

APPLICATION

South Carolina Broadband Infrastructure Project



Applicant Information

Applicant Name/Organization **County of Orangeburg**

Applicant FCC Registration Number (FRN) **0029774775**

Primary Contact Name **Harold Young**

Title **County Administrator**

Mailing Address **1437 Amelia St**

Phone Number **803-533-6101**

City, State, Zip **Orangeburg SC 29115**

Email **hyoung@orangeburgcounty.org**

Broadband Service Provider Experience

Date of Applicant's Initial FCC Form 477 Submission **7/16/20**

Date of Applicant's Most Recent FCC Form 477 Submission **7/16/20**

- Applicant and/or project Partner has experience delivering broadband service over fiber or hybrid fiber-coax infrastructure
- Applicant and/or project Partner has experience building and operating broadband networks in rural areas
- Applicant and/or project Partner has experience building and operating broadband networks in low-moderate income areas

Project Area Information

County **Orangeburg**

Rural or Urban **Rural**



Nearest City/Town **Multiple**

Project Area Map Code **9,12,14,17,18,19,24**

500

Number of Households in Project Area *(Target code)*

20

Number of Businesses in Project Area

1

Number of Health Care Facilities in Project Area

10

Number of Community Anchor Points in Project Area

1

Number of Educational Institutions in Project Area

Broadband Infrastructure Information

Indicate the type(s) of broadband infrastructure technology to be deployed in the project area.

- Fiber to the Premises* Minimum Sustainable Download/Upload Speeds **1 Gbps / 1 Gbps**
- Hybrid fiber-coax (symmetrical upload/download speeds)* Minimum Sustainable Download/Upload Speeds
- Hybrid fiber-coax (non-symmetrical upload/download speeds)* Minimum Sustainable Download/Upload Speeds
- Fixed wireless* Minimum Sustainable Download/Upload Speeds
- VDSL (25/3 Mbps or faster)* Minimum Sustainable Download/Upload Speeds

Broadband Pricing Schedules or Tiers

Indicate all rate tiers for broadband at speeds of 25/3 Mbps or faster will be offered to customers in the project area:

- | | |
|---|---|
| <input type="checkbox"/> Rates less than \$10/month | <input type="checkbox"/> Rates between \$20 - \$24.99/month |
| <input type="checkbox"/> Rates between \$10 - \$14.99/month | <input type="checkbox"/> Rates between \$25 - \$34.99/month |
| <input type="checkbox"/> Rates between \$15 - \$19.99/month | |

Project Timeline and Milestones

Project Start Date 9/1/20	Customer Premises Installations Complete 12/18/20
Project Construction Activity Begins 9/1/20	Project Completion Date 12/18/20
Project Construction Activity Complete 12/17/20	

Project Cost Information

Total Project Cost \$1,200,000	Average Cost per Housing Unit \$400
Upfront Cost Requirements \$300	
Cost of Building and/or Extending Infrastructure to Customer Premises \$900,000	Average Cost per Business \$600
Average Cost per Location Served (all locations or structures) \$2,400.00	

Project Funding Information

South Carolina CARES Act Funding Requested \$600,000

Applicant-Provided Funding

Orangeburg County Broadband

Third-Party Funding

Amount 600,000

Source(s) Funded Service Area Households: 3,911

Award amount: \$9,750,000

This Rural Development investment will provide Orangeburg County with the opportunity to use \$9,750,000 received in ReConnect Program grant funding to build state-of-the-art, Fiber to the Premises (FTTP) architecture in rural areas of South Carolina. The funded service areas include 3,911 households, 9 critical community facilities, 13 educational facilities, and one health care center spread over 174 square miles. The project will allow individuals living in the funded service area access improved services and opportunities.

Additional Information

Describe Applicant's and/or project Partner's experience building and/or operating broadband networks.

Orangeburg County Broadband (OCBB) currently provides broadband internet service to 1300 rural households that did not have access to broadband. Gigabit service is available at every home in the project area. In addition to residential service, OCBB makes broadband internet service available to a 500 unit assisted living retirement community, three industrial parks, six schools, 45 businesses and two medical facilities.

The FTTP System includes 785 miles of underground fiber construction. The architecture is designed with a 10Gbps backbone ring with 50mS failover. The network has redundant links to upstream internet providers with border control protocol to manage failover. The network is designed to support upgrades with a single fiber capable of carrying 400Gbps of traffic.

Orangeburg County has been awarded three grants for its serving area: an ARRA/BIP grant for \$18M, a Community Connect grant for \$1M, and a 2019 Reconnect Award for \$13 million.

OCBB is a standalone enterprise component of Orangeburg County. The OCBB System is self-sufficient, being operated independently outside of County government. The System returns a portion of the revenue to the County.

Experience - Please see Attached SECTION A.

Describe how your proposal meets CARES objectives as described in the "Guidelines." Use additional pages if necessary.

The Orangeburg County Broadband Network will encompass approximately ~15 miles of new fiber optic cable construction to serve more than ~500 potential broadband subscribers in unserved portions of Orangeburg county. NEW PFSA- The proposed PFSA is shown in attached diagram. This area was identified as unserved based on previous community meetings, surveys, local knowledge, FCC Broadband Maps 477, and ORS Unit Maps, current providers data for rate plans, and availability.

The proposed network addition will tie into existing Orangeburg County Broadband fiber at multiple locations to the middle mile fiber shown in attached documents. Initially it will be configured as a collapsed ring for electronics redundancy. a. The proposed network will use a NG PON2 Ethernet topology. Broadband service will be offered. Voice and video service will not be offered initially. b. The PFSA will be provided service using NG PON2 FTTP. Schedule D-1 shows the proposed network topology. c. The PFSA includes ~500 housing units and the projected penetration rate is 55%. The system will be designed with a 10km plant, meaning there will be electronics/splitter cabinets within 10km of each housing unit.

Cares Objectives - Please see Attached SECTION B.

Describe how your proposal meets the needs of the community to be served as described in the "Guidelines." Use additional pages if necessary.

For direct COVID19 and the CARES Act Recovery Assistance addendum response, Orangeburg County feels that that there is no better response to these needs than rural broadband projects. The pandemic has highlighted the deficiencies in the existing infrastructure to sustain commerce, training, and most of all basic healthcare needs. This project addresses, these needs like no other available option. It specifically impacts each sector of life and addresses industrial needs, telehealth access, remote learning, primary and secondary educations, small business accesses, and societal equality and equity.

Under Pre-COVID conditions, 40 percent of U.S. public school districts required online learning resources because certified teachers are not available for traditional face-to-face instruction in those districts. Post COVID responses have been more than 90% of all schools required some form of remote learning.

Broadband provides job training with the option for virtual instruction to fill the gap between educational needs and availability. Broadband extends the reach of instructors and creates economies of scale. A rural resident may not be able to relocate to enroll in a college or university, or receive job related training. With a broadband connection, the resident can have access to learn his/her trade, take an advanced placement course or enroll in a university class. Broadband access can provide the community with continuing education opportunities, including job and technical training to support a learning workforce.

