

Application to DHCD Submitted through CAMS

County of Floyd

Copper Hill Project

Application ID: 59811292018111831
Application Status: In Progress - DHCD
Program Name: Virginia Telecommunications Initiative 2019
Organization Name: County of Floyd
Organization Address: 120 West Oxford Street
Floyd, VA 24091-2222
Profile Manager Name: Lydeana Martin
Profile Manager Phone: (540) 745-9300
Profile Manager Email: Imartin@floydcova.org

Project Name: Copper Hill Project
Project Contact Name: Lydeana Martin
Project Contact Phone: (540) 745-9300
Project Contact Email: Imartin@floydcova.org
Project Location: PO Box 218
Floyd, VA 24091-0218
Project Service Area: Floyd County

Total Requested Amount: \$348,018.67

Required Annual Audit Status: No Current Audits Found

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Budget Information:

Cost/Activity Category	DHCD Request	Other Funding	Total
Telecommunications	\$348,018.67	\$468,708.67	\$816,727.34
Construction	\$332,828.54	\$332,828.54	\$665,657.08
Construction Related Soft Costs	\$0.00	\$3,190.00	\$3,190.00
Other: Electronics	\$15,190.13	\$15,190.13	\$30,380.26
Other: Inkind Hut, Panel and Fiber	\$0.00	\$117,500.00	\$117,500.00
Total:	\$348,018.67	\$468,708.67	\$816,727.34

Budget Narrative:

The project will construct fiber and supporting pedestals and electronics along 14 miles of road. Detailed cost estimates from engineers can be found in Citizens Cost Estimates and Equipment Quote. The project area was divided into two parts for the cost estimates--east of 221 and west of 221 (later also called Twin Falls/Pine Forest Rd.) The construction East of 221 is estimated at \$299,609.26 (6.8 miles), which includes buried fiber optic and labor, as well as boring, splitter and labor, cases and labor, splicing and engineering. Construction on the west side of 221 is estimated at \$366,047.82 (7.4 miles) including type expenses listed for the other side. The equipment is Calix E7-2 with GPON cards and optics needed; price is \$30,380.25. Citizens will provide \$117,500 in inkind match through shared space in an existing hut, panel and use of some existing fiber. See Derivation of Cost spreadsheet for percentages on those. Citizens will also split the cost of Construction and new Electronics/Equipment with VATI 50-50. Floyd County is providing in-kind match worth at least \$3,190 for grant management and project support. The construction estimates are based on the construction bids that Citizens received first quarter of 2018 for Phase II of their FTTH project in their ILEC (Incumbent Local Exchange Carrier) footprint in Floyd County.

Questions and Responses:

1. Project Area

Provide a map and description of the proposed geographic area including specific boundaries of the project area e.g.; street names, local and regional boundaries, etc. Explain why and how the project area(s) was selected. Attach a copy of your map(s).

Answer:

The project area is the northern tip of Floyd County, shown in Copper Hill Project Maps attached. The northern and eastern boundaries are the county lines with Roanoke and Franklin counties. The southern boundaries are Bear Ridge Rd SE, Twin Falls Rd NE and Copper Hill Rd NE. The western project area boundary is Pine Forest Rd NE and Countyline Rd NE. More specifically, it's all of the state roads (listed below) in this area, with the only exclusion within this area being the southern-most portion of US 221 (about 2.5 miles of Floyd Hwy North) where Citizens already extended fiber on their own to be able to serve businesses and households. Some private roads

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will also be served. Roads to be served (both sides) are: Apple Ridge Rd NE, Bear Ridge Rd SE, Cindy LN SE, Conner Rd NE, Copper Hill Rd NE, Deer Run Dr SE, Family Farm LN NE, Floyd Hwy N, Holland Rd SE, Huff Mill Rd SE, Kempa Dr NE, Mountain View DR SE, Overlook Ridge Dr SE, Parkway DR SE, Pine Forest RD NE, Siner Rd NE, Smith Trailer Ct NE, Snow Mountain Pass, Sweet Annie Dr SE, Twin Falls Rd NE, and Valley Drive SE. Note that as Fiber would pass Deer Run Dr SE, it will also pass the intersection with Ramsey Blvd SE, which then connects to Norris Ave; these are private streets in a private development, where service could be extended in the future in collaboration with the owners. The project area was selected based on unserved area, per VATI and the feasibility of extending service (benefit-to-cost ratio). Citizens was the only telecom provider who responded to our Request for Proposals. Due to the low serviceable unit density and terrain, this area (more than 14 miles) will remain unserved without grant assistance.

2.

Describe your outreach efforts to identify existing providers in the selected project area. Provide a map and list of all existing providers (fixed and wireless), and speeds offered within the project area. Provide a detailed explanation of how this information was compiled and the source(s).

Answer:

We used 3 approaches to identify providers in the area: FCC data sets provided through Broadbandnow.com (updated twice/year); resident surveys (responses from target area); and industry knowledge of our co-applicant, Citizens Telephone Cooperative. See attached Broadband Services and Pricing Study. Note that the proposed service area is comprised of multiple Census blocks, and it is only a portion of the Copper Hill zip code area—some portions of the Copper Hill zip code (toward Town) already have gigabit service. Broadbandnow.com reports that the average download speed in all of Copper Hill (including area with Gigabit service) is 2.75 Mbps, 94.7% slower than the average in Virginia and 1396% slower than the national average. Again, that is all of Copper Hill, so it would be significantly lower in the targeted area.

