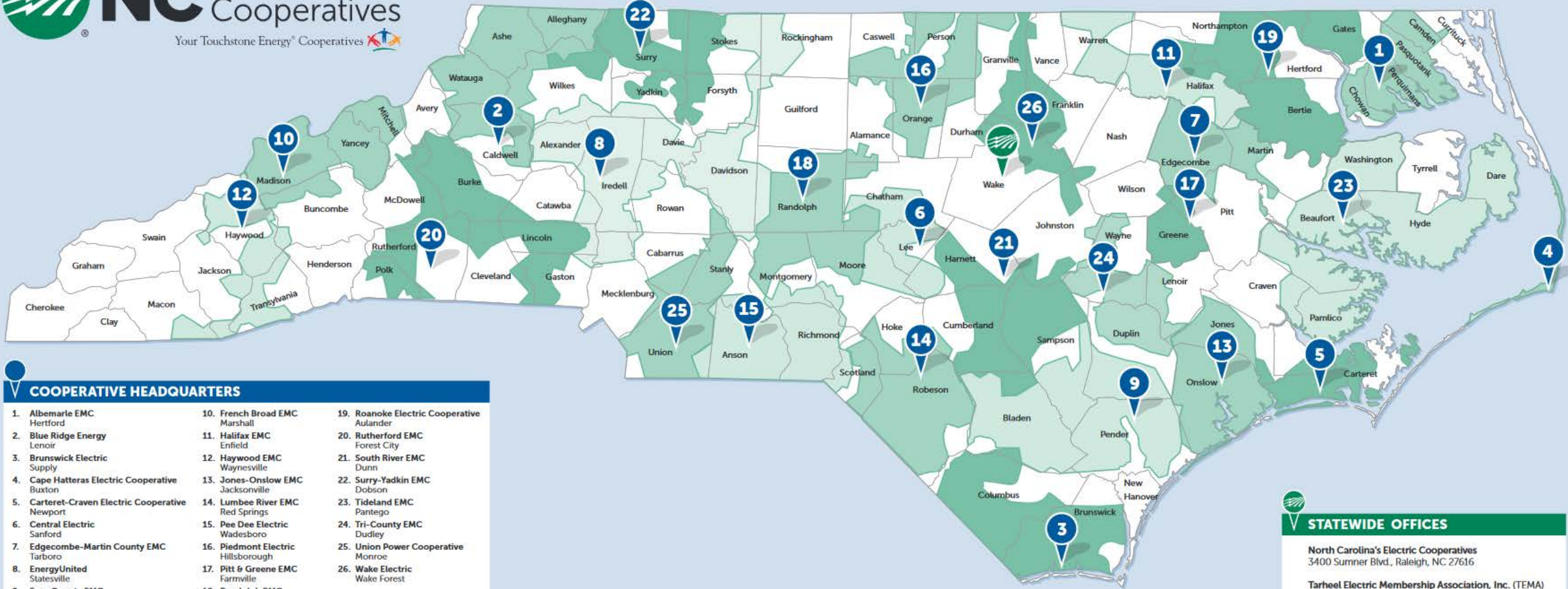
Electric Membership Cooperatives (S.L. 2019-17)

**GENERAL ASSEMBLY OF NORTH CAROLINA  
SESSION 2019**

**SESSION LAW 2019-17  
SENATE BILL 310**

AN ACT REMOVING RESTRICTIONS PROHIBITING ELECTRIC MEMBERSHIP CORPORATIONS AND THEIR SUBSIDIARIES FROM SEEKING FEDERAL GRANT FUNDS TO PROVIDE TELECOMMUNICATIONS AND BROADBAND SERVICES, AUTHORIZING SUCH CORPORATIONS AND THEIR WHOLLY OWNED SUBSIDIARIES TO USE EASEMENTS HELD BY THE CORPORATIONS TO SUPPLY TELECOMMUNICATIONS AND BROADBAND SERVICES, AND PROVIDING FOR THE MANNER IN WHICH CLAIMS RELATED TO THE EXPANDED USE OF EASEMENTS BY SUCH CORPORATIONS SHALL BE RESOLVED.