For those living in these unserved and underserved communities, that are particularly concentrated in rural areas, the abrupt transition to remote learning this spring was made far more challenging as a result of limited broadband connectivity. Speed is a critical component for our students and educators who will face new and old challenges to keeping pace in the coming school year in response to COVID19.

Community Needs - Please See attached Section C.

Describe any plans or programs you have developed to improve adoption in the community described in this proposal. Use additional pages if necessary.

It has been a goal of Orangeburg County to serve every resident that is without service. With that in mind, Orangeburg County Broadband has maintained a running customer request list of unserved areas throughout the county for the past 10 years. Customers that have expressed the need for better Internet have been logged, contacted, and consulted with.

Upon award, each customer that has expressed interest in these areas, will be personally contacted, and a door to door community enlightenment program will be instituted to alert residents of the now available service.

Provide documents to establish proof that your organization has the necessary funds (50% of total project cost) to complete this project/proposal. List documents here and attach documents to this proposal.

Orangeburg County Broadband was awarded a 2019 Reconnect Grant that will be utilized as matching for this project. The funding for Reconnect is secured with revenue bonds and capital investment through an Orangeburg County resolution. Grant funds and the County match for that \$13 million dollar project are placed in a pledge account.

Reconnect infrastructure will supplement the ORS project in multiple facets of the construction and implementation of the project. Central Office, Design, Customer Premises, and networking phases of both projects can work interactively.

Please see attached Section E - Notice of Funding.

List any lease, franchise agreement, interconnection agreement, authorization, permit, or other items needed to complete this project.

OCBB does not lease any facilities, maintain any franchise agreements, or other items.

Orangeburg County has multiple 1G interfaces and a 10G interface to upstream internet providers, Spirit Communications and Palmetto Rural Telephone Cooperative. The interface with Spirit Communications uses an OCBB fiber to reach the Spirit point-of-presence in Orangeburg. The interface with Palmetto Rural Telephone Cooperative is at the Orangeburg/Bamberg/Colleton County lines and the Palmetto Rural point-of-presence is in Walterboro, SC. The existing network is monitored for congestion. When internet traffic reaches 75% of capacity, upstream bandwidth is increased.

For permitting, Orangeburg County maintains a blanket SCDOT permit that allows for last mile construction activities. For larger permitting needs, OCBB has been working with SCDHEC and SCDOT to accelerate permitting activities to meet needed schedules.

Orangeburg County has previously received full support from the permitting agencies that will oversee construction. As can be seen by the attachments, the broadband project efforts have received expeditious status from both SCDHEC & SCDOT. Both agencies expressed the need for Broadband and have committed to quick responses.

Please See attached Section F:

Attachments and Exhibits

Please attach the following items to Application:

1. Map of Project Area (PDF and Shapefile formats)
2. Letters of support evidencing community need for project
3. Any additional information evidencing community need for project

Certification and Signature

CERTIFICATION: The Applicant certifies that information included in this application is factual to their knowledge.



Applicant agrees to comply with all applicable requirements and conditions contained in Subrecipient Agreement for Coronavirus Relief Funds

Signature:

Print Name of Signature:

Title of Signatory: County Administrator

Date: 8/14/2020

Renewal Terms. Contingent upon extensions for the expenditure of CARES Act funds provided by the U.S. Department of Treasury and the State of South Carolina, this Agreement may be renewed as evidenced by written approval of both parties.

All questions and completed applications should be submitted to Broadband@ors.sc.gov

Facsimile signatures and email signatures shall be as effective as original signatures to bind any party.

SECTION A

Statement of Experience – Orangeburg County Broadband and W. Metts Engineering Co., Inc. – OCBB Operations Partner

Orangeburg County Broadband (OCBB) currently provides broadband internet service to 1300 rural households that did not have access to broadband. Gigabit service is available at every home in the project area. In addition to residential service, OCBB makes broadband internet service available to a 500 unit assisted living retirement community, three industrial parks, six schools, 45 businesses and two medical facilities.

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The Orangeburg County was awarded an ARRA/BIP grant for \$18M with a 3-year schedule. The County procured the services of W. Metts Engineering (Metts Eng) to provide engineering and project management services. The ARRA/BIP project was of similar size and scope. The management teams from Orangeburg County and Metts Eng successfully completed the ARRA/BIP project on schedule and under budget. There have been no significant changes in organizational structure, and the Reconnect Project for \$13M would be complete within the required 5-year schedule. In the proposed timeline, service is available in all six PFSA's in less than 4 years.

Orangeburg County entered into a Maintenance and Operating agreement with Metts Eng for the OCBB system. Metts Eng provides billing, technical support, installation/repair and network operation services. Metts Eng operates a billing and technical support office at 140 Bridge St, Branchville, SC within the original project area. Metts Eng sends bills and collects payments for OCBB on a monthly cycle. All collections are deposited in a County bank account daily. Metts Eng provide technical support by phone and makes service visits when needed.

Dedicated resources for OCBB include 3 customer service representatives, 1 network engineer, 2 network technicians, 2 installation and repair technicians, and an office manager. In addition to the dedicated resources, the Metts Eng provides overhead support as needed. This support includes management, drafting for drawing maintenance, accounting, human resources, etc. Also, a fiber optic construction company, Southern Fiber Construction and Management, is on retainer to assist with placing cable and splicing for fiber restoration or additions.

The Maintenance and Operating Agreement has previously been transmitted to RUS and a copy is uploaded in the document section.

SECTION A

As indicated, OCBB is an enterprise component of Orangeburg County. OCBB is operated independently of County Government. It is self sufficient and does not need any operational subsidy from Orangeburg County Metts Eng, as the Operator of OCBB, provides maintenance and operations support for the System.

W. Metts Engineering Co., Inc. is in its 19th year of business. With over 4,500 miles of FTTP Construction management experience, W. Metts Engineering's Management Team has the know-how and experience to efficiently manage the construction of this project.

W. Metts Engineering's Management Team has many years of combined job experience as shown below.

The years of experience by position are listed below.

President- William Metts 25 years
Chief Technical Officer - Ethan R. Beeks 16 years
Chief of Design- M. Adam Murray 13 years
Senior Project Manager- Tripp Johnson 13 years
Project Manager- Trenton Wiles 14 years
Project Manager- Edward Godfrey 12 years