For fixed providers, some blocks (on Broadbandnow.com) are shown as having “0 Providers,” one block is shown as having 3 providers (Verizon DSL, Cox cable, and Citizens DSL), and several are shown as having 2 providers (2 of 3 just mentioned, but combinations vary.) But this is very misleading. As will be described below, deeper research revealed that only 1 customer in the Project Area has true fixed broadband, and they are literally within 400 yards of the County line with Roanoke County and served by Cox cable. Otherwise, no one else in this area is believed to have access to fixed 10Mbps download/1Mbps upload service.

We established this by checking the high and low address of every road listed in our project area with both Cox and Verizon (Cox through webchats, phone calls, and smartmove.com, and Verizon through online address look up service.) Cox provides broadband service to only 1 location (300 Mbps) in the Project Area, and it is right on 221 at the County line with Roanoke; this has to be why it shows up as being a provider in the zip code. (Anecdotally we have heard this is a Cox employee, but have not confirmed.) The highest fixed service that Verizon offers to anyone is 3 Mbps download and 1 Mbps upload; and clearly this does not support residents’ work, education, health and other online needs (This was documented in a separate 2017 door-to-door survey of residents that revealed that 95% did not have the internet options they needed, see attached 2017 Door-to-Door Survey.) For all details, including Cox and Verizon service at each end of each street, see the attached Broadband Service and Pricing Study for this area.) Nor do businesses and the anchor institution have what they need. Likewise, the most that Citizens can offer currently is 6 Mbps down/1 Mbps up, but those are only the people closest to their huts.

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One satellite service (HughesNet) says it offers up to 25 Mbps down and 3 Mbps up, but our research found it is not dependable, especially in wet weather, and it is much more expensive (4 to 20 times more expensive) than Citizens would be. And 2 mobile providers (Verizon and ATT) say they offer up to 10 Mbps via 4G technology, but at exorbitantly more expensive rates (8-63 times more expensive than Citizens would be), but the fine print confirms speeds can be 5 Mbps or less. So this area is unserved. See attached Map of Service Providers as well as Broadband Service and Pricing Study for details on all of this.

Our survey of residents from November 27 to December 5, 2018 showed, 45% of residents have no known option for internet, 33% rely on mobile hotspot only, and 8% on satellite service. Fourteen percent report having DSL, but the maximum speed reported was well under the 10 Mbps down/1 Mbps upload. Of the 36 survey responses, the only 2 who indicated higher speeds were 2 satellite subscribers who pay for 25 MB, but both reported that in reality they usually get way less than that. And, again, the cost of multi-gigabit data download through satellite service is exorbitant.

3. Project Need/Description

To be eligible for VATI, applicants must demonstrate that the proposed project area(s) is unserved. An unserved area is defined as an area with speeds of 10 Mbps/1 Mbps or less, and with less than 10% service overlap within the project area. Describe the anticipated service overlap with current providers within the project area.

Answer:

As demonstrated above, no one is offering greater than 10 Mbps down/1 Mbps up in the project area currently, with the exception of one household on 221 N at the County line receiving broadband from Cox. This is documented in full detail in the attached Broadband Service and Pricing Study of the project area. So with 267 serviceable units being directly served, there will be 0.37% (less than 1%) overbuild. There will be another 40 units that will have fiber to the state road at the end of their private development, for a total of 307 units assisted. Note that portion of the 221 corridor in Copper Hill has fiber-to-the-home at present from Citizens, but that area was not included in the project area. Due to the low serviceable unit density and terrain, this area will remain unserved without grant assistance.

4. Describe population both in terms of absolute numbers within the project area and the eligible users that will be served by the proposed project. Describe the basis for these projections.

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Answer:

There are approximately 267 units on the included roads in the project area which will be served by Fiber to the Home (or business); this is based on analysis of County 911 data. There are 2.41 people per household in Floyd County, per the American Community Survey 2013-17, so that means more than 640 people served will be served directly. Another 40 households in a private subdivision will have a much shorter distance to connect; that is another 96 people for a total of 740.

5. Indicate the numbers of businesses and community anchor institutions the proposed project will pass in the project area.

Answer:

Apple Ridge Farm, a community anchor institution, will be served by this project. Since 1978, Apple Ridge has helped transformed the lives of 72,000 underserved children and families through engagement in “unparalleled educational, cultural and outdoor experience.” Their flagship program is the Academic Summer Camp, which each summer serves 350 students aged 6-16; instructional areas include reading, writing, STEM and environmental education. They also have programs in computer programming (10 laptops) and an off-grid E-Base classroom to help students learn about sustainable energy, including analysis. But sadly, both of these programs require secured, strong, and consistent internet access, and all they have are wireless hotspots, which are sometimes damped or slowed by inclement weather, area, service or multiple device usage (see Apple Ridge Letter in Letters of Need.) They have 13 buildings in addition to dormitories, and they all lack broadband service (except wireless hotspot.)

There are also at least 5 small businesses that will gain service, including an office of Bent Mountain Lodge (see Bent Mountain Lodge letter in Letters of Need), Fusion (formerly Birch Communications), Board Farm Holdings, Apex Properties, and Alice Walker Batik.

Citizens also has an important public school educational program in place since 2015 called Student Connect that the low-to-moderate-income high school students (and their families) in this area are currently deprived of. All 9th-12th grade students in our high school are loaned Chrome books for high school as they are central for their learning and homework. Most areas of the County have broadband, and to make sure income is not a barrier for access, Citizens and Floyd County Public Schools collaborate to provide Tier 3 service to each of those households. They are technically on the school’s network, which provides protective filtering, and also connects them automatically to New River Community College, Radford University and Virginia Tech for any classes they take there. But students in this Copper Hill area are unable to access this currently due to being unserved by internet service. If this project is approved, Student Connect would be available to these students. See letter from Dr. Wheeler, superintendent of Floyd County Public Schools in Letters of Need.)

