

The Next, Next Greatest Thing

Rural Broadband: Closing the Digital Divide



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December 2021

THE NEXT GREATEST THING



50 Years of Rural Electrification
In America

*“Brothers and sisters,
I want to tell you this.
The greatest thing on earth
is to have the love of God in your
heart, and the next greatest thing
is to have electricity
in your house.”*

Farmer giving witness in a rural
Tennessee church in the early 1940s

THE NEXT GREATEST THING



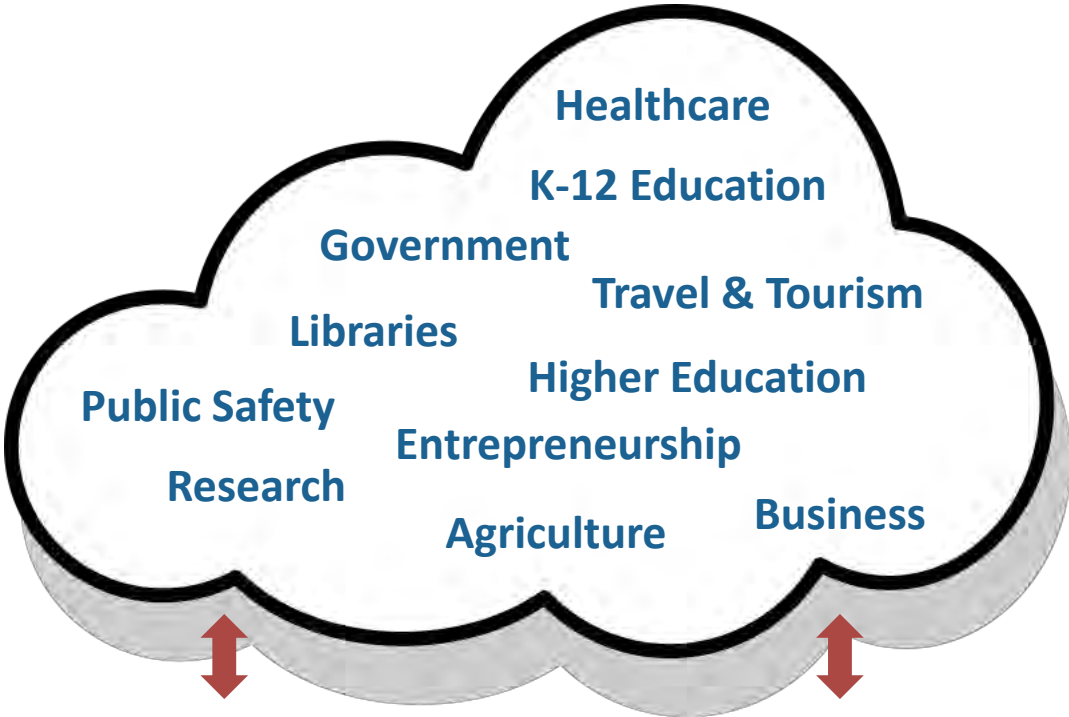
50 Years of Rural Electrification
In America

*“Brothers and sisters,
I want to tell you this.
The greatest thing on earth
is to have the love of God in your
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is to have **Internet**
in your house.”*

Use:
Skills and applications to leverage technology to improve quality of life and community/economic development

Adoption:
Recognizing the value in broadband and subscribing either at home, work, or via public institutions

Access:
The physical connection to high-speed infrastructure



Digital Inclusion programs are required for motivation, especially when K-12 students are still living at home.



0% 50% 100%

FCC Internet Benchmarks

Qualifies for Federal & State Investment

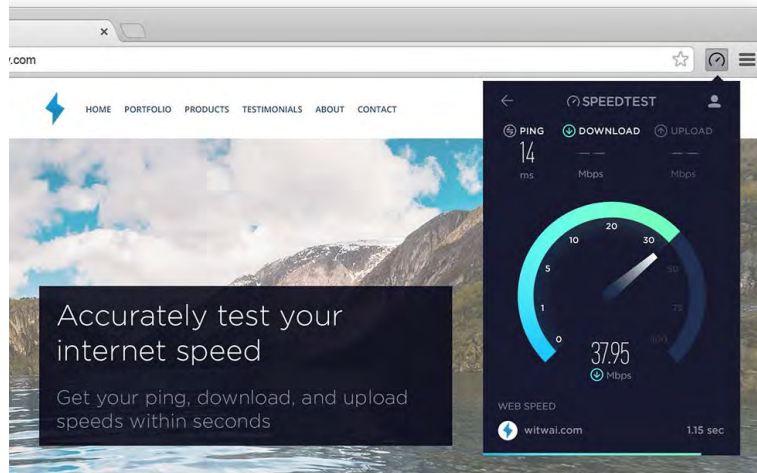
Date Adopted	Minimum Download	Minimum Upload	FCC Commissioner
2015	25 Mbps	3 Mbps	Tom Wheeler, D
2010	4 Mbps	1 Mbps	Julius Genachowski, D
1996	200 Kbps	200 Kbps	William Kennard, D

Federal Construction Requirements

Reliable 100/20 Mbps scalable to 100/100 Mbps (symmetric)



Ookla's mission is to make the internet better, faster and more accessible for everyone



iOS







Speedtest is available for:

Web, Android, iOS, macOS, Windows, AppleTV, Chrome

“Begin With the End in Mind”

Steven R. Covey, *7 Habits of Highly Effective People*





Speed Tiers (download / upload)

	100 Mbps / 100 Mbps (symmetric)
	100 Mbps / 20 Mbps
	25 Mbps / 3 Mbps
	Zero Households

DON'T INVEST HERE

Green: Already served. Meets or exceeds FCC's 25/3 Mbps
White: Nobody lives there.

Density of Unserved Households

	200 or More (per sq. mi.)
	25 - 199
	1 - 24
	> 0 and < 1

INVEST HERE!

Find the “freckles!” and prioritize these. Freckles are high household density with poor Internet.