Total Years of Experience 103 years

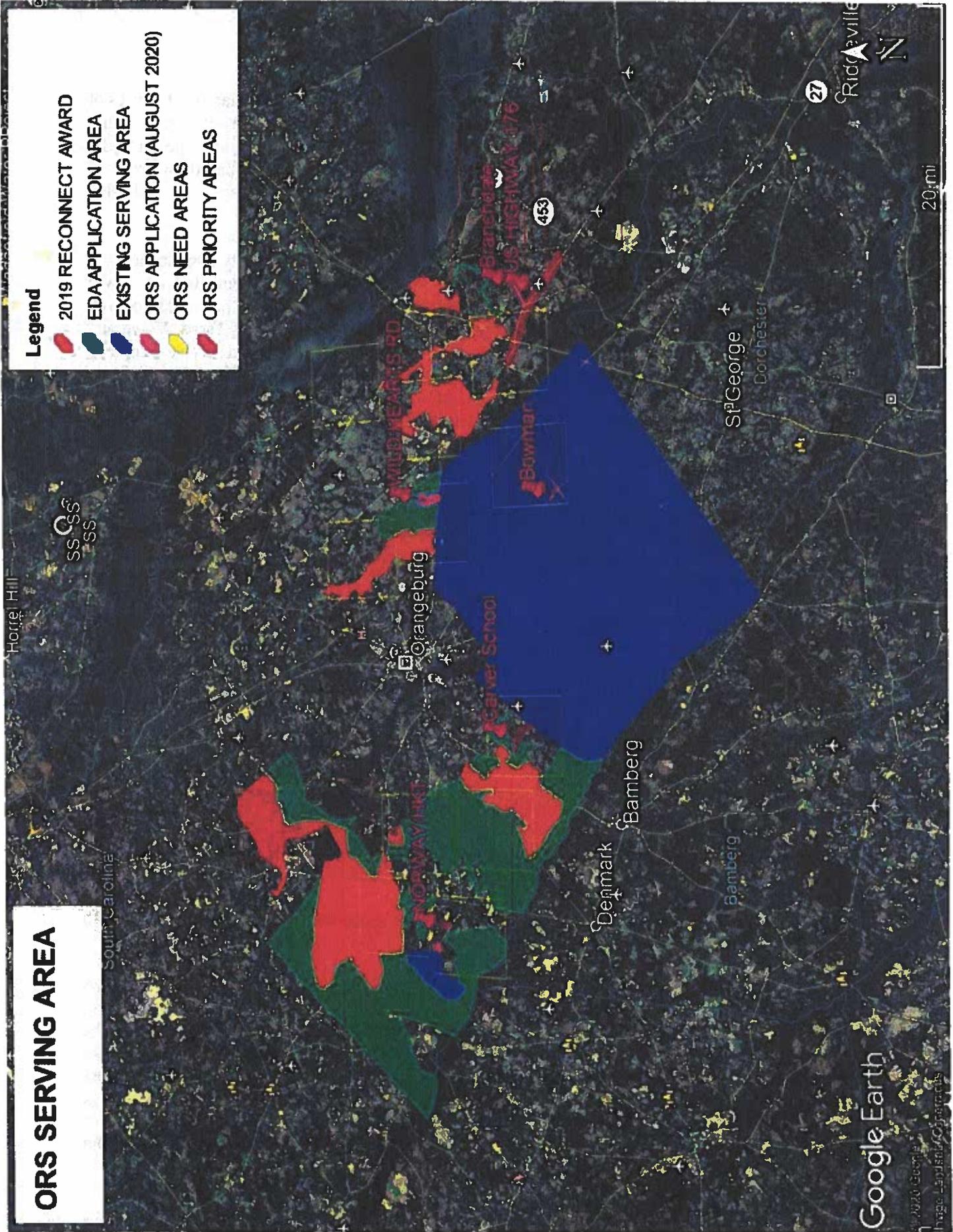
W. Metts Engineering has been designing and constructing FTTP projects for Scott County Telephone Cooperative and Orangeburg County that are identical to the structure of this project. All members of W. Metts Engineering listed above have played a major role in the design, construction management, operational management, and closeout of each of these fiber construction projects.

1. Each project at SCTC and Orangeburg has been an FTTP project. The Pleasant Branch FTTP project is identical to these projects and is a practical approach for this construction corridor.
2. W. Metts Engineering has direct experience with multiple RUS programs with participation in the design, operations, and construction of Multiple Grant Awards at Scott County Telephone. W. Metts Engineering has played a major role in the successful planning, design and construction of more than 8 separate SCTC awards and 3 separate Orangeburg County awards.
3. Operations of OCBB. W. Metts Engineering has operated the OCBB fiber network for the past 6 years. This management has included:
 - Customer Billing
 - Customer Support
 - Payment Receipt
 - OSP construction
 - I&R services
 - Budget & Planning
 - Audits
 - Central Office provisioning

ORS SERVING AREA

Legend

- 2019 RECONNECT AWARD
- EDA APPLICATION AREA
- EXISTING SERVING AREA
- ORS APPLICATION (AUGUST 2020)
- ORS NEED AREAS
- ORS PRIORITY AREAS



Google Earth

© 2020 Google
Image Layers

20 mi



SECTION B

The Orangeburg County Broadband Network will encompass approximately ~15 miles of new fiber optic cable construction to serve more than ~500 potential broadband subscribers in unserved portions of Orangeburg county. NEW PFSA- The proposed PFSA is shown in attached diagram. This area was identified as unserved based on previous community meetings, surveys, local knowledge, FCC Broadband Maps 477, and ORS Unit Maps, current providers data for rate plans, and availability.

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Description of Design Parameters

a. The proposed FTTP system is designed with fiber constructed from each subscriber to an electronics or PON cabinet. The system is designed with a 10km fiber loop. The system will be constructed with ribbon fiber to reduce construction cost and reduce recovery time in the event of a fiber cut.

b. From an historic perspective, an oversubscription ratio of 4:1 is anticipated. Orangeburg County will monitor bandwidth usage and add upstream bandwidth when bandwidth consumption reaches 75% of upstream capacity. This approach ensures a non-blocking, non-congested network.

c. Standard network FTTP optics have a 10km design. The proposed fttp project will be designed with 10km local loops. Problems with link budgets are not anticipated.

d. The electronics will be on a 10Gbps geographic diverse ring using ERPS or like failover protocol. ERPS will provide 50ms failover in the event of an electronics failure. As the Orangeburg County strategic plan is realized, the ring will evolve to have multiple points of presence and upgrade WDM transport capable of 400Gig.

e. The local loop from the electronic cabinet to the subscriber will be a 1Gbps interface to be offered to each subscriber.

The home run fiber design includes a dedication fiber to each subscriber from the electronics/PON cabinet ONT-Orangeburg County broadband will deploy indoor, powerful, dual mode service delivery center The FTTP System will include the construction of up to ~15 miles of underground fiber to the home construction. The architecture is designed with a 10Gbps backbone ring with 50mS failover. The network has redundant links to upstream internet providers with border control protocol to manage failover. Service is provided over a layer 2 network capable of 1 Gigabit symmetric service to the customer premises. The network is designed to support upgrades with a single fiber