6. Provide the anticipated take rate for the proposed service within one year of project completion and describe the basis for the estimate. Also provide all actions to be implemented to reach the identified potential customers within the project area.

Answer:

Expected take rate one year after the project is completed is 30%. Based on the 2017 survey by Citizens less than 6% of customers said that their internet service was adequate (“current needs being met”), there appears to be a

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pent up demand for better internet service.

Citizens projects that the take rate 3 years after project completion will be 50%, possibly 55%. This is based on experience on offering internet service in new areas.

Their take rate in our ILEC footprint for Internet service is right at 70%. There are people in the country (especially in rural areas with an aging population) who don't want internet service or they don't see the need. Citizens' actual take rate in their footprint is high compared to rural areas, and they have heard from other cooperatives and independents telephone companies Virginia, North Carolina, and West Virginia and most are sitting at 60% take rate for internet service.

Promotional actions planned include:

- When Citizens is starting construction on a road/street, door hangers are used at very home letting them know that we are starting construction down their road/street for FTTH service.
 - Once Citizens is ready to hook customers along a given road/street, door hangers are placed again stating that service is available.
 - Additionally, direct mail, outbound calling, website, social media and door-to-door sales are used.
 - In addition to planning and grant application preparation, another area that County staff will help with, if the grant is awarded, is announcing and promoting the expanded service via our social media and our large email list, including all who responded to our survey.
7. A statement whether the proposed project is targeting the “last mile,” “middle mile,” or “backbone” portion of the broadband infrastructure.

Answer:

Last mile

8. For wireless projects only: Please explain the ownership of the proposed wireless infrastructure. Will the wireless co-applicant own or lease the radio mast, tower, or other raised structure onto which the wireless infrastructure will be installed?

Answer:

This is not applicable.

9. Provide a description of the broadband service to be provided, including estimated download and upload speeds, whether that speed is based on dedicated or shared bandwidth, and the technology that will be used. This description can be illustrated by a map or schematic diagram, as appropriate.

Answer:

The broadband services being offered will be FTTP (Fiber to the Premise). Both PON (Passive Optical Network) and Active equipment can be used to meet both residential and business needs. PON is a shared bandwidth and

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Active is dedicated bandwidth. For Residential FTTH (Fiber to the Home) service, G-PON will be deployed and for Business Fiber service either G-PON or Active will be used based on business needs.

For Residential Service only 1Gbps download and 500Mbps will be offered, starting as low as \$39.95. Business Service in this area will predominately asymmetrical with speeds starting at 25 Mbps download and 10Mbps upload and going up to 250 Mbps download and 50Mbps upload. Symmetrical Business Ethernet offerings range from 100 Mbps to 10 Gbps.

Citizens will be using 32:1 ratio on the network (or up to 32 customers per PON) for residential and small office/home office customers. G-PON is has a shared bandwidth per PON of 2.488 Gbits/s downstream and 1.244 Gbits/s upstream.

Citizens currently have G-PON deployed in the town of Floyd, VA and other parts of the county with the current utilization of 2-4% per PON using a 32:1 ratio. In addition, we will deploy enough fiber for an Active Ethernet overlay, for enterprise customers needing symmetrical internet connections speeds. Enterprise services have dedicated bandwidth and have a service level agreement with support 24/7/365.

See attachment Network Design and Calix Info.

10. Provide a description of the network system design used to deliver broadband service from the network's primary Internet point(s) of presence to end users, including the network components that already exist and the ones that would be added by the proposed project. Also describe specific advantages of using this technology. Provide a detailed explanation on how this information was compiled and source(s). For wireless projects, provide a propagation map including the proposed project.

Answer:

The fiber network design is PON with an Active overlay (additional fibers to be able to provide active service). The equipment used in the project will be G-PON. At a later time, once prices fall, NG-PON2 will also be deployed and will eventually replace the G-PON equipment. NG-PON2 is the newest standard and is capable of 40Gbps symmetrical per PON. Since both technologies use different frequencies they can co-exist on the same fiber and customers can be easily transitioned by replacing the ONT (optical network terminal) at the home/business. See attachment Network Design and Calix Info for an illustration.

Citizens already has a telecommunications hut located in Check that will serve this project area. It has redundant DC power, AC and permanent backup generator. All lines will be buried which provides the greatest security giving the difficult winters in Copper Hill. In an ice storm in November of this year, downed trees knocked out power all around the County, but Citizens internet still worked for those who had electricity or generators!

Citizens will be using Calix equipment (for ADSL 2+, VDSL 2, G-PON, and Active) which is what they use throughout there copper and fiber network today. Citizens has multiple staff on hand with specialized training and certifications from Calix. The equipment will fall under the same annual maintenance and support plan with Calix at no additional cost.

Citizens has two diverse connections to Tier 1 peering points (Equinix in Ashburn, VA and Telx in Atlanta, GA) and utilize two different upstream providers for diversity. Both the link to Ashburn and Atlanta are protected circuits (more than one diverse path). Caching servers for NetFlix, Google (includes YouTube), and Akamai (Olympics, Superbowl, and other large events) are located at Citizens Headquarters in Floyd. Citizens has 5

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diversely routed fiber rings in the county for the access network and the Check remote (telecommunications hut) is included in one of those rings. See attached Network Design with Calix Info attachment.

11. Project Readiness

What is the current state of project development (i.e. planning, preliminary engineering, final design, etc.)? Prepare a detailed project timeline or construction schedule, which identifies specific tasks, staff, contractor responsible(s), collection of data, etc., and estimated start and completion dates. The timeline should include all activities being completed within 12 months of contract execution with DHCD.