Residential Broadband Technology

Best Available Technology Class

- Fiber | Speeds \geq 100 Mbps/100 Mbps (symmetric)
- Cable (DOCSIS 3.1+) | Speeds \geq 100 Mbps/100 Mbps (symmetric)
- Cable (DOCSIS 3.0) | Speeds \geq 100 Mbps/20 Mbps
- Cable (DOCSIS $<$ 2.0) | Speeds \geq 25 Mbps/3 Mbps
- VDSL (Fiber-To-The-Curb) | Speeds \geq 10 Mbps/1 Mbps
- ADSL2, ADSL2+ | Speeds \geq 6 Mbps/1 Mbps
- Fixed Wireless | Speeds \geq 10 Mbps/1 Mbps
- ADSL | Speeds \geq 3 Mbps/768 kbps
- No Internet Service Available
- Zero Households

Copper & Fixed Wireless

Copper technology (xDSL) cannot deliver reliable 25/3. End of useful life.

Fixed Wireless requires optimum conditions to exceed 25/3; however, it delivers *Speed to Access* meaning that high need areas have the potential to get coverage fast while physical connections to each house are built.

No Internet Options Exist

This has nothing to do with affordability!
Customers in these areas cannot receive service at their physical address.

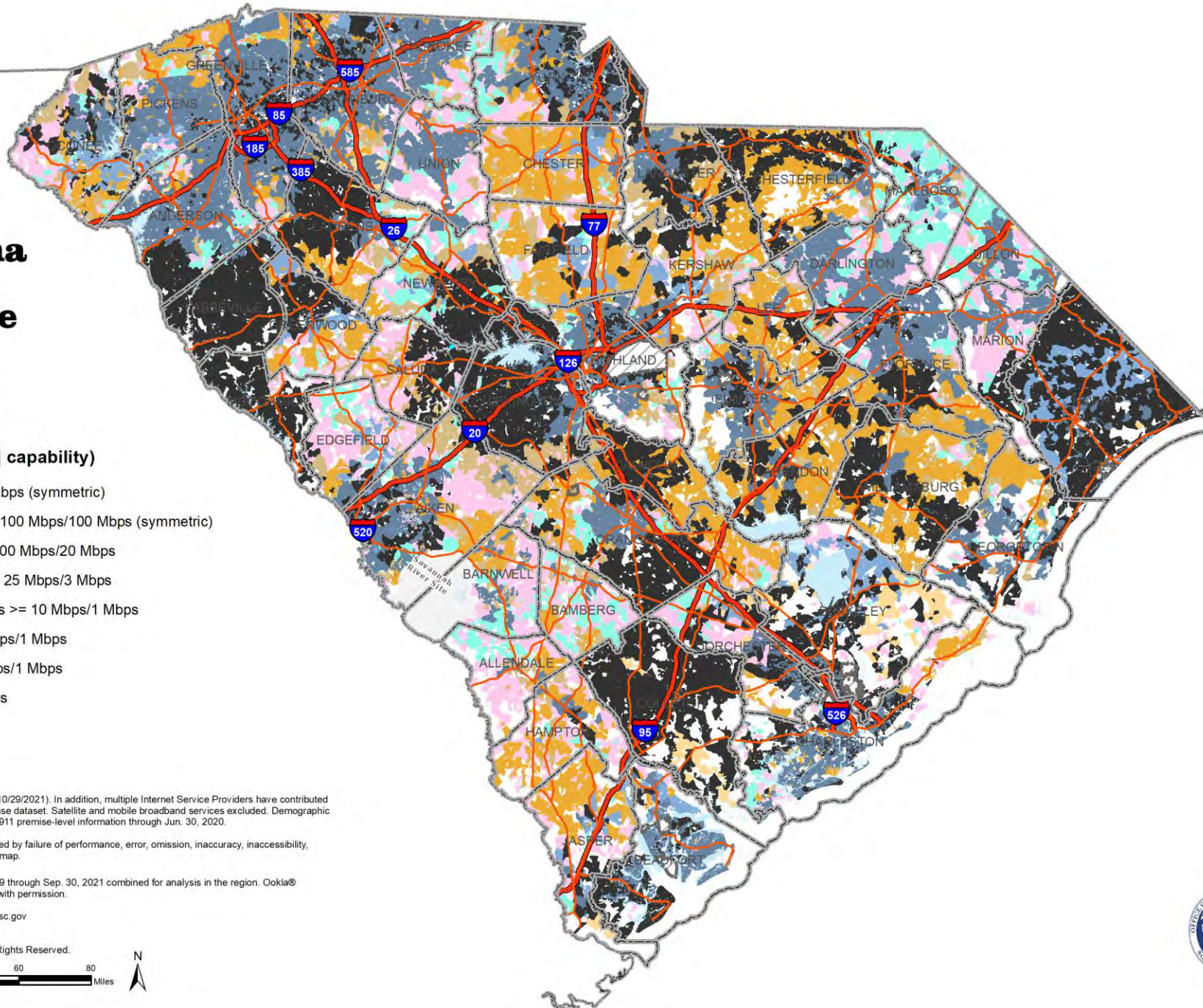
South Carolina

Best Available Technology

September 30, 2021

Best Available Technology (type | capability)

- Fiber | Speeds \geq 100 Mbps/100 Mbps (symmetric)
- Cable (DOCSIS 3.1+) | Speeds \geq 100 Mbps/100 Mbps (symmetric)
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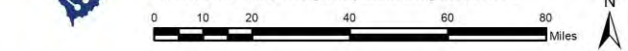


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Residential Broadband Speeds






Speed Tiers (download / upload)

	>= 100 Mbps / 100 Mbps (symmetric)
	>= 100 Mbps / 20 Mbps
	>= 25 Mbps / 3 Mbps

When Internet speeds are 25/3 or better

Green: Meets or exceeds FCC's Broadband Internet Benchmark of 25/3 Mbps.

Density of Unserved Households

	200 or More (per sq. mi.)
	25 - 199
	1 - 24
	> 0 and < 1
	Zero Households

When Internet speeds are below 25/3

We don't care about speed. Need to see **household info**.
Reds & Tans: Indicate engineering issues that need to be resolved by an Internet Service Provider (ISP). ISPs need to know where homes are located as well as where homes are not located. For an ISP, one home equals one customer. Therefore, the maps showcase household density in slow speed areas of the state.

South Carolina

Areas of Need

September 30, 2021

Speed Tiers (download / upload)

- >= 100 Mbps / 100 Mbps (symmetric)
- >= 100 Mbps / 20 Mbps
- >= 25 Mbps / 3 Mbps

Density of Unserved Households (sq. mi.)