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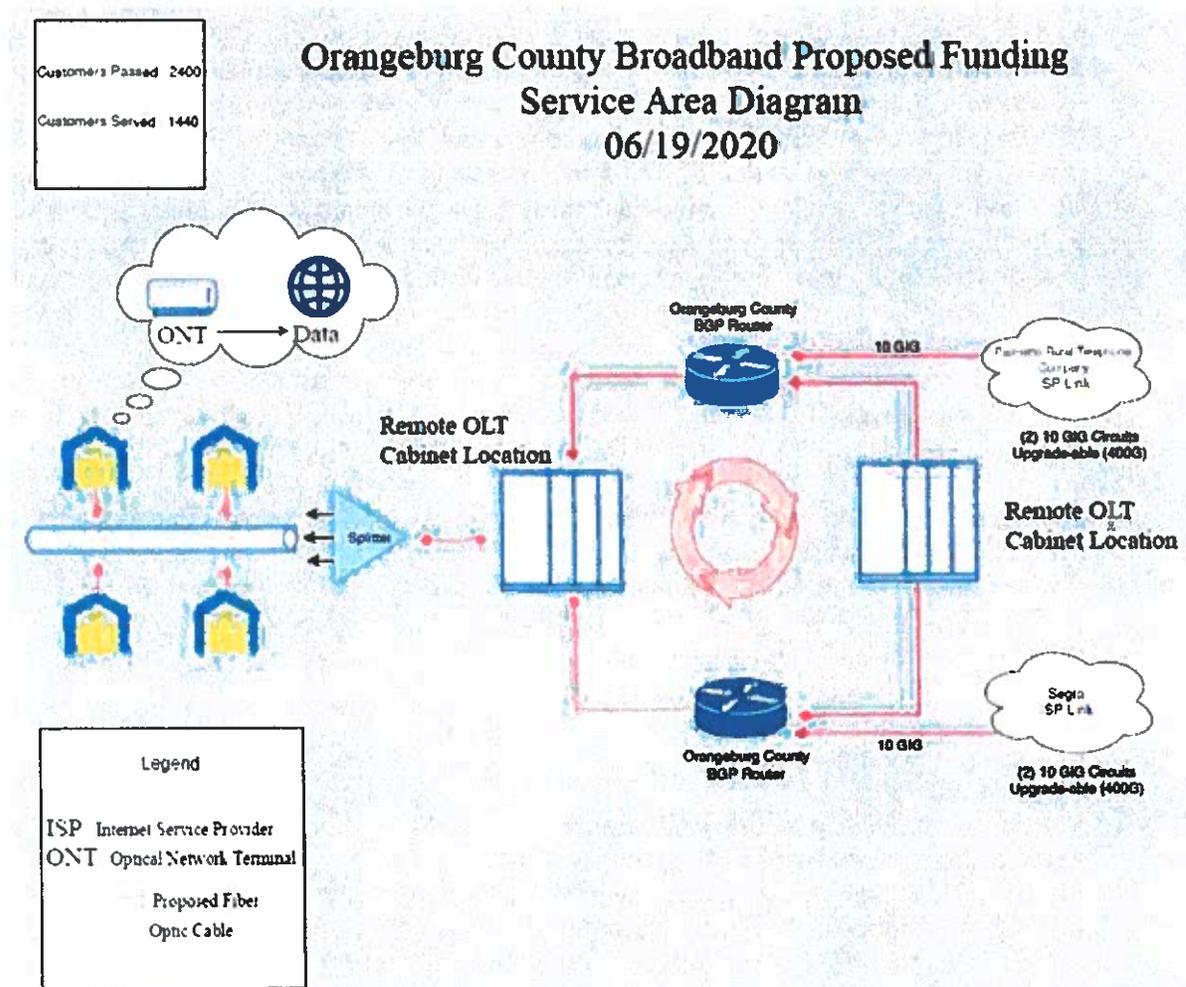
capable of carrying 400Gbps of traffic. ACCESS Technology NG-PON2 (also known as TWDM-PON), Next-Generation Passive Optical Network 2 The standard was developed by ITU and details an architecture capable of total network throughput of 40 Gbit/s, corresponding to up to 10 Gbit/s symmetric upstream/downstream speeds available at each subscriber. The architecture calls for Time- and Wavelength-Division Multiplexing (TWDM) in the upstream and downstream directions. Wavelength-division multiplexing is provided in the downstream direction by combining light from four fixed wavelength OLT lasers with a wavelength mux. Each upstream/downstream wavelength is capable of providing up to 10 Gbit/s symmetric bandwidth to each subscriber if the channel is not time-division multiplexed between several ONTs. With wavelength-division multiplexing on four available wavelengths, NG-PON2 can provide up to 40 Gbit/s throughput to the entire optical network. NG-PON2 was designed to include backwards-compatibility, or coexistence, with previous architectures to ease deployment into existing optical distribution networks. Wavelengths were specifically chosen to avoid interference with GPON, 10G-PON, RF Video, and OTDR measurements.

The standard provides spectral flexibility to occupy reserved wavelengths in deployments devoid of legacy architectures.

- Based on ITU G.989 NG-PON2 family of standards
- 9.953 Gbps downstream, 9.953 Gbps upstream
- Supports multiple TWDM wavelengths
- Supports NG-PON2 wavelength mobility
- Leverages Ethernet based provisioning model as GPON
- Capable of high link budgets
- Up to 1:128 splits
- Integrated 10GE aggregation and transport
- Hardened for central office and remote terminals
- Built on a core Layer 2 and Layer 3 switching the network will be capable of full-duplex, line rate forwarding at all frame sizes and traffic types across all interfaces.
- Each PON port will have a dedicated 10 Gbps switch interface. • 10 GE XFP uplinks will provide support for backhaul

SECTION B

Service Area Diagram



Project Location

Located in the Lowcountry Region of South Carolina, Orangeburg County is centrally located between Columbia, Charleston, and Augusta GA. The Rural Broadband Response Project is located in 7 identified ORS of Orangeburg County, and represents a large portion of the unserved portions of the county. These areas include the communities of Bolentown, Springfield, Neeses, Norway, and Four Holes Communities in Orangeburg County South Carolina.