Answer:

Final Engineering is done for the project, since the VATI timeline for work completion is short. This project is ready to go. See attached final design and staking sheets in the Network Design and Calix Info attachment.

Permitting work will begin in January in anticipation of the possible project. The bid package will be released in month 3, construction will begin in month 4 and wrap up by month 10. Fiber testing and splicing will occur in month 11 when the project will also be completed. Citizens has completed a fiber-to-the-premise project in and around the Town of Floyd in the past 2 years and so is very familiar with all the details required for planning and execution. See attached Project Management Plan.

12. Matching funds: Provide a description of the matching funds the applicant and co-applicant will invest in the proposed project, (VATI funding cannot exceed 80% of total project cost). The Funding Sources Table should be completed.

i. For each element of matching funds in the description, indicate the type of match (cash, salary expense, or in-kind contribution).

ii. Identify whether the applicant or co-applicant is responsible for providing each element of the proposed matching funds.

iii. Include copies of vendor quotes or documented cost estimates supporting the proposed budget.

Answer:

Citizens is committing \$465,518.67, which includes \$117,500 in-kind. (See attached CTC Money Market statement which affirms available resources.) County is committing at least \$3,190 in in-kind support if the grant is awarded. Citizens already has more than \$16,000 invested in-kind in planning and engineering. It's important to note that Citizens is a cooperative meaning members own the organization. Thus the operating funds being used to invest in this expansion is really being born by all members in Floyd County (approximately 85% of the County is already served by Citizens.) Additionally, the County is committing at least \$3,190 in in-kind support for implementation, which will include grant administration, coordination and support on permits, and promotion of expanded services via our contacts and on social media (estimated 77 hours of support).

The County has already invested over \$6,000 in to help make this project happen—including planning, consulting legal counsel, advertising Request for Proposals from telecom providers, advertising public comment period, survey of the targeted households, intensive planning with the selected telecom provider and GIS consultant, and preparing the grant application with close support from Citizens.

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Citizens' match includes in-kind resources, as shown in the derivation of costs worksheet. Specifically, 20% of an existing telecommunications hut for this project, which would cost \$39,500 to build new; in-kind value is \$7,900; 16% of an existing patch panel for this projects; it costs \$2,500, so in-kind value is \$400; and 20% of a 15.2 mile fiber route installed for another project in 2017 for \$546,000, so in-kind value of \$109,200. Citizens will make cash contributions towards the Equipment and Construction.

13. Identify key individuals, including name and title, who will be responsible for the management of the project. Describe their role and responsibilities for the project. Present this information in table format.

Answer:

Dennis Reece, Citizens' Assistant General Manager & Chief Operating Officer, will be the Project Manager for the Project, overseeing all planning, procurement and construction. Strategic direction and guidance will be provided by James Gregory Sapp (Greg), the CEO and General Manager of Citizens Telephone Cooperative and its subsidiaries (since 2008.)

Cindy Ryan (Assistant County Administrator, Finance Director, CPA and former State Auditor) and Lydeana Martin (Community and Economic Development Director, MBA, AICP) will lead grant administration and project support for the County. They will request assistance from Terri Morris, County Administrator; Mark Bolt, Building Official, and Tabitha Hodge, Economic Development Technician, as needed.

Apply for VDOT ROW permit	Dennis Reece	Citizens
Prepare Bid Package	Dennis Reece	Citizens
Issue bid package	Dennis Reece	Citizens
Prepare Quarterly Report 1	Lydeana Martin	County
Bid due date	Dennis Reece	Citizens
Construction	Dennis Reece	Citizens
Prepare Quarterly Report 1	Lydeana Martin	County
Fiber testing and splicing	Dennis Reece	Citizens
Prepare Quarterly Report 2	Lydeana Martin	County
Project Completed	Dennis Reece	Citizens
Promotion	Lori saltus	Citizens

The roles will be as follows (See attached Letters from Applicant and CoApplicant which affirm this.) :

The co-applicant (Citizens) will perform all work as outlined in the application and follow-on agreement, if the grant is awarded.

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Grant administration including review of co-applicant requests for reimbursement, setting up EFT with funder, seeking funds, providing disbursement, and preparing related County information for auditors will be managed by County staff (Cindy Ryan, Tabitha Hodge and Lydeana Martin), and overseen by Terri Morris, County Administrator. All decisions on reimbursement will be made by the Grantor (DHCD), and the County will not be responsible for any non-reimbursable expenses by the co-applicant or any contractor.

Procurement (for technical and construction services) will be led and conducted by Citizens (Dennis Reece).

Final Engineering and permits will be led by Citizens (Dennis Reece) with support from County staff to help with local and state permits (Mark Bolt and Lydeana Martin).

Construction will be overseen by Citizens (Dennis Reece), with planning support from County staff (Mark Bolt and Lydeana Martin).

Promotional outreach will be led by Citizens (Robert Weeks and Lori Saltus) with support from County staff (Lydeana Martin and Tabitha Hodge).

14. Applicant and Co-Applicant: A description of the public-private partnership involved in the project. Detail the local government assistance: Local government co-applicants should demonstrate assistance to project that will lower overall cost and further assist in the timely completion of construction, including assistance with permits, rights of way, easement and other issues that may hinder or delay timely construction and increase cost.
- i. If the partnership is formalized in a written agreement provide a copy of that agreement.
 - ii. If the partnership has not been formalized, provide a short description of the project management role, financial commitment, or other contribution to the project for the applicant and co-applicant and any additional partners.