**STATEWIDE OFFICES**

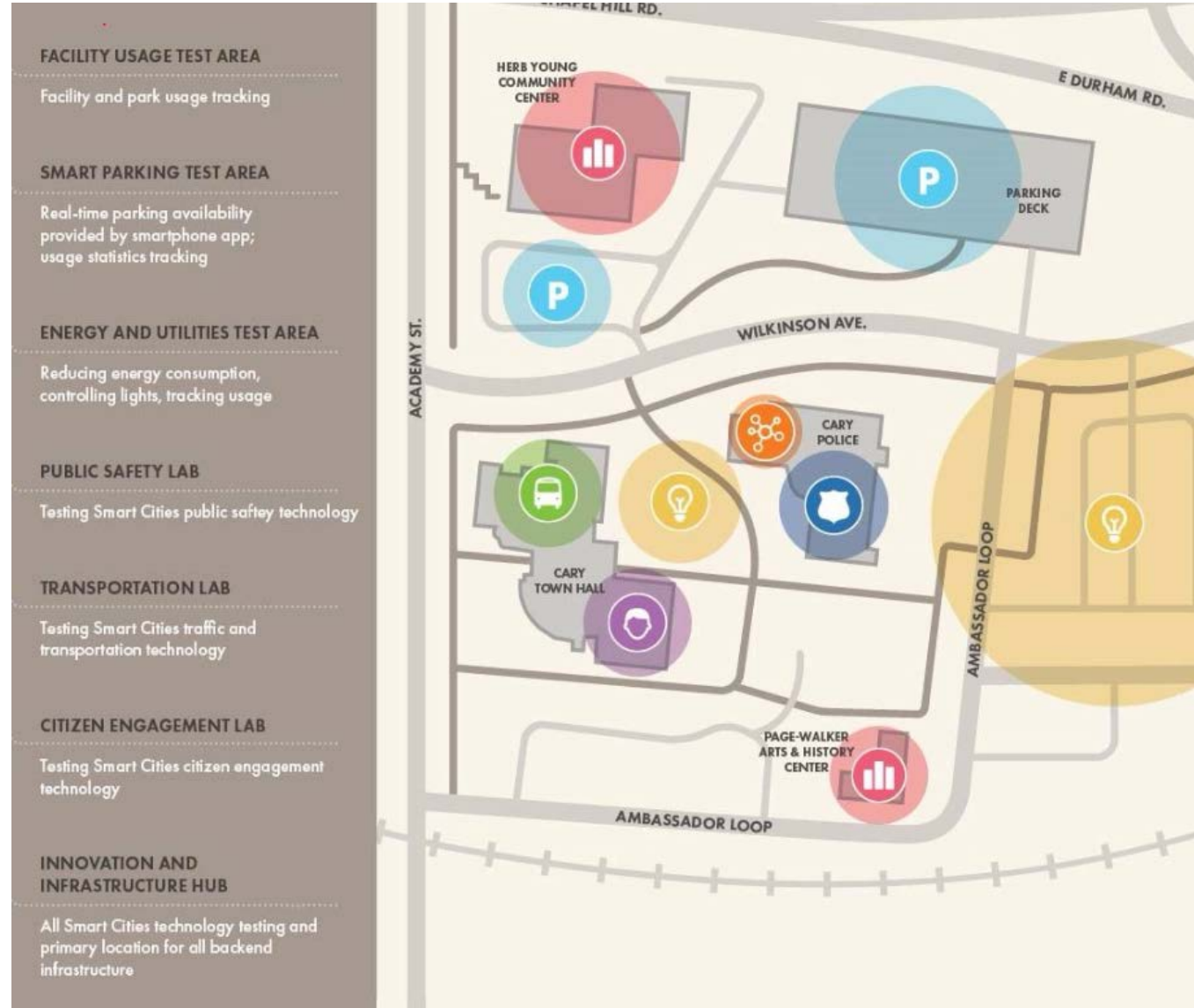
**North Carolina's Electric Cooperatives**  
3400 Sumner Blvd., Raleigh, NC 27616

**Tarheel Electric Membership Association, Inc. (TEMA)**  
8730 Wadford Dr., Raleigh, NC 27616



# Applications & Utilization

## Example: Town of Cary Smart Cities Initiatives



# Digital Inclusion

This includes 5 elements:

1. Affordable, robust broadband internet service;
2. Internet-enabled devices that meet the needs of the user;
3. Access to digital literacy training;
4. Quality technical support; and
5. Applications and online content designed to enable and encourage self-sufficiency, participation and collaboration.