Norway – 75 Unserved Customers – **Orangeburg 12**

Carver School - 55 Unserved Customers – **Orangeburg 14**

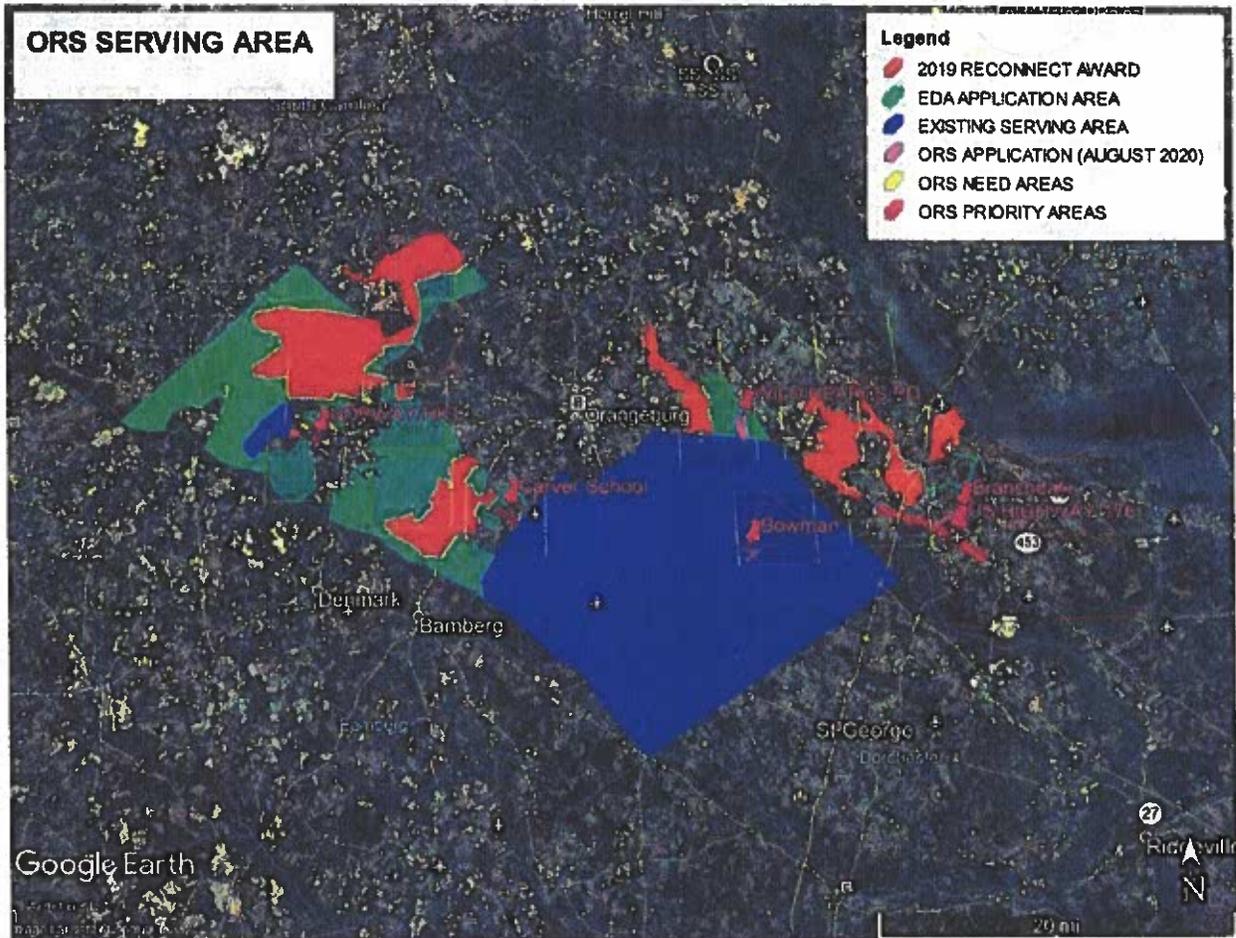
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Bowman – 150 Unserved Customers – Orangeburg 17

Wild Hearts - 30 Unserved Customers – Orangeburg 9

Branchdale Rd. /US 176 - 190 Unserved Customers – Orangeburg 18, 19, 24

ORS SERVING AREA

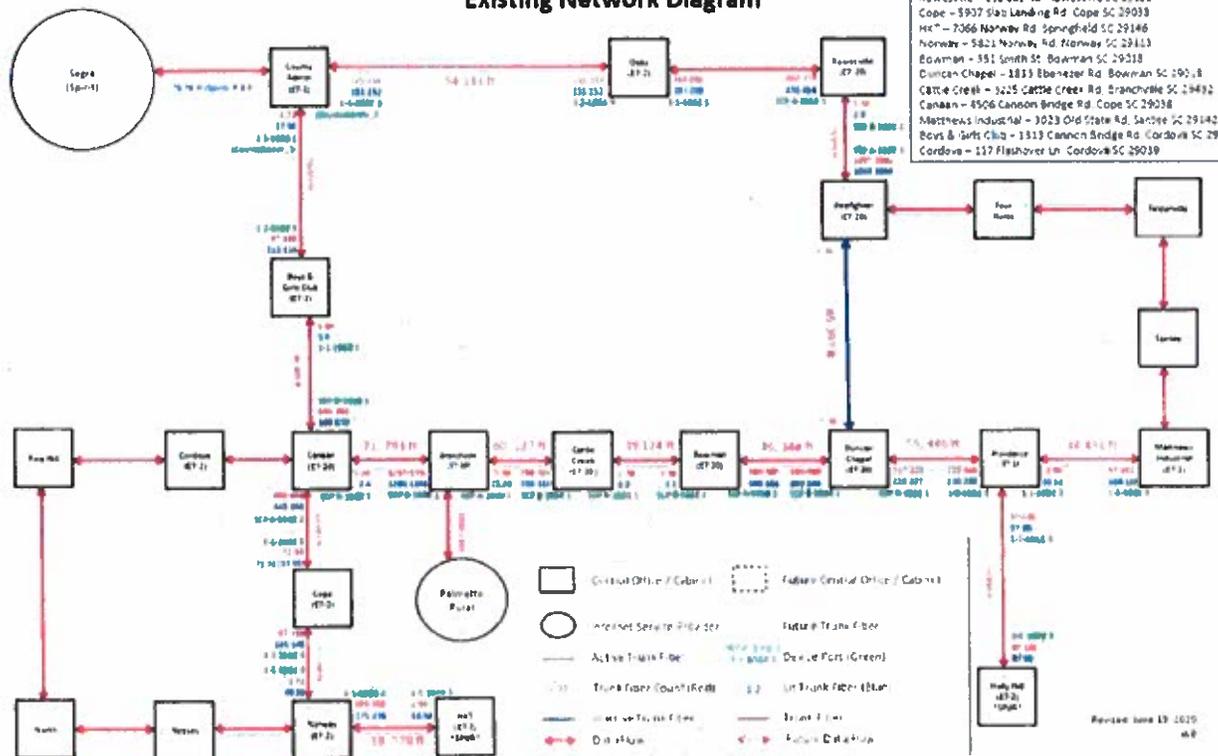


SECTION B

Existing Network Diagram

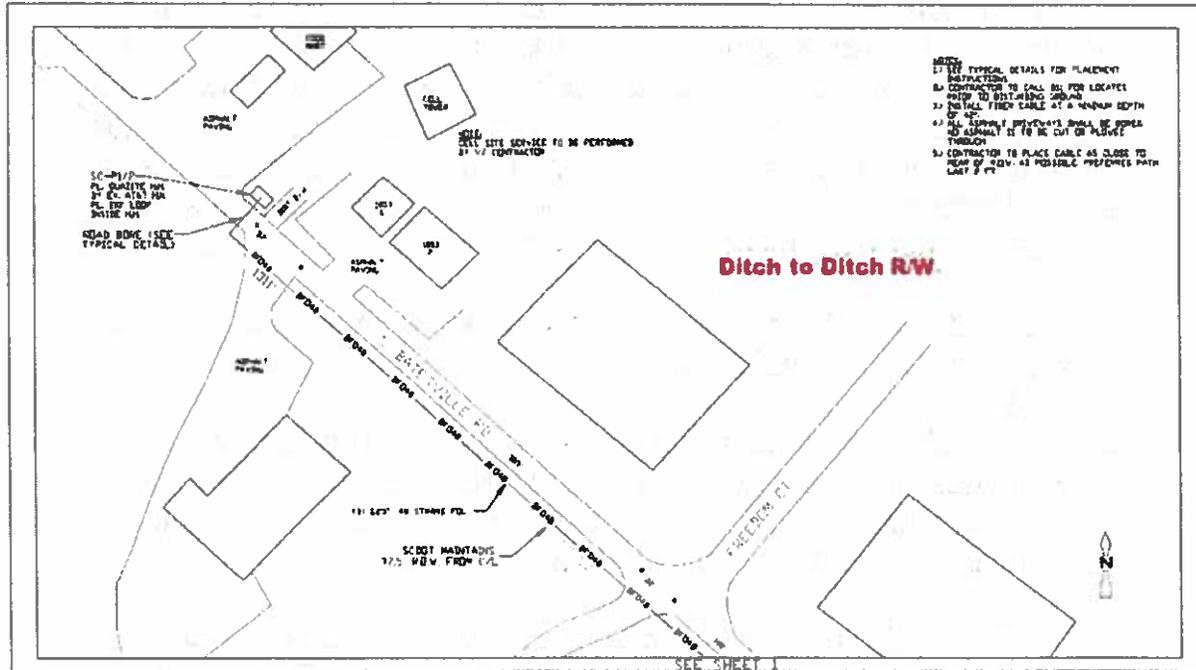
Orangeburg County Broadband Existing Network Diagram