- 200 or More
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- Zero Households



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Richland County

South Carolina

Best Available Technology

September 30, 2021



Best Available Technology (type | capability)

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- Cable (DOCSIS 3.1+) | Speeds \geq 100 Mbps/100 Mbps
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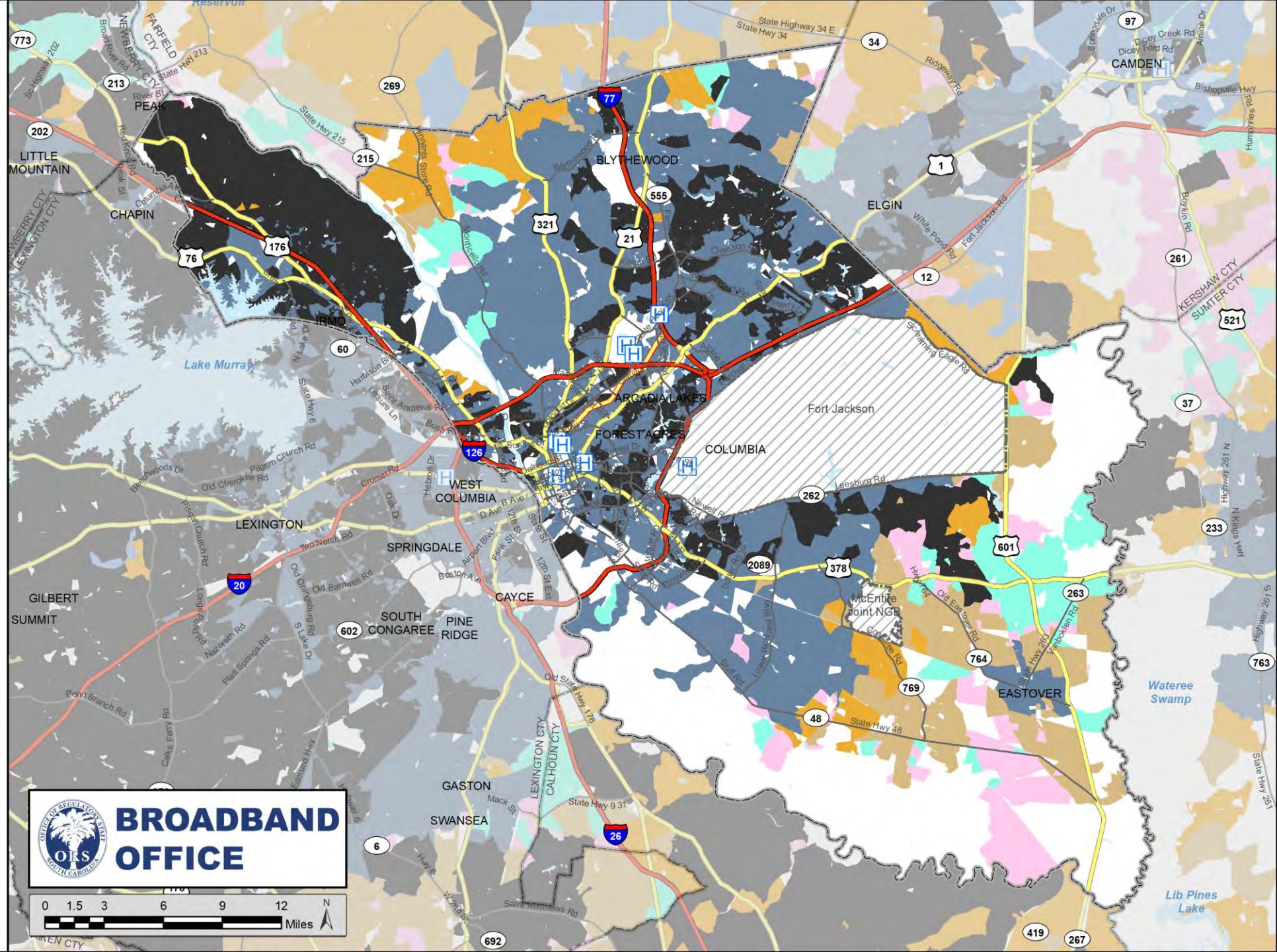
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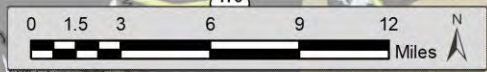
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Richland County