# Tools: Community Broadband Playbook

## COMMUNITY BROADBAND PLAYBOOK

Building a Better Broadband Infrastructure



# Broadband Planning, First Steps....

## What Are Your Goals?

### What Connectivity Challenges are you working to solve?

- Connectivity to Govt-Facilities (county, towns)
- “Smart City” Applications
- Public Safety
- Schools & Libraries
- Healthcare Facilities
- Downtown Wi-Fi
- Economic Development sites
- Large or Small Businesses
- Agriculture/Connectivity to Farms
- Residential Unserved/Underserved
- Homework Gap
- Adoption/Digital Equity



# Broadband Planning, First Steps....

## **Determine Where You Are**

Where Is Your Community Now with Information Gathering?

Municipal Assets and Fiber – What do you have, what are you considering?

What are Your Other County or Regional Assets?

Who are Your Potential Partners, especially Broadband Provider Partners?

Do you have other Projects or Initiatives that can be leveraged?



# Regional & Community Planning

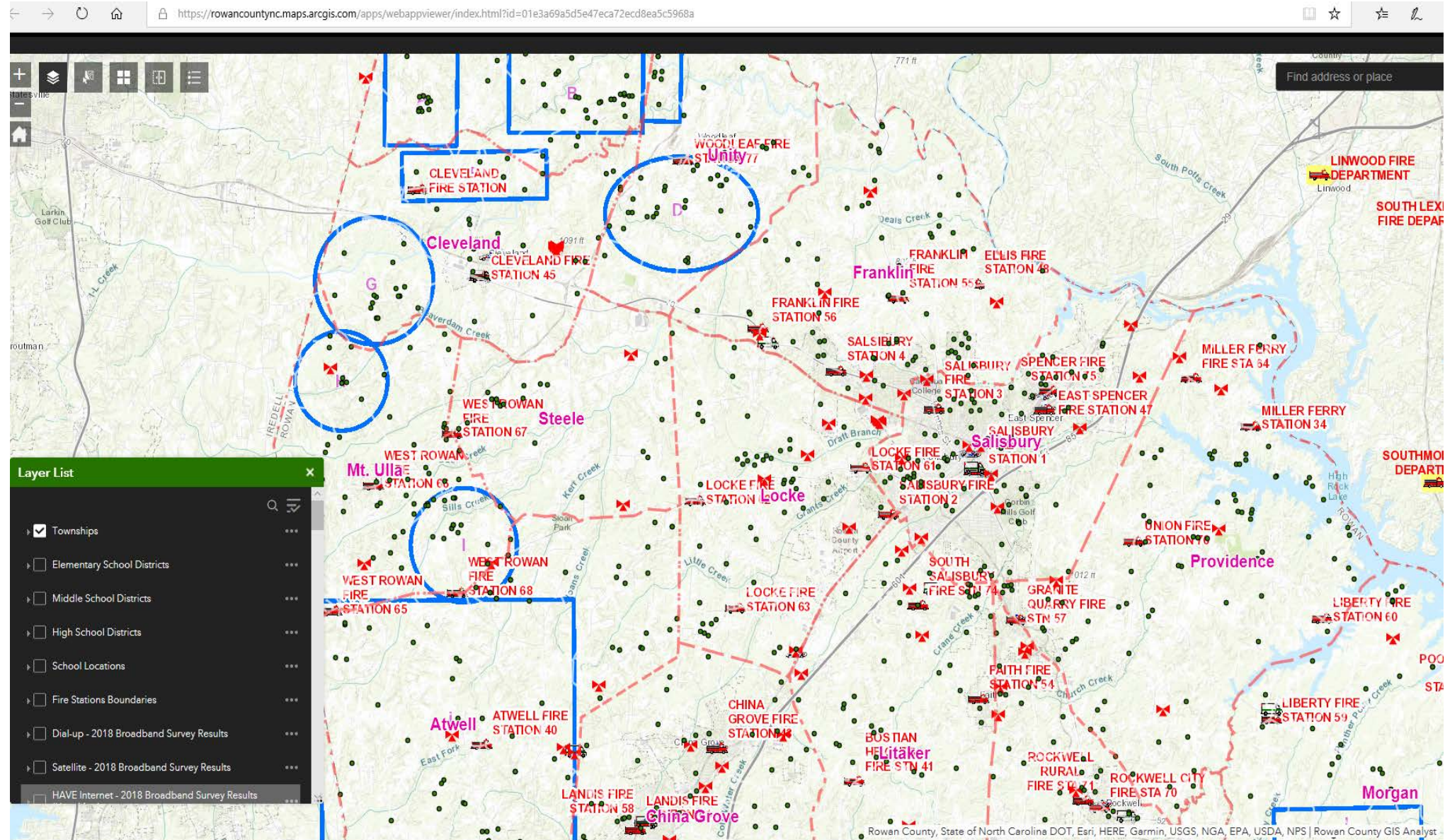
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*Taking the time to understand the current broadband coverage, providers, policy issues, and assets within your region can help you develop a more comprehensive approach to attracting the desired middle-mile or last-mile broadband providers to your area*