Central Offices / Cabinets Locations	
Fire Fighter	131 Firefighter Ln, Orangeburg SC 29115
Oaks	1000 Methodist Oaks Ex, Orangeburg SC 29115
Holly Hill	8423 Old State Rd, Holly Hill SC 29559
Providence	4767 Old State Rd, Holly Hill SC 29559
Branchville	461 Fairy St, Branchville SC 29432
Rowlesville	212 Bay Rd, Rowlesville SC 29133
Cope	3937 Sho Landing Rd, Cope SC 29038
HC	7366 Norway Rd, Springfield SC 29146
Norway	5821 Norway Rd, Norway SC 29113
Bowman	551 South St, Bowman SC 29318
Duncan Chapel	1813 Ebenezer Rd, Bowman SC 29018
Cattle Creek	3225 Cattle Creek Rd, Branchville SC 29432
Canaan	4506 Cannon Bridge Rd, Cope SC 29038
Matthews Industrial	1023 Old State Rd, Sandee SC 29142
Boys & Girls Club	1313 Cannon Bridge Rd, Cordova SC 29039
Cordova	117 Flashover Ln, Cordova SC 29039



SECTION B

SAMPLE STAKING



Functional Classification

Construction descriptions, asset locations, field measurements and construction notes are all placed on staking sheets. Quantities of materials, routes, customer interactions are all documented and shown on the sheets for contractors to best perform construction activities.

Right-of-Way

Staking Sheets are utilized to show permitting agencies the design construction proposal within the existing Right of Way. All construction will be placed in the SCDOT right of way, and utility placement will additionally show right of ways.

Utilities and Drainage

In addition to showing the road right-of-way, sheets will show existing utilities where known. It also accommodates a variety of underground and aboveground utilities, which are owned by private and public entities. Since the horizontal and vertical locations of these utilities must be coordinated with the improvements during the design and construction, it is important to identify these existing and proposed utilities in the early stages of the project development

SECTION B

For direct COVID19 and the ORS's CARES Act Recovery Assistance addendum response, Orangeburg County feels that that there is no better response to these needs than rural broadband projects. The pandemic has highlighted the deficiencies in the existing infrastructure to sustain commerce, training, and most of all basic healthcare needs. This project addresses, these needs like no other available option. It specifically impacts each sector of life and addresses industrial needs, telehealth access, remote learning, primary and secondary educations, small business accesses, and societal equality and equity.

The ORS's CARES Act Recovery Assistance addendum best expresses the needs of communities in these trying times.

Excerpt:

"ORS's CARES Act Recovery Assistance is an agency effort to assist communities impacted by the coronavirus pandemic. The pandemic has caused, and will continue to cause, economic injury to U.S. regions and communities in devastating and unprecedented ways.

ORS's CARES Act Recovery Assistance is designed to provide a wide-range of financial assistance to communities and regions as they respond to, and recover from, the impacts of the coronavirus pandemic. Under this announcement, ORS solicits applications under the authority of its Economic Adjustment Assistance (EAA) program, which is intended to be flexible and responsive to the economic development needs and priorities of local and regional stakeholders."

Traditional projects are important for commerce and Orangeburg County supports all aspects of economic development. Beneficiaries for typically funded projects have been consulted and negotiated with for years prior to an application submittal. In these unique times, Orangeburg County recognizes that the stated intent of this Addendum is to respond directly to COVID 19. With that noted, Orangeburg County feels that traditional projects that have been negotiating with a beneficiary, while being positive, they are not a response for COVID directly.

Since the Addendum was released on May 7, 2020, Orangeburg County has been working diligently to offer a response to the COVID 19 pandemic and the CARES ACT Recovery Addendum.

While listed project Beneficiaries are numerous and support is universal, conventional support documents cannot be provided in the period, since the

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doctors and hospitals, and fewer at-home services. In addition, the elderly in rural areas are more likely to suffer chronic conditions, such as arthritis, hypertension, diabetes, and heart disease.

REMOTE LEARNING

Broadband can enable greater distribution and use of educational resources. Throughout the nation, there is a scarcity of capable math and science teachers and an unbalanced distribution of K-12 teachers among geographic locations. Under Pre-COVID conditions, 40 percent of U.S. public school districts required online learning resources because certified teachers are not available for traditional face-to-face instruction in those districts. Post COVID responses have been more than 90% of all schools required some form of remote learning.

Broadband provides job training with the option for virtual instruction to fill the gap between educational needs and availability. Broadband extends the reach of instructors and creates economies of scale. A rural resident may not be able to relocate to enroll in a college or university, or receive job related training. With a broadband connection, the resident can have access to learn his/her trade, take an advanced placement course or enroll in a university class. Broadband access can provide the community with continuing education opportunities, including job and technical training to support a learning workforce.

For those living in these unserved and underserved communities, that are particularly concentrated in rural areas, the abrupt transition to remote learning this spring was made far more challenging as a result of limited broadband connectivity. Speed is a critical component for our students and educators who will face new and old challenges to keeping pace in the coming school year in response to COVID19.

Orangeburg County believes that resources allocated by Congress for Covid response can be maximized by going to projects that will deliver the greatest reach in the fastest manner possible.

COMMERCE

Broadband has the potential to enable new growth in rural economies by growing opportunities for businesses and residents alike. Expanding broadband access can deliver an economic lift to rural communities that are struggling to keep up with a digital economy that has largely left those communities behind.

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Rural America is facing a number of unique challenges today amid a confluence of technological advancements that is transforming economies around the world. Increased automation in industrial, agricultural and manufacturing sectors, coupled with the meteoric rise of the digital economy, have left rural communities struggling to keep pace economically with urban and metropolitan areas.

The Great Recession of 2007-2009 hit rural regions much harder than urban areas, and rural communities are still struggling with recovering from the global economic downturn, according to the U.S. Department of Agriculture's 2019 Rural America At A Glance report. While metro areas have enjoyed population increases since the recession, rural counties have suffered population declines; similarly, employment has grown in all areas of the U.S. except for the most rural counties, and poverty rates have grown higher in the most isolated rural counties since the recession, compared to urban and suburban areas.