Answer:

We do not consider this a partnership in a legal sense, but rather Floyd County is pursuing grant funds to provide much needed internet infrastructure to a portion of Floyd County and providing those funds to Citizens Telephone Cooperative (co-applicant) to build the infrastructure and expand their service area. Floyd County selected a co-applicant through a request for proposals process guided by Virginia Procurement law. (See attached Letters from Applicant and CoApplicant which affirm this.) Citizens is a great community and regional asset, both in their projects and services, as well as great employer. They are outstanding corporate citizens. As already described above, here are the committed matching support....

Citizens is committing \$465,518.67, which includes \$117,500 in-kind. (See attached CTC Money Market statement which affirms available resources.) County is committing at least \$3,190 in in-kind support if the grant is awarded. Citizens already has more than \$16,000 invested in-kind in planning and engineering. It's important to note that Citizens is a cooperative meaning members own the organization. Thus the operating funds being used to invest in this expansion is really being born by all members in Floyd County (approximately 85% of the County is already served by Citizens.) Additionally, the County is committing at least \$3,190 in in-kind support for implementation, which will include grant administration, coordination and support on permits, and promotion of expanded services via our contacts and on social media (estimated 77 hours of support).

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The County has already invested over \$6,000 in to help make this project happen—including planning, consulting legal counsel, advertising Request for Proposals from telecom providers, advertising public comment period, survey of the targeted households, intensive planning with the selected telecom provider and GIS consultant, and preparing the grant application with close support from Citizens.

Citizens' match includes in-kind resources, as shown in the derivation of costs worksheet. Specifically, 20% of an existing telecommunications hut for this project, which would cost \$39,500 to build new; in-kind value is \$7,900; 16% of an existing patch panel for this projects; it costs \$2,500, so in-kind value is \$400; and 20% of a 15.2 mile fiber route installed for another project in 2017 for \$546,000, so in-kind value of \$109,200. Citizens will make cash contributions towards the Equipment and Construction.

15. Project Budget and Cost Appropriateness

Applicants shall provide a detailed budget as to how the grant funds will be utilized, including an itemization of equipment and construction costs and a justification of proposed expenses. Expenses should substantiated by clear cost estimates.

Answer:

The project will construct fiber and supporting pedestals and electronics along 14 miles of road. Detailed cost estimates from engineers can be found in Citizens Cost Estimates and Equipment Quote. The project area was divided into two parts for the cost estimates--east of 221 and west of 221 (later also called Twin Falls/Pine Forest Rd.) The construction East of 221 is estimated at \$299,609.26 (6.8 miles), which includes buried fiber optic and labor, as well as boring, splitter and labor, cases and labor, splicing and engineering (see unit costs below). Construction on the west side of 221 is estimated at \$366,047.82 (7.4 miles) including type expenses listed for the other side. The equipment is Calix E7-2 with GPON cards and optics needed; price is \$30,380.25. Citizens will provide \$117,500 in inkind match through shared space in an existing hut, panel and use of some existing fiber. See Derivation of Cost spreadsheet for percentages on those. Citizens will also split the cost of Construction and new Electronics/Equipment with VATI 50-50. Floyd County is providing in-kind match worth at least \$3,190 for grant management and project support.

The construction estimates are based on the construction bids that Citizens received first quarter of 2018 for Phase II of their FTTH project in their ILEC (Incumbent Local Exchange Carrier) footprint in Floyd County.

The unit costs used for the estimates are as follows:

Buried Fiber Optic cable: \$0.63/ft

Labor to bury fiber optic cable: \$2.50/ft

Buried fiber optic cable drop to building/home: \$0.25/ft

Labor to bury fiber optic cable drop to building/home: \$1.60/ft

Metal pedestal to house fiber and access and splice location: \$125 each

Labor to set metal pedestal: \$100 each

Splitter (device used to split fiber signal from 1 fiber to multiple fibers): \$350 each

Labor to install Splitter: \$200 each

Cases (enclosures used where drops or fiber optic cable ends need to be spliced together): \$300 each

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Labor to install splice cases: \$400 each

Boring--to drill hole under obstacle such as culvert, road, etc.: \$15 each

Engineering (labor for layout and design): \$80/hour

16. The cost benefit index is comprised of three factors: (i) state share for the total project cost, (ii) state cost per unit passed, and (iii) the internet speed. From these statistics, individual cost benefit scores are calculated. Finally, the three component scores are averaged together and converted to a 30 point scale to form a composite score.

Answer:

The VATI grant would cover 42.6% of the total costs of \$816,727.33. The cost per serviceable unit passed would be \$1,303.44 using 267 units directly passed. It would be \$1,133.61 using the total 307 units (40 of which are in a private development and fiber will come to the perimeter of the property.)

The speeds will be 1,000 Mbps download (1 Gbps) and 500 Mbps upload (0.5 Gbps).

17. A description of applicant and co-applicant's history or experience with managing grants and constructing broadband communications facilities in the Commonwealth of Virginia and elsewhere.

Answer:

Floyd County has managed millions of dollars of grants in recent years including over \$2 million in state R&D grants, over \$2 million in construction grants for the Floyd Innovation Center, and more than a dozen smaller grants for various programs. Citizens has managed many millions of dollars in broadband facility grants from both federal and state sources. Citizens has successfully completed many fiber construction projects, including a \$11.5 million federal Broadband Technology Opportunity (BTOP) grant in 2013.

Citizens currently offers FTTH (Fiber to the Home) in the Town of Floyd and in the Topeco area of the Floyd County. Citizens started deploying fiber more than 2 decades ago. By 1995, every classroom in Floyd County (4 elementary schools and one high school) had access to the Internet; for context, here are the founding dates of some household names: Amazon, 1994; Ebay, 1995; Google, 1998; Facebook, 2004.

Citizens has been providing communications services to rural parts of Virginia and since 1914 and serves as the ILEC (Incumbent Local Exchange Carrier) to approximately 85% of Floyd County. They are a member owned cooperative focused on bringing modern communications services to rural areas that are available in urban areas of the country.