# Activities/Models – County Planning

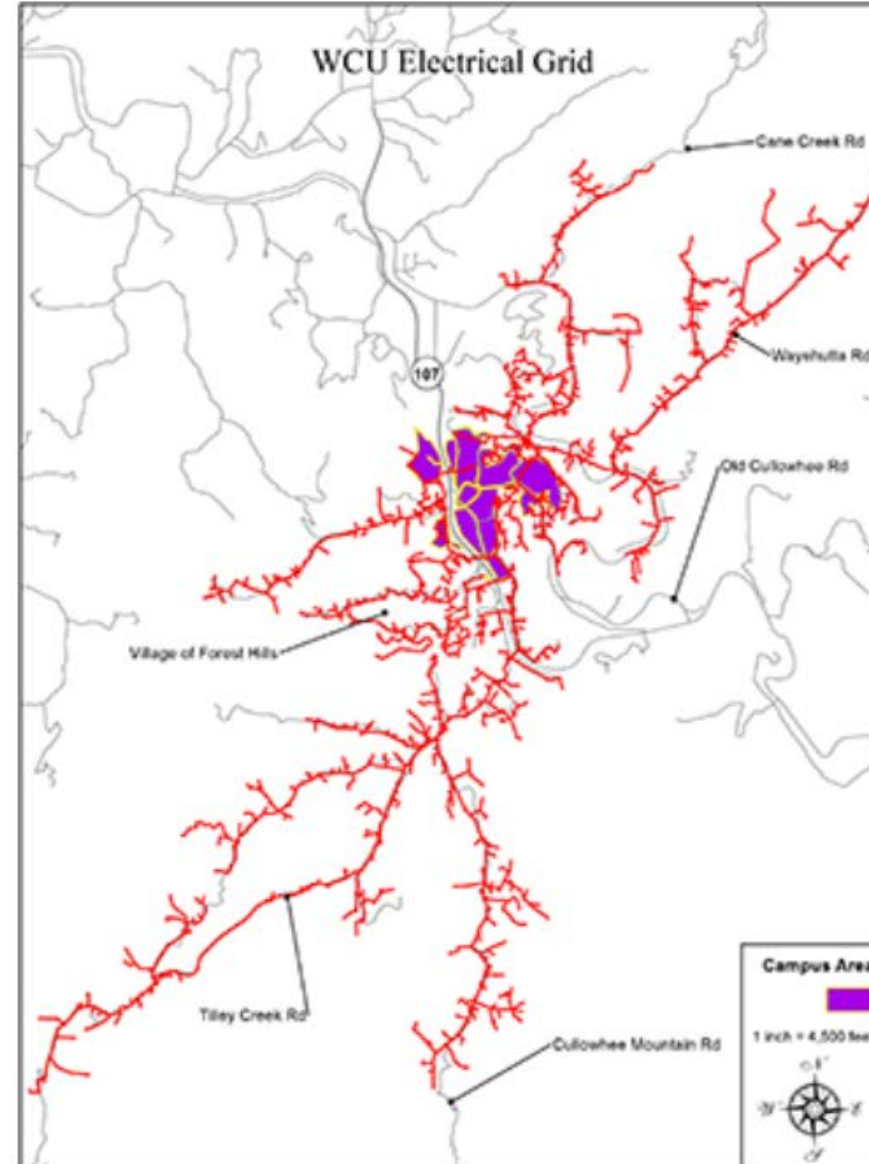
Example:  
Planning effort led by  
Rowan County  
utilizing the  
Broadband  
Infrastructure Office's  
Community Playbook