The decline of rural America is due largely to declines in the industry sectors that once kept rural counties afloat. Reductions in farming, mining, and manufacturing jobs have caused personal incomes to decline in rural areas, and have contributed to "brain drain" in these communities, as younger workers migrate to metro areas looking for employment. Metro areas have enjoyed nearly 99 percent of all job and population growth since the recession, according to the U.S. Department of Commerce.

Rural communities are in desperate need of increased access broadband networks, as high-speed internet has become the backbone of the 21st century economy. The Bureau of Economic Analysis estimates the digital economy is growing roughly 10 percent per year, nearly three times as fast as the overall economy. Without adequate broadband services, rural residents are unable to participate in one of the fastest growing sectors of the U.S.'s GDP. That disadvantage runs across nearly all aspects of life: from completing homework assignments and obtaining online degrees and certifications, to finding remote work employment opportunities or growing small businesses online, to even accessing healthcare.

SECTION C

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TELEHEALTH

The United States spends more on health care than any other developed nation, and that trend is expected to continue as the population ages. By 2040 there will be twice as many Americans over age 65 as there are today. As a whole, the country is expected to have a shortage of tens of thousands of physicians by 2020. Studies indicate that rural citizens also experience greater difficulty accessing quality health care, that has been clearly highlighted by the Coronavirus outbreak of 2020.

Rural communities can bridge the gap between health care availability and rural patients' needs through the use of broadband-enabled solutions. These solutions, usually grouped under the term health information technology, can assist health care practitioners as they strive to serve patients more effectively and efficiently.

Many rural residents visit a variety of local health care providers and must travel to urban areas for treatment. Due to COVID 19 restrictions, these services have been completely unavailable to residents.

Telemedicine is the key factor in allowing residents to safely live in their own homes. Telemedicine comprises a wide array of services and technologies, including: Email service to allow health care providers to communicate with patients and other medical personnel.

Internet connectivity to provide access to general medical websites, as well as patient-specific information from remote locations. Personal health monitoring devices to check vital signs, such as blood pressure, heart rate, and glucose levels. Remote patient monitoring appliances for medication dispensing and home fall sensors. Video teleconferencing systems in local hospitals, doctors' offices, and patients' homes to consult with specialists or conduct mental health sessions with psychiatrists.

Many Americans have been forced to "shelter in place" without a direct line to the outside world. For seniors living in rural America, sheltering in place can be especially challenging because of the lack of transportation, the scarcity of doctors and hospitals, and fewer at-home services. In addition, the elderly in rural areas are more likely to suffer chronic conditions, such as arthritis, hypertension, diabetes, and heart disease.

REMOTE LEARNING

Broadband can enable greater distribution and use of educational resources. Throughout the nation, there is a scarcity of capable math and science teachers

SECTION C

and an unbalanced distribution of K-12 teachers among geographic locations. Under Pre-COVID conditions, 40 percent of U.S. public school districts required online learning resources because certified teachers are not available for traditional face-to-face instruction in those districts. Post COVID responses have been more than 90% of all schools required some form of remote learning.

Broadband provides job training with the option for virtual instruction to fill the gap between educational needs and availability. Broadband extends the reach of instructors and creates economies of scale. A rural resident may not be able to relocate to enroll in a college or university, or receive job related training. With a broadband connection, the resident can have access to learn his/her trade, take an advanced placement course or enroll in a university class. Broadband access can provide the community with continuing education opportunities, including job and technical training to support a learning workforce.

For those living in these unserved and underserved communities, that are particularly concentrated in rural areas, the abrupt transition to remote learning this spring was made far more challenging as a result of limited broadband connectivity. Speed is a critical component for our students and educators who will face new and old challenges to keeping pace in the coming school year in response to COVID19.

Orangeburg County believes that resources allocated by Congress for Covid19 response can be maximized by going to projects that will deliver the greatest reach in the fastest manner possible.

COMMERCE

Broadband has the potential to enable new growth in rural economies by growing opportunities for businesses and residents alike. Expanding broadband access can deliver an economic lift to rural communities that are struggling to keep up with a digital economy that has largely left those communities behind. Rural America is facing a number of unique challenges today amid a confluence of technological advancements that is transforming economies around the world. Increased automation in industrial, agricultural and manufacturing sectors, coupled with the meteoric rise of the digital economy, have left rural communities struggling to keep pace economically with urban and metropolitan areas.

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The Great Recession of 2007-2009 hit rural regions much harder than urban areas, and rural communities are still struggling with recovering from the global economic downturn, according to the U.S. Department of Agriculture's 2019 Rural America At A Glance report. While metro areas have enjoyed population increases since the recession, rural counties have suffered population declines; similarly, employment has grown in all areas of the U.S. except for the most rural counties, and poverty rates have grown higher in the most isolated rural counties since the recession, compared to urban and suburban areas.

The decline of rural America is due largely to declines in the industry sectors that once kept rural counties afloat. Reductions in farming, mining, and manufacturing jobs have caused personal incomes to decline in rural areas, and have contributed to "brain drain" in these communities, as younger workers migrate to metro areas looking for employment. Metro areas have enjoyed nearly 99 percent of all job and population growth since the recession, according to the U.S. Department of Commerce.

Rural communities are in desperate need of increased access broadband networks, as high-speed internet has become the backbone of the 21st century economy. The Bureau of Economic Analysis estimates the digital economy is growing roughly 10 percent per year, nearly three times as fast as the overall economy. Without adequate broadband services, rural residents are unable to participate in one of the fastest growing sectors of the U.S.'s GDP. That disadvantage runs across nearly all aspects of life: from completing homework assignments and obtaining online degrees and certifications, to finding remote work employment opportunities or growing small businesses online, to even accessing healthcare.

SECTION E



United States Department of Agriculture

Rural Development

Rural Utilities Service
1400 Independence
Avenue SW
Room 2868 Stop
1599
Washington, DC
20250

March 5, 2020

Mr. Harold Young
County Administrator
County of Orangeburg
1437 Amelia Street
Orangeburg, South Carolina 29115

RE: RUS ReConnect Award SC 1701-A61

Dear Mr. Young:

We are enclosing legal documents, with closing instructions, for your approved grant in the amount of \$9,750,000 under the ReConnect Program. In addition to the ReConnect Grant Agreement (Agreement), we are enclosing closing instructions, the UCC form and attachments, the Deposit Account Control Agreement (DACA) General Terms and DACA Specific Terms, the Certificate of Authority, a sample opinion of counsel, the Borrower Automated Clearing House (ACH) payment form, and the Certified Public Accountant (CPA) information form, and Standard Form 481.

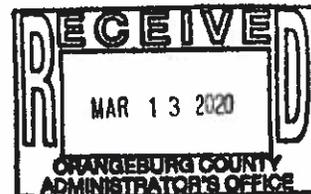
Please indicate your organization's acceptance of the terms and conditions of the Agreement by executing and returning the duplicate originals of the Agreement, along with the UCC form, a legal opinion of counsel, the Certification of Authority, the ACH payment form, and the CPA form in accordance with the instructions. The documents must be returned within 120 days from the date of this letter. Please note that failure to comply with these stipulations may result in the rescission of the commitment. One set of the originals should be retained for your records.