South Carolina

Areas of Need

September 30, 2021

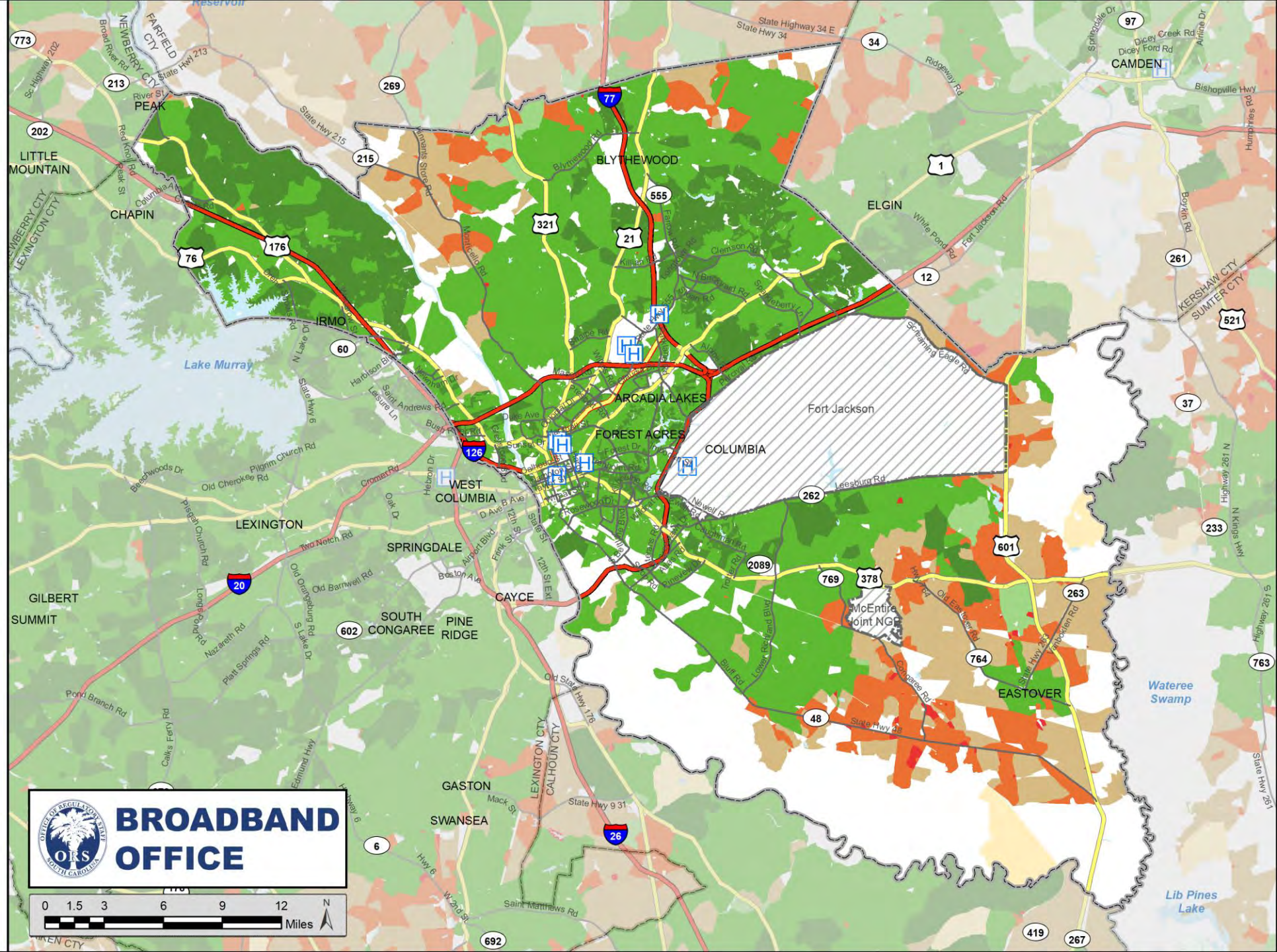


Speed Tiers (download / upload)

- >= 100 Mbps / 100 Mbps (symmetric)
- >= 100 Mbps / 20 Mbps
- >= 25 Mbps / 3 Mbps

Density of Unserved Households (sq. mi.)

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



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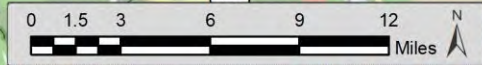
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Richland County

South Carolina

Planning

December 31, 2022



Speed Tiers (download / upload)

- >= 100 Mbps / 100 Mbps (symmetric)
- >= 100 Mbps / 20 Mbps
- >= 25 Mbps / 3 Mbps

Density of Unserved Households (sq. mi.)

- 200 or More
- 25 - 199
- 1 - 24
- > 0 and < 1
- Zero Households
- State Program Investment
- Federal Program Investment

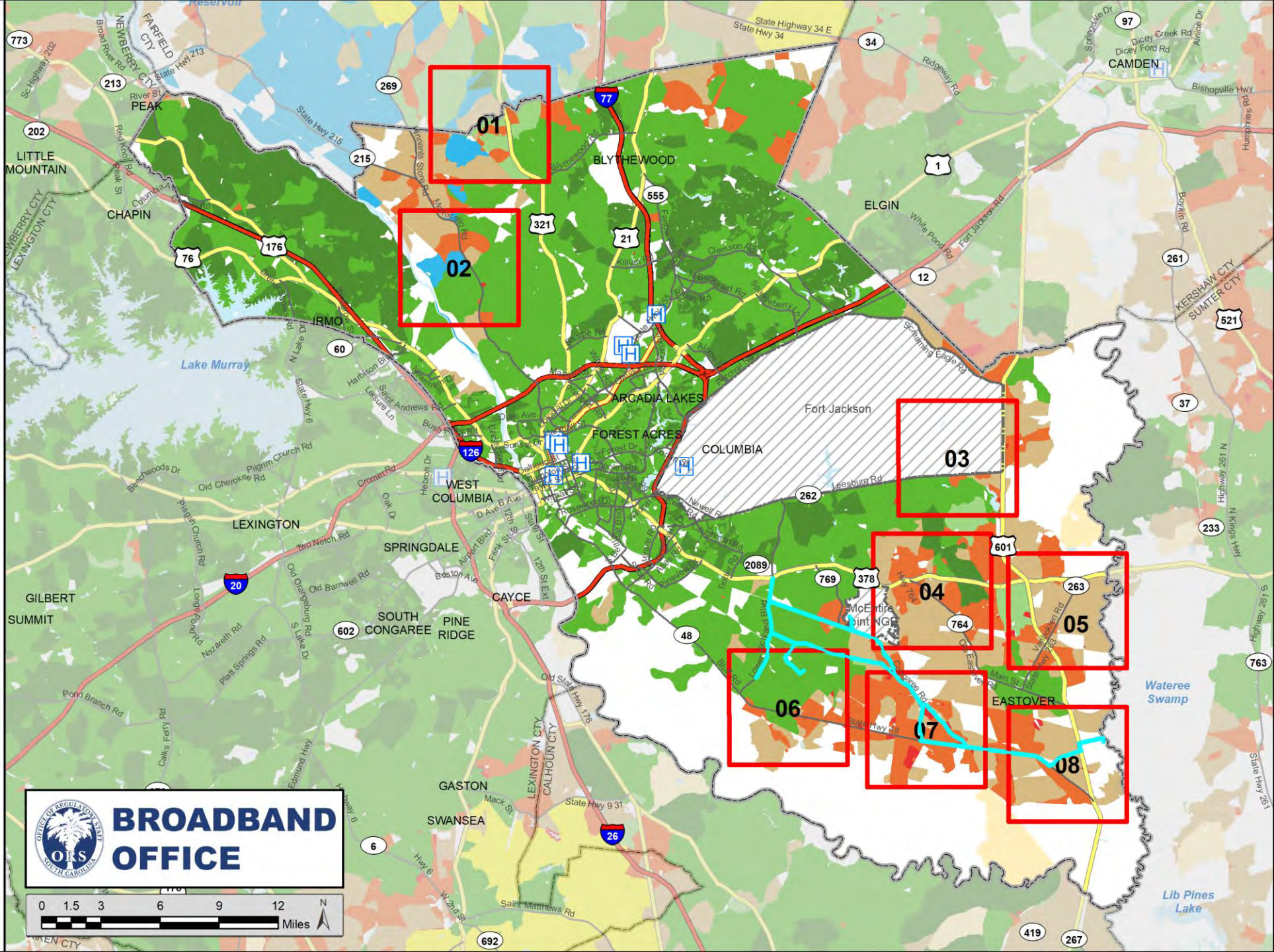
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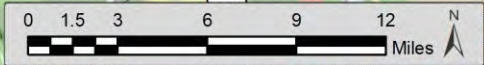
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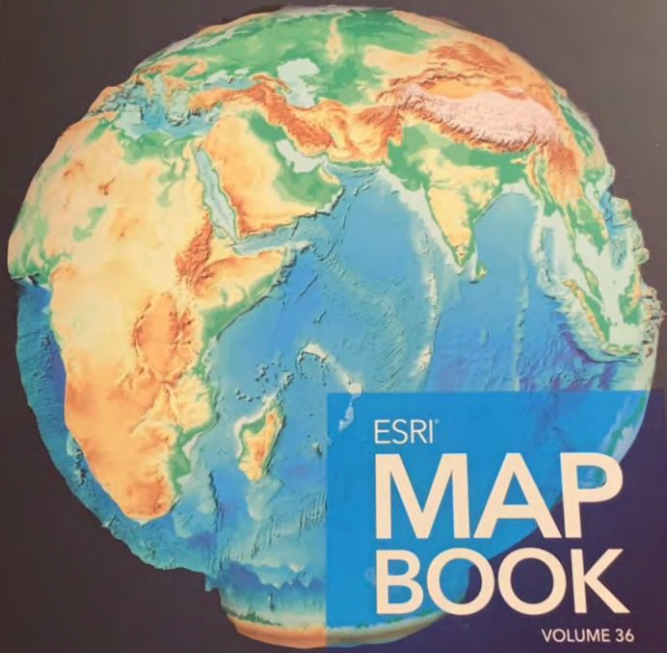
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UTILITIES