In order to economically justify the expansion into neighboring communities with broadband offering, Citizens successfully negotiated the purchase of the cable television system from Time Warner Cable Entertainment in 2004. Through the company's subsidiary, Citizens Cablevision, Citizens upgraded the Fort Chiswell Cable system in Carroll and Wythe Counties, acquired the Floyd cable system, and the New Castle system in Craig County. Citizens Cablevision also has a franchise for the Meadows of Dan exchange in Patrick County.

From 2005 until 2013, Citizens partnered with localities and obtained grants to build a regional open access

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network in rural southwest Virginia. Citizens now operates a 440 mile regional open access fiber network in 10 Virginia that spans 10 counties, 10 towns and 3 cities including 15 industrial parks. Along this network, Citizens provides wholesale transport and Internet bandwidth to a variety of service providers and provides service to first responders, educational institutions, and to medical facilities. Citizens is partnering with other open access networks in Virginia like Mid Atlantic Broadband Cooperative (MBC) and Bristol Virginia Utilities (BVU) to provide high-capacity optical transport services that are necessary to assist in the economic revitalization efforts of Southwest and Southside Virginia.

18. Service

Describe the Internet service offerings to be provided after completion of this project and your price structure for these services. The service offerings should include all relevant tiers.

Answer:

The speeds Citizens will provide to customers are: 1,000Mbps (1Gbps) Download / 500Mbps (0.5Gbps) Upload. Residential pricing is based on data tiers starting as low as \$39.95 per month for 50 GB for residences, with 250GB costing only \$59.95 (90% of current Citizens customers use less than this). Incremental charge of \$5 per 50 GB will be charged should subscribers go over subscribed monthly usage. Other tiers include 500 GB for \$79.95/month; 1 TB (1,000 GB) for \$99.95/month; 2 TB for \$119.95/month; and 4 TB for \$139.95/month. A 24-month service contract is required. Business services will range from \$39.95, \$59.95, \$99.95, \$179.95 and \$299.95.

For Citizens promotional material on pricing, see Broadband Services and Pricing Study, Attachment 3.

19. Additional Information

Any other equitable factor that the applicant desires to include.

Answer:

The most recent CAF auction shows one Auction-eligible block that has a tiny overlap with the Copper Hill Project area. It appears that 7 serviceable units in the auction-eligible block are in that proposed project area. See attached CAF and Copper Hill Project map. Moreover, the auction has already closed on this auction (Auction 903) and there were apparently no bids on any Census block in Floyd County.

https://auctiondata.fcc.gov/public/projects/auction903/reports/all_assigned_census_blocks. And the attached map (CAF No Winning Bids in Floyd County," shows there were no winning bids in Floyd County (so thus none serving that tiny portion of the Project Area.)

We did a public Request for Proposals from telecom providers to serve the unserved area, including ads in The Roanoke Times, the regional newspaper in our area, on Sunday, November 4th and Sunday, November 11th, 2018. We also advertised in the local paper, The Floyd Press, on Thursday, November 8, 2018. The only proposal we received was from Citizens Telephone Cooperative.

Application to DHCD Submitted through CAMS

County of Floyd

Copper Hill Project

We also advertised for public input in the local paper on Thursday, November 22. We have received no public comment.

Attachments:

Derivation of Cost (Project Budget)

DerivationofCostsWorksheet1213201834912.pdf

Project Management Plan

ProjectManagementPlan1213201834925.pdf

Supporting documentation for costs estimates

CitizenCostestimatesandEquipmentQuotefinal1213201853528.pdf

Map(s) of project area, including proposed infrastructure

CopperHillProjectMapandProposedInfrastructuredetails1213201834943.pdf

Map(s) or schematic of existing broadband providers (inventory of existing assets)

ProviderServiceMapbyCensusBlock1213201834956.pdf

Documentation of relationship between applicant and co-applicant (formal or informal)

LettersfromApplicantandCoapplicant1213201835007.pdf

Two most recent Form 477 submitted to FCC

CitizensFCCFilingssummaries2017and20181213201835025.pdf

Documentation for in-kind contributions, including value(s)

LettersfromApplicantandCoapplicant1213201835037.pdf

Documentation supporting project costs (i.e. vendor quotes)

CitizenCostestimatesandEquipmentQuotefinal1213201853542.pdf

Application to DHCD Submitted through CAMS

County of Floyd

Copper Hill Project

Documentation of source of match funding

LettersfromApplicantandCoapplicant1213201835133.pdf

Documentation that proposed project area is unserved based on VATI criteria

BroadbandServiceandPricingStudywithatt1213201835147.pdf

Documentation that proposed project area is not designated for Connect America Funding (CAF)

CAFandCopperHillProjectArea1213201835259.pdf

Funding Sources Table

VATIFundingSourcesTable1213201835645.pdf

(Optional) || Letters Documenting Need

LettersDocumentingNeedfromEmployersandSchool1213201835708.pdf

(Optional) || Citizens Financial Capacity for Match

CTCMoneyMarketNov231214201892420.pdf

(Optional) || CAF No Winning bids in Floyd County in 2018 Auction

CAFNowinningbidsinFloydCo20181214201894846.pdf

Notes:

Under the Project Information Tab, it asks for the primary project address. The County office address is PO Box 218, Floyd, VA 24091, but the proposed VATI Service area would be multiple addresses in the Copper Hill area (zip 24079).