Send the executed documents and correspondence to the following address:

Mr. Peter Airable, Deputy Assistant Administrator
Portfolio Management and Risk Assessment
Rural Utilities Service/USDA
Stop 1595, Room 2808-S
1400 Independence Avenue, SW
Washington, D.C. 20250-1595

Please note the following important information:

USDA is an equal opportunity provider, employer, and lender.



SECTION E

Rural Development

Rural Utilities Service
1400 Independence
Avenue SW
Room 2868 Stop
1599
Washington, DC
20250

contact our office at (202) 720-1025. Please refer to your award designation, which is SC 1701-A61, when inquiring about your grant.

Sincerely,



KENNETH KUCHNO
Deputy Assistant Administrator
Policy & Outreach Division
Rural Utilities Service

Enclosures

SECTION E

Rural Development
Rural Utilities Service
1400 Independence
Avenue SW
Room 2868 Stop
1599
Washington, DC
20250

- The grant Accounting Requirements defined under Article I of the Agreement include 2 CFR Part 200. An electronic copy is available at <https://www.govinfo.gov/content/pkg/CFR-2019-title2-vol1/pdf/CFR-2019-title2-vol1.pdf>.
- Advances must be made electronically, as specified by Rural Utilities Service (RUS). RUS will use the ACH Payment System to deposit funds directly into the bank account designated by the grantee. Please complete the "Payee/Company Information" section of the ACH payment form and have your bank complete the "Financial Institution Information" section.

In accordance with the Agreement, compliance with Standard Form 481 (Form 481), Financial Requirement Statement, is required for loan and/or grant funding to be advanced. A hard copy of Form 481 is enclosed and an electronic copy is available at https://www.rd.usda.gov/sites/default/files/UTP_form_481.pdf

- The project must be constructed and operated in accordance with the Scope of Work submitted as part of your application. If any changes are required, a written request detailing the changes must be submitted for RUS approval. For the changes to be eligible for funding, approval of the revised Scope of Work must be received before the changes are implemented.
- Article VI of the Agreement outlines the requirements for annual audit reports and progress reports. These annual reports are required once any portion of the grant funds have been drawn down. RUS will provide additional information regarding how to comply with audit and progress reporting requirements.
- Revised Construction Procedures that allow you to negotiate outside plant construction under certain conditions are attached to the Agreement.
- Schedule 1 of the enclosed Agreement may include revised language from the version you previously received.
- Please fill out Sections 13 and 14 of the enclosed UCC Forms.

If you have any questions regarding the conditions in the legal documents, the requisition process, or any other aspect of your award, please feel free to

SECTION F



HELEN McMYSTER
DIRECTOR

May 29, 2019

The Honorable Sonny Perdue, Secretary
United States Department of Agriculture
1400 Independence Ave., S.W.
Washington, DC 20250

RE: USDA ReConnect Program

Dear Secretary Perdue,

On behalf of the State of South Carolina, I would like to thank you for your efforts to increase investment in rural broadband, as detailed in your letter to my office regarding the United States Department of Agriculture's ReConnect Program.

As America has transitioned to a digital economy, over 19 million Americans – nearly 25% of rural residents – have been left behind, and currently lack adequate Internet access. In South Carolina, over 450,000 residents and approximately 170,000 homes fail to meet recommended service levels.

I strongly support efforts by South Carolina counties and service providers to meet this critical need. Accordingly, I am writing to express my support for the USDA Reconnect Grant Program and potential recipients within our state. As governor, I am committed to ensuring the effectiveness of these grants in increasing both private and municipal investments for broadband services in rural South Carolina.

In your March letter, to assist with application scoring, you asked for specific responses regarding three policy issues. Here are my responses:

- 1. Broadband Plan:** In 2009, the South Carolina Governor's Office addressed the issue of broadband deployment by endorsing the creation of Connect South Carolina (CSC), a public-private partnership created pursuant to the National Telecommunications and Information Administration's State Broadband Initiative. CSC published its state broadband plan in January 2015 (available at <http://www.connectingsouthcarolina.com/2015/01/06/broadband-plan/>). This report now serves as the benchmark for state broadband expansion. It is my intention to expand on this plan in the near future.

Sincerely,
Helen McMaster, Director

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The Honorable Sonny Perdue
May 29, 2019
Page Two

2. **Elimination of Restrictions on Non-Broadband Utilities:** In 2012, Governor Nikki Haley signed into law H 3508, which prohibits the Office of Regulatory Staff from: (1) imposing any requirements related to the terms, conditions, rates or availability of broadband service; or (2) otherwise regulated broadband service

3. **Expedited Rights-of-Way and Environmental Processing** The South Carolina Department of Transportation (SCDOT) and South Carolina Department of Health and Environmental Control (SCDHEC) have given me their commitment that they will ensure efficient right-of-way and environmental permitting so that USDA projects can achieve their intended timelines and objectives. Enclosed, find memos from SCDOT and SCDHEC affirming that commitment

I thank you for your leadership on this innovative program which will be instrumental for rural connectivity throughout the United States. I am confident that an investment in South Carolina's rural communities will enhance health care access, as well as bolster the educational and workforce resources needed to ensure our state's continued prosperity.

Should you have any questions or concerns, or if I can be of any further assistance, please do not hesitate to call.

Yours very truly,



Henry McMaster

HDM:jm

enc: SCDOT Memorandum
SCDHEC Memorandum

SECTION F



Christy A. Hall, P.E.
Secretary of Transportation
300 Park Street, Suite 100
Columbia, SC 29202-6115

May 29, 2019

The Honorable Henry D. McMaster
Governor
State of South Carolina
1160 Gervais Street
Columbia, South Carolina 29201

Dear Governor McMaster:

The South Carolina Department of Transportation understands the importance of expanding broadband to our state's rural communities. We believe that the United States Department of Agriculture's (USDA) ReConnect Program is an excellent opportunity for South Carolina to improve education, healthcare, and economic development via the investment in broadband expansion.

The South Carolina Department of Transportation has state-owned rights-of-way in all 46 counties, which provides potential access for the installation of broadband infrastructure. As such, I stand committed to work with you and all eligible entities to expedite the encroachment permitting on the state-owned rights-of-way to meet the USDA's buildout timelines associated with their ReConnect Program.

Please let me know if I can be of further assistance.

Sincerely,

Christy A. Hall, P.E.
Secretary of Transportation

Post Office Box 101
355 Park Street, Suite 100
Columbia, SC 29202-6115



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Columbia, SC 29202-6115

SECTION F



MEMORANDUM

Date: May 30, 2019
To: Office of the Governor
From: Myra C. Reece, Director, Environmental Affairs
Subject: USDA ReConnect Program
SCDHEC Environmental Permitting Commitment

Myra C. Reece

The South Carolina Department of Health and Environmental Control strongly supports the referenced program for improvement of infrastructure in rural areas of the state. The Department unequivocally commits to ensuring efficient and timely environmental permitting decisions to facilitate project success.

We look forward to being a meaningful contributor to such a worthwhile project. If you have any questions or if we can be of further service at this time, please let us know.