RICHLAND COUNTY INTERNET PLANNING

Revolution D Inc.
Columbia, South Carolina, USA
By James D. Srinivasan, Jr.

CONTACT
James D. Srinivasan, Jr.
jsrinivasan@revolutiond.com

SOFTWARE
ArcGIS Desktop 10.8

DATA SOURCES
Oakleaf Federal Communications Commission,
US Census Bureau

COVID-19 has laid bare the weakness of broadband infrastructure worldwide, especially in rural areas. Students are struggling to do their homework, and parents do not have enough bandwidth to use telehealth services, and a large portion of the workforce cannot complete tasks from home. Elected officials and community leaders are keenly aware of these challenges, however, they lack the data to make strategic investments in their infrastructure.

This project was designed to deliver tactical broadband access information to Richland County, South Carolina—home to the capital city of Columbia.

Open data layer is the result of a software model that combines most recent Federal Communications Commission (FCC) broadband service provider (reported) together with Oakleaf's "Speedtest Intelligence" network analysis tool to accurately predict the quality of service available in each census block.

The result is a map that immediately tells you in one, pink, the green areas are not meeting the FCC's recommended internet service level of 20 Mbps download and 3 Mbps upload speeds, and the white areas are not meeting the FCC's recommended service level. The dark red or orange colors reveal the places with the highest household density and low-quality internet access.

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Legend

Based on the following criteria:




Internet Service	Density of Household (per sq. mi.)
Green (20 Mbps)	0 - 100
Light Green (10 Mbps)	101 - 200
Yellow (5 Mbps)	201 - 300
Orange (3 Mbps)	301 - 400
Red (2 Mbps)	401 - 500
Dark Red (1 Mbps)	501 - 600
White (0 Mbps)	601 - 700

South Carolina






Areas of Need

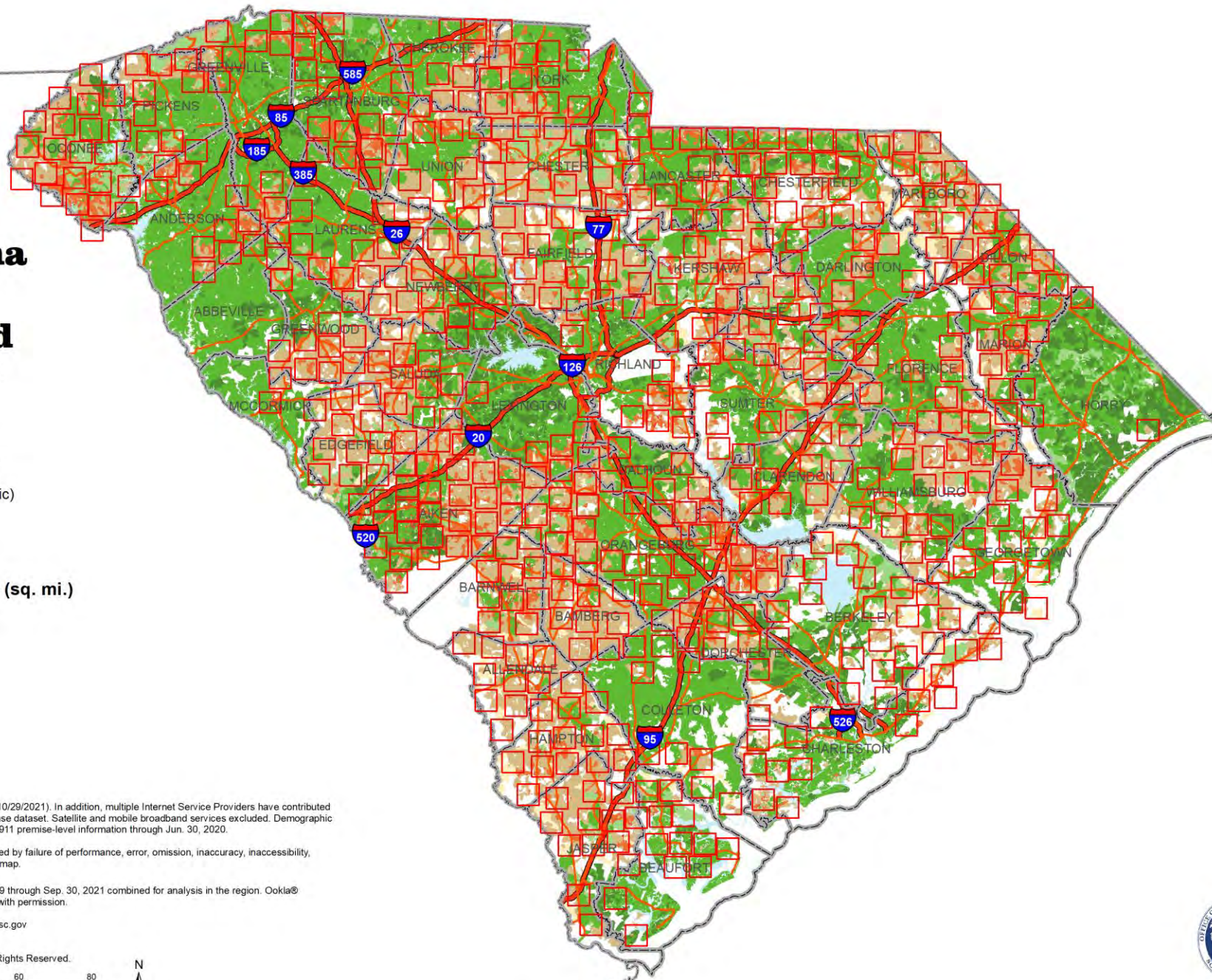
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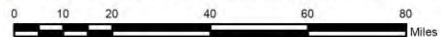
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BROADBAND OFFICE