# Activities/Models –Power Partners

- Partnership between Western Carolina Power and Morris Broadband to utilize public power assets and manpower for broadband deployment
- 3350 power customers
- BIO assisted with concept and development of partnership
- Upgrade allowed for the passing of 700 additional homes
- Currently in Phase II of deployment schedule
- No granted funds were used. The power assets were leveraged to encourage providers through a Request for Proposals



# Activities/Models – Electric Cooperatives

## Roanoke Electric Cooperative / Roanoke Connect

- **Smart Grid Infrastructure Approach (seven NE NC counties)**

REC's territory has limited broadband access

Small percentage of Upgrade 2 \$ave participants can take advantage of ecobee3 thermostat program

Broadband is a critical infrastructure for 'the cooperative of the future'

Evolving member expectations

Utilities must establish connected services on the member's side of the meter

Common features of tomorrow's utility – not available w/o broadband services

Outage identification and restoration before being notified by member-owner

Other member-related services

Rewards / discount programs

Online billing / payment functionality

Wholesale Cost Avoidance via Wi-fi enabled by

**demand response and voltage conservation programs**

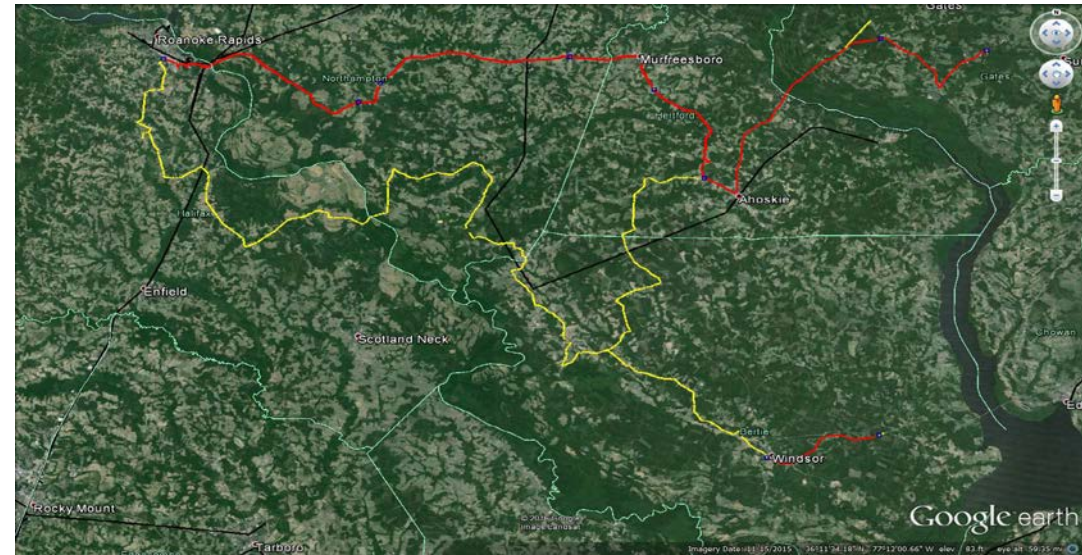
Ecobee3 & other smart thermostats