CDBG Derivation of Cost

Product	Total	VATI	Non-VATI	Source of Estimate	Date
Telecommunications Hut with diverse DC power, AC, and backup generator - without this the total cost would be \$39,500; 20% of total cost used for calculation	\$7,900.00	\$0.00	\$7,900.00	Citizens - will be using existing hut at Check	Dec-18
Fiber Patch Panel for terminating fiber at the Check hut - using 16% of patch panel that was \$2,500	\$400.00	\$0.00	\$400.00	Citizens (already in place)	Dec-18
Fiber on Rte 221 Floyd Hwy N - built in 2017 for another project for \$546,000; 20% of that 15.2 mile route will be used for this project.	\$109,200.00	\$0.00	\$109,200.00	Citizens - using existing fiber along Rte 221 (Floyd Hwy N)	Dec-18
Calix E7-2 with G-PON cards and all optics needed at the hut site	\$30,380.25	\$15,190.13	\$15,190.13	Citizens - quote from Calix (current network gear manufacturer for FTTH)	Dec-18
Construction of area East of 221 in Copper Hill - includes engineering, construction, splicing, inspection, and testing	\$299,609.26	\$149,804.63	\$149,804.63	Citizens	Dec-18
Construction of Twin Fall / Pine Forest areas - includes engineering, construction, splicing, inspection, and testing	\$366,047.82	\$183,023.91	\$183,023.91	Citizens	Dec-18
Grant administration and project support by Floyd County staff.	\$3,190.00	\$0.00	\$3,190.00	Floyd County Admin	12/13/2018
	\$816,727.33	\$348,018.67	\$468,708.67		
	100.00%	42.61%	57.39%		

Task	Responsible Person	Responsible Entity	Proposed Timeline											
			Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
Apply for VDOT ROW permit	Dennis Reece	Citizens	█											
Prepare Bid Package	Dennis Reece	Citizens		█										
Issue bid package	Dennis Reece	Citizens			█									
Prepare Quarterly Report 1	Lydeana Martin	County				█								
Bid due date	Dennis Reece	Citizens			█									
Construction	Dennis Reece	Citizens				█	█	█	█	█	█	█		
Prepare Quarterly Report 1	Lydeana Martin	County							█					
Fiber testing and splicing	Dennis Reece	Citizens						█	█	█	█	█	█	
Prepare Quarterly Report 2	Lydeana Martin	County										█		
Project Completed	Dennis Reece	Citizens											█	
Promotion	Lori saltus	Citizens				█	█	█	█	█	█	█	█	█

Starting date is when contract is signed with DHCD.

Cost Estimates for East of 221
(Part 1 of Copper Hill Project Area)
From Citizens Telephone Cooperative Engineering

EQUIPMENT		QTY	TOTAL		
BD	5	68			
BFO	144		36002	6.82	Miles
BFO	96				
BFO	48	27032			
BFO	24	8970			
BFO	12				
SFO	2	20900			AVERAGE 300' PER DROP

NOTE : Roads east of 221 in Copper Hill
Sweet Annie, Mountain View, Parkway, Deer run, Bear ridge, Huff Mill

MATERIAL/CONSTRUCTION PRICING ESTIMATES

MAT. / UNITS	QTY	PRICE	TOTAL	Description
BFO	36002	\$0.63	\$22,681.26	Buried fiber optic cable
BFO (LABOR)	36002	\$2.50	\$90,005.00	Labor to bury fiber optic cable
SFO	20900	\$0.25	\$5,225.00	Buried fiber optic cable drop to the building/home
SFO (LABOR)	20900	\$1.60	\$33,440.00	Labor to bury fiber optic cable drop to the buiding/home
BD5	68	\$125.00	\$8,500.00	Metal pedestal to house fiber of access and splice location
BD5 (LABOR)	68	\$100.00	\$6,800.00	Labor to set metal pedestal
SPLITTER	5	\$350.00	\$1,750.00	Device used to "split" fiber signal from 1 fiber to multiple fibers
SPLIT(LABOR)	5	\$200.00	\$1,000.00	Labor to install splitter
CASES	18	\$300.00	\$5,400.00	Enclosures used where drops or fiber optic cable ends need to be spliced together
CASES(LABOR)	18	\$400.00	\$7,200.00	Labor to instll splice cases
SPLICING	864	\$32.00	\$27,648.00	Labor to splice single strands of fiber
BM61	5400	\$15.00	\$81,000.00	Boring is a technique that consists of drilling a hole under an obstacle such as culvert, paved road or etc.
ENGINEERING	112	\$80.00	\$8,960.00	Labor for layout and design of fiber optic network
			GRAND TOTAL	
			\$299,609.26	

Cost Estimates for Twin Fall/Pine Forest

(Part 2 of Copper Hill Project Area; west of 221)

From Citizen Engineering Office

EQUIPMENT	QTY	TOTAL			
BD	5	60			
HANDHOLE	17x30x30				
BFO	144		39114	7.41	Miles
BFO	96				
BFO	48	37814			
BFO	24	1300			
BFO	12				
SFO	2	44900			AVERAGE 300' PER DROP
NOTE :	West of 221 in				
	This estimate is for twin falls rd, pine forest rd, siner rd and Copper hill rd				
MATERIAL/CONSTRUCTION PRICING ESTIMATES					
MAT. / UNITS	QTY	PRICE	TOTAL	Description	
BFO	39114	\$0.63	\$24,641.82	Buried fiber optic cable	
BFO (LABOR)	39114	\$2.50	\$97,785.00	Labor to bury fiber optic cable	
SFO	44900	\$0.25	\$11,225.00	Buried fiber optic cable drop to the building/home	
SFO (LABOR)	44900	\$1.60	\$71,840.00	Labor to bury fiber optic cable drop to the buiding/home	
BD5	60	\$125.00	\$7,500.00	Metal pedestal to house fiber of access and splice location	
BD5 (LABOR)	60	\$100.00	\$6,000.00	Labor to set metal pedestal	
SPLITTER	5	\$350.00	\$1,750.00	Device used to "split" fiber signal from 1 fiber to multiple fibers	
SPLIT(LABOR)	5	\$200.00	\$1,000.00	Labor to install splitter	
CASES	21	\$300.00	\$6,300.00	Enclosures used where drops or fiber optic cable ends need to be spliced together	
CASES(LABOR)	21	\$400.00	\$8,400.00	Labor to instll splice cases	
SPLICING	1008	\$32.00	\$32,256.00	Labor to splice single strands of fiber	
BM61	5850	\$15.00	\$87,750.00	Boring is a technique that consists of drilling a hole under an obstacle such as culvert, paved road or etc.	
ENGINEERING	120	\$80.00	\$9,600.00	Labor for layout and design of fiber optic network	
			GRAND TOTAL		
			\$366,047.82		