Session 1

Understanding Internet Infrastructure

Session 2

Eliminating Gaps in K-12 Education

Session 3

Identifying Healthcare Opportunities



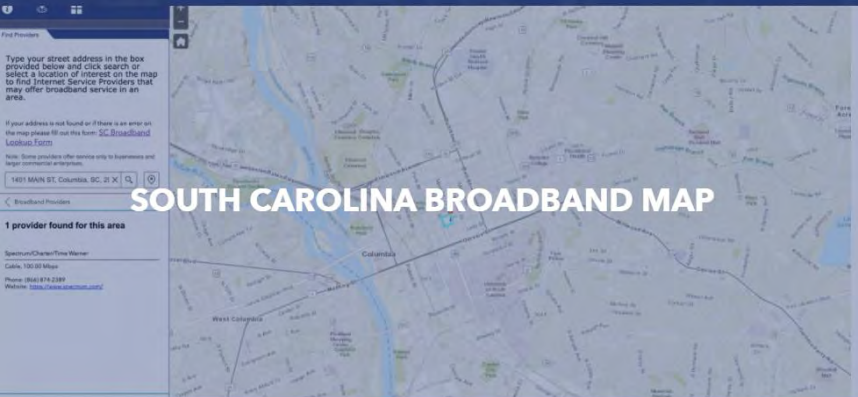
Broadband Community Champion Training Program



SOUTH CAROLINA BROADBAND MAPS

View and download maps showing the availability and speed of broadband in the state.

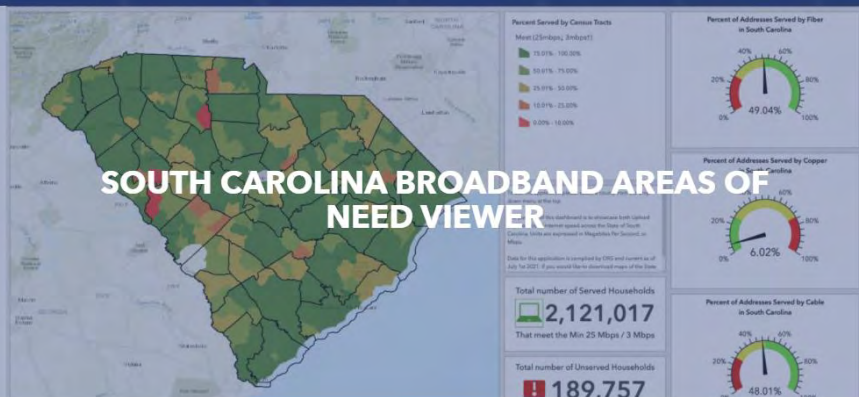
www.scdigitaldrive.com



SOUTH CAROLINA BROADBAND MAP



VIEW ALL MAPS



SOUTH CAROLINA BROADBAND AREAS OF NEED VIEWER

Rural Broadband Grant Program 2021

- Allocation of \$30,000,000 for a competitive grant program to expand broadband availability and access in South Carolina.
- ORS and SC Department of Commerce collaboration
- **14 Eligible Counties** and **15 Contiguous Counties**
- Eligible Applicant: Internet Service Providers
- Applicants provided 1:1 match using non-public funds
- Awards announced **July 13, 2021**







South Carolina






Areas of Need

July 1, 2021

Speed Tiers (download / upload)

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

Density of Unserved Households (sq. mi.)