Water heater controls

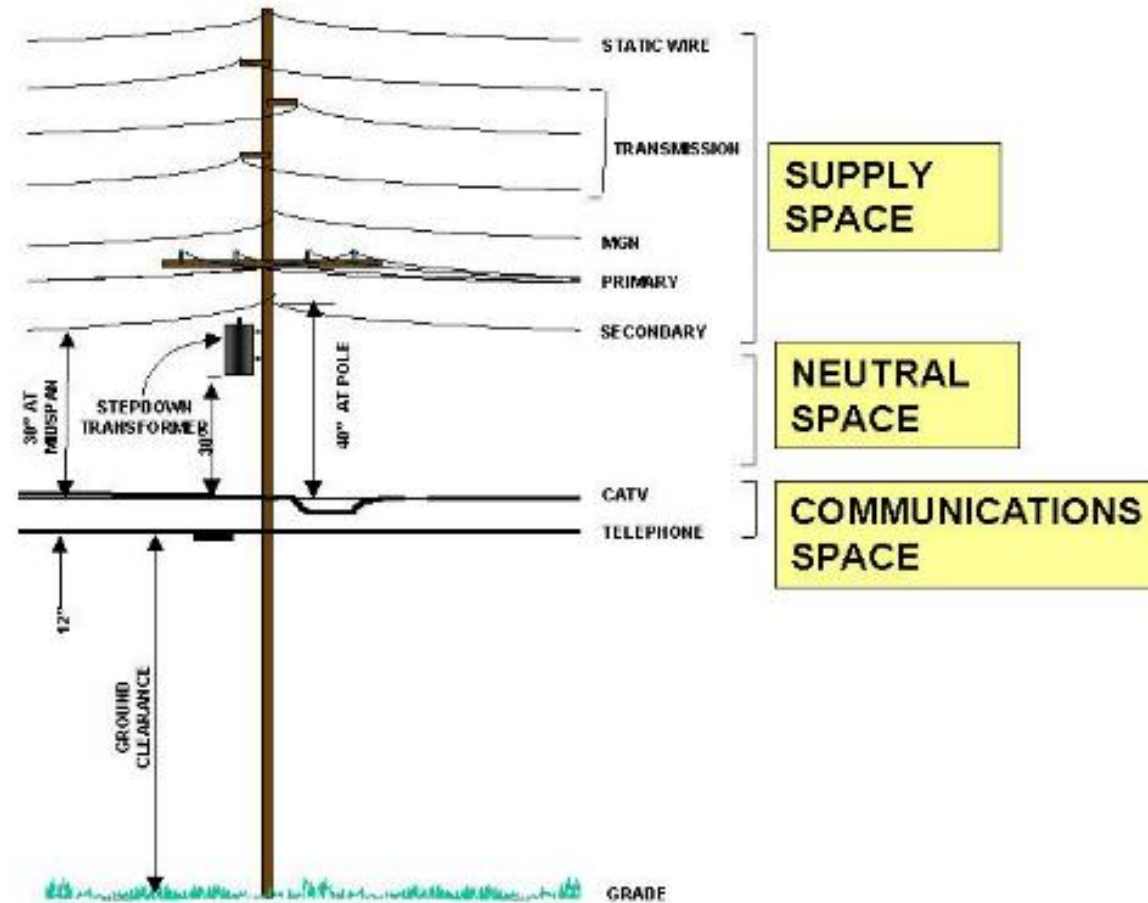
Voltage / Variance

Others in the future

- BIO interested in new provider entrants into NC, discussions with REC on telehealth and other projects



# Lessons Learned



Source: Duke Power Company

# Activities/Models – County PPPs

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## Nash County with CloudWyze (Wireless ISP)

- \$300,000 Pilot Program with \$2m contract overall



- BIO assisted with RFP process and technical assistance

# Other Activities – Regional Councils of Govt

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## Partnerships with Regional Councils of Government

Currently providing Broadband 101 trainings to COG members, in partnership with regional councils

Partner on data collection efforts

Broadband Planning and grant development





# As You Develop Plans, Keep in Mind...

Underlying Goal(s)

No One Solution

combination of solutions, even in one county or municipality  
combination of providers, technologies

Leverage Other Projects, for example...

smart/connected city applications, public safety, economic  
development, homework gap



# Thank You...

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**Angie Bailey**

Assistant Director, Broadband Infrastructure Office

NC Department of IT

(919) 817-0541, [angie.bailey@nc.gov](mailto:angie.bailey@nc.gov)