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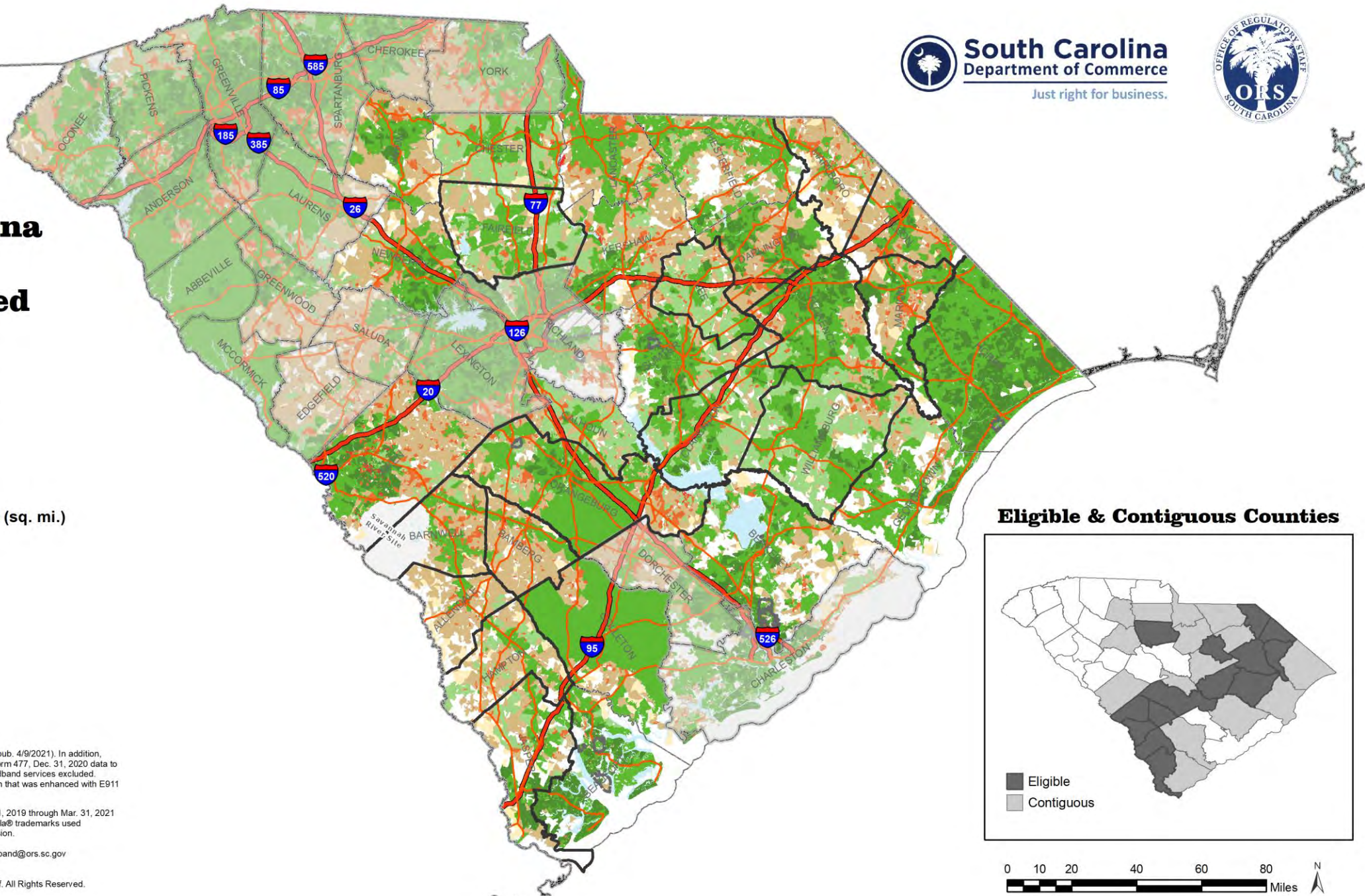
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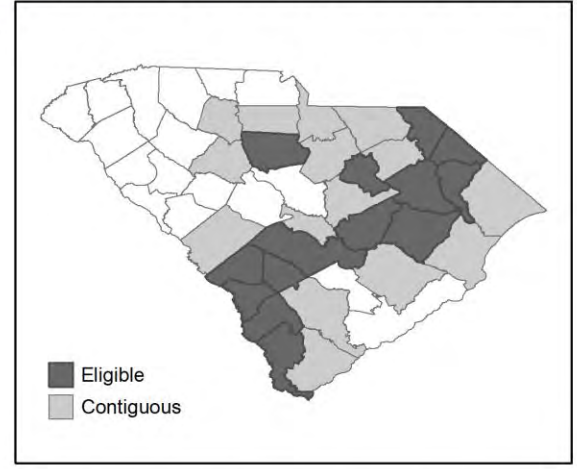
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Eligible & Contiguous Counties





South Carolina

RBGP Projects

July 1, 2021

Speed Tiers (download / upload)

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

Density of Unserved Households (sq. mi.)

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- 2021 SC Rural Broadband Grant
- Federal Program Investment

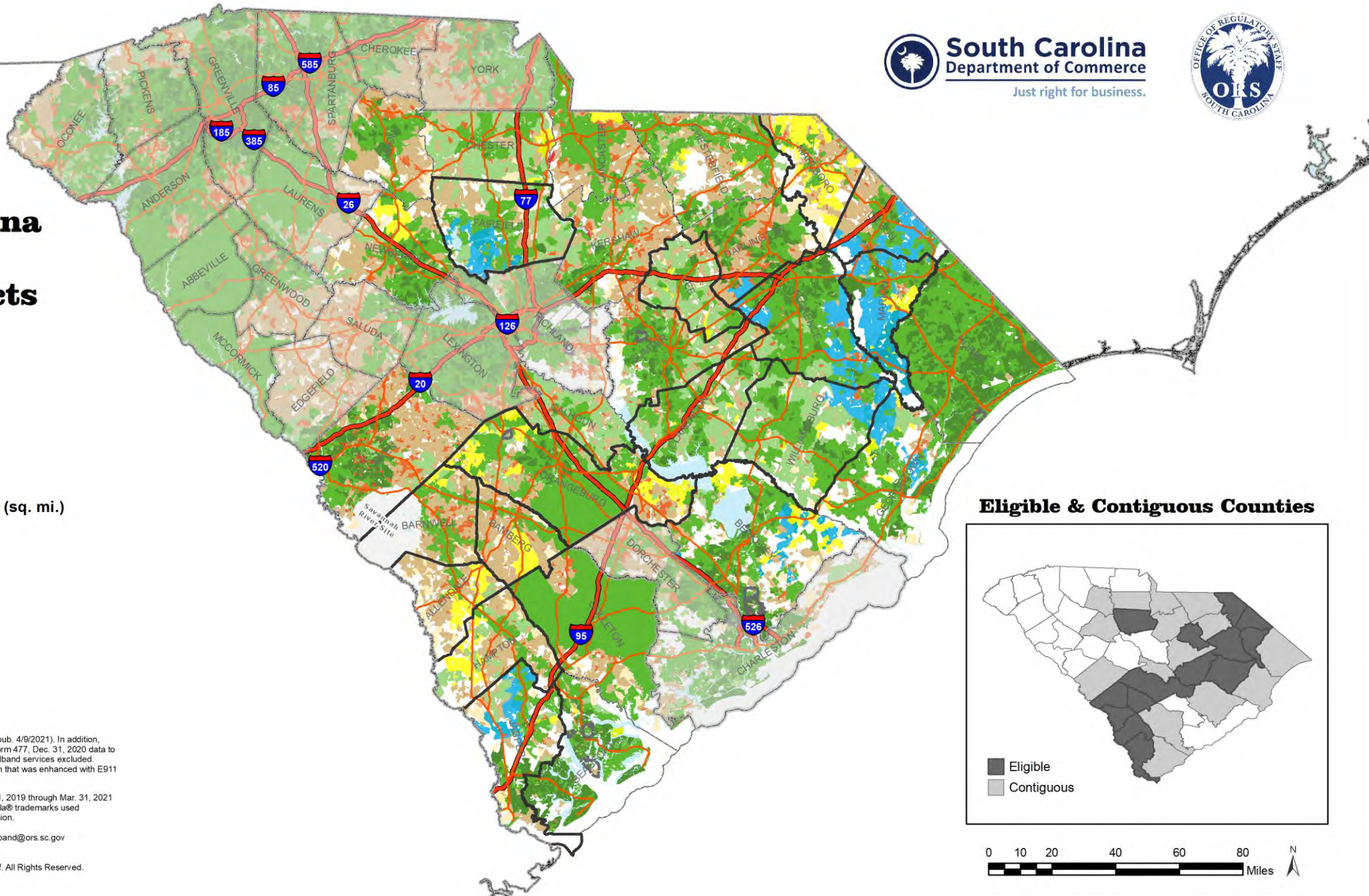
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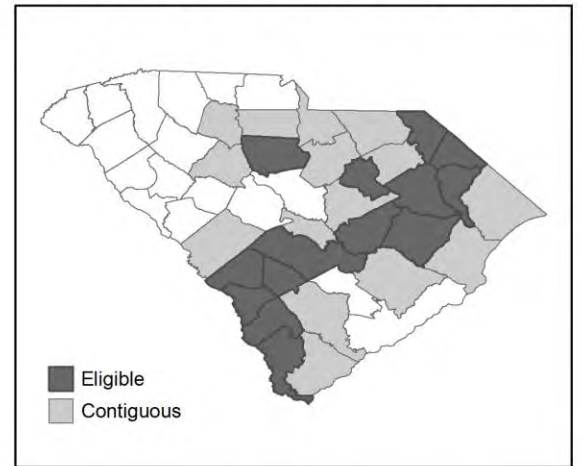
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Eligible & Contiguous Counties





South Carolina

Areas of Need

October 31, 2022

Speed Tiers (download / upload)

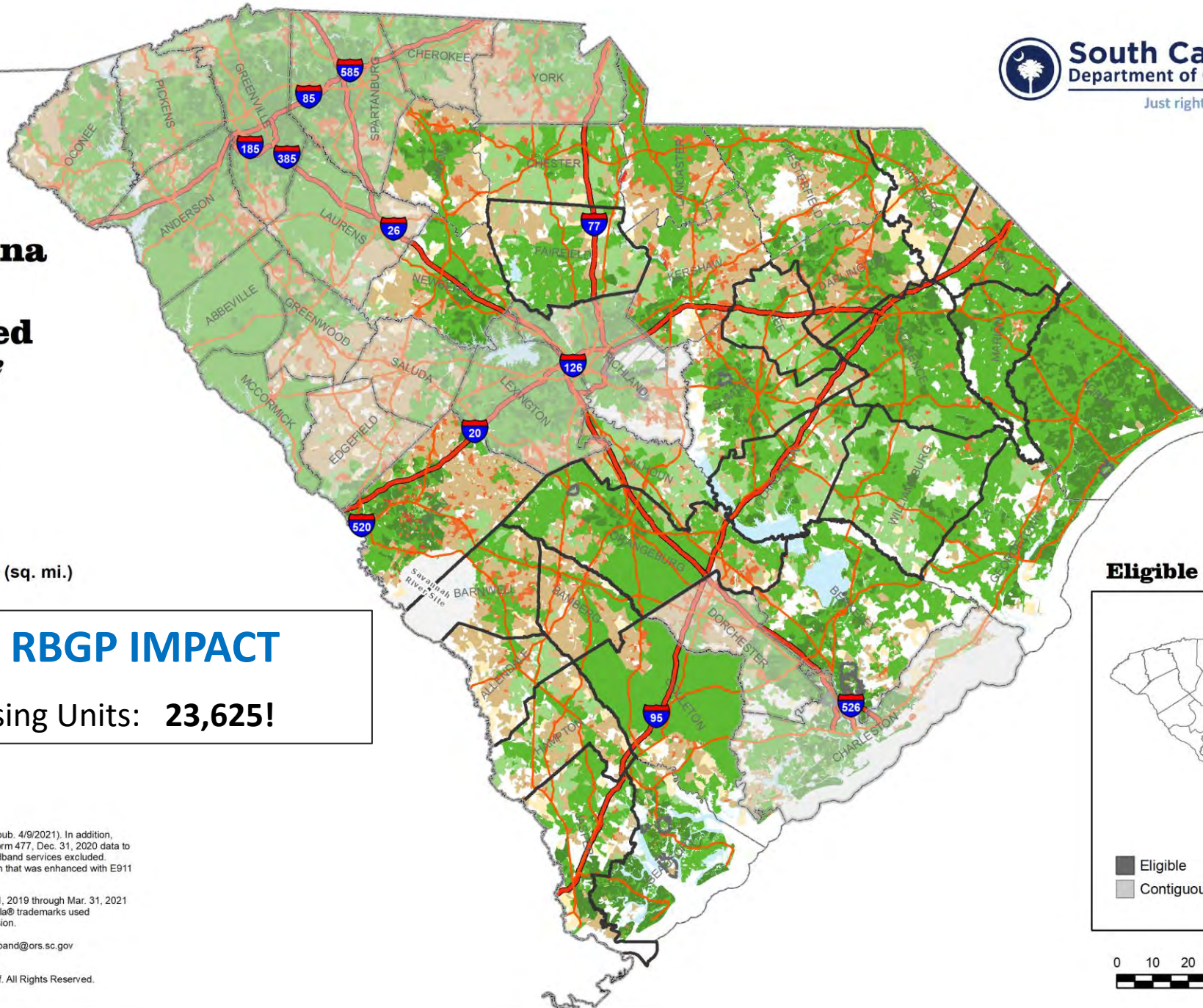
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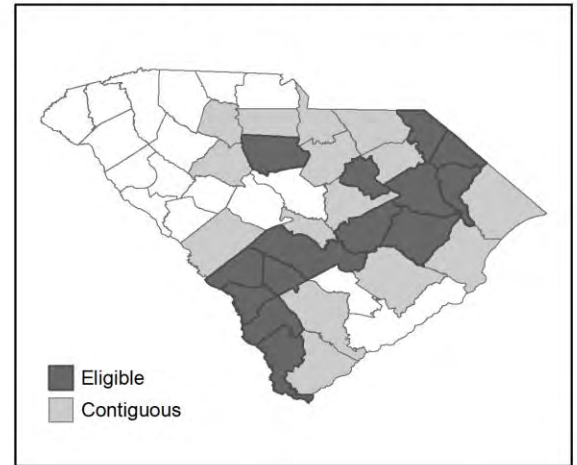
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RBGP IMPACT

Housing Units: **23,625!**



Eligible & Contiguous Counties



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