From Citizens Telephone Cooperative Engineering

Calix Network Configuration & Quotation

Customer Name:	CITIZENS TELEPHONE COOPERATIVE (VA)	Quote Reference Number:	609067A - 1
Project Name:	Cart: 2018-89934	Quote Type:	Equipment
Quote Description:	Copper Hill Grant	Date Created:	December 11, 2018
Author Name:	Dean Wood	Date Modified:	December 11, 2018
Contact Name:		Quote Expiration:	January 10, 2019

Equipment Summary					
Calix Part #	Part Description	CLEI	Price	Qty	Extended Price
	E7				
000-00372	E7-2 Field Install Package (CO & ODC/RT): Shelf with Blank Card, FTA, and Field installation Kit		\$646.75	1	\$646.75
	E7-2 AXOS				
100-04665	E7-2 GPON-8 r2 card	BVL3BA5FAA	\$9,096.50	2	\$18,193.00
	OIM 10GE Transport				
100-01512	10GE SFP+, Single Mode dual fiber transceiver, 10Km, 1310nm, LC, I-temp	BVL3AMDFAA	\$698.25	2	\$1,396.50
	OIM GPON AXOS				
100-05121	GPON SFP OIM, Class B+, 20Km, 1490/1310nm Single Fiber Transceiver, C-Temp, AXOS	BVL3BACFAA	\$599.65	16	\$9,594.40
Equipment Total					\$29,830.65
Extended Warranty					\$549.60
Annuity Services Total					\$549.60
Grand Total					\$30,380.25

Package Details:

000-00372 package consists of the following:

100-01449	E7-2 Shelf, 1RU, 2 Slots, with 1 Blank Card	1
100-01830	E7-2 Field Install Kit for CO & RT (19" and 23" mounting brackets, power and ground cables, etc)	1
100-03590	E7-2 Fan Tray Assembly 2 - FTA2	1

Notes & Optional Equipment and Services

All prices are being quoted in US \$ (Dollars).

Due to rounding, some totals may not correspond with the sum of the separate figures.

Unless specifically listed above, the order total shown does not reflect any charges related to shipping, taxes, insurance, customs duties or tariffs, which are the customer's sole responsibility. Unless specifically listed above, the actual freight charges incurred and related taxes will be added to your order at the time of shipping and will be reflected on your invoice. Equipment purchases are subject to our standard terms and conditions of sale, a copy of which can be found at the <https://www.calix.com/pages/terms-of-sale.html>, or (if applicable) the terms and conditions of a previously executed written sales agreement between us.

Calix Warranty Summary

With the exception of Premises Products (e.g. Optical Network Terminal equipment), Calix warrants its Products for five (5) years from the date of shipment. The warranty for Premises Products is one (1) year from date of shipment. Certain 3rd party products

Calix Network Configuration & Quotation

Customer Name:	CITIZENS TELEPHONE COOPERATIVE (VA)	Quote Reference Number:	609067A - 1
Project Name:	Cart: 2018-89934	Quote Type:	Equipment
Quote Description:	Copper Hill Grant	Date Created:	December 11, 2018
Author Name:	Dean Wood	Date Modified:	December 11, 2018
Contact Name:		Quote Expiration:	January 10, 2019

are not warranted by Calix. For these items we "pass-through" the manufacturer's warranty. For the complete Calix warranty policy please visit the Customer Service Page inside your Calix Customer Center and look for the RMA and Warranty information module. For a list of the 3rd party equipment and applicable warranties, please contact your Calix account manager.

Important Ordering Instructions:

Please include the Calix quote number (found in the upper right hand corner) on your PO. You may also provide an internal PO number to be used with your order. Orders received without an internal PO number will use the Calix quote number by default.

Include contact information (Name, Email & Tel) for the person who will receive the order acknowledgements and shipping notifications as well as the required billing and shipping addresses for your order.

Send Purchase Orders to Calix Order Management:

Email: om@calix.com

Fax: 707-283-3771

You may check the status of your order at any time on our website. (www.calix.com, click Login)

Calix Network Configuration & Quotation

Customer Name: CITIZENS TELEPHONE
COOPERATIVE (VA)
Project Name: Cart: 2018-89934
Quote Description: Copper Hill Grant
Author Name: Dean Wood
Contact Name:

Quote Reference Number: 609067A - 1
Quote Type: Equipment
Date Created: December 11, 2018
Date Modified: December 11, 2018
Quote Expiration: January 10, 2019

Optional Items Summary					
Calix Part #	Part Description	CLEI	Price	Qty	Extended Price
Extended Warranty					
110-01164	Extended Warranty - Upfront - 5 years for 100-01449		\$100.20	1	\$100.20
Optional Items Total					\$100.20

Calix Network Configuration & Quotation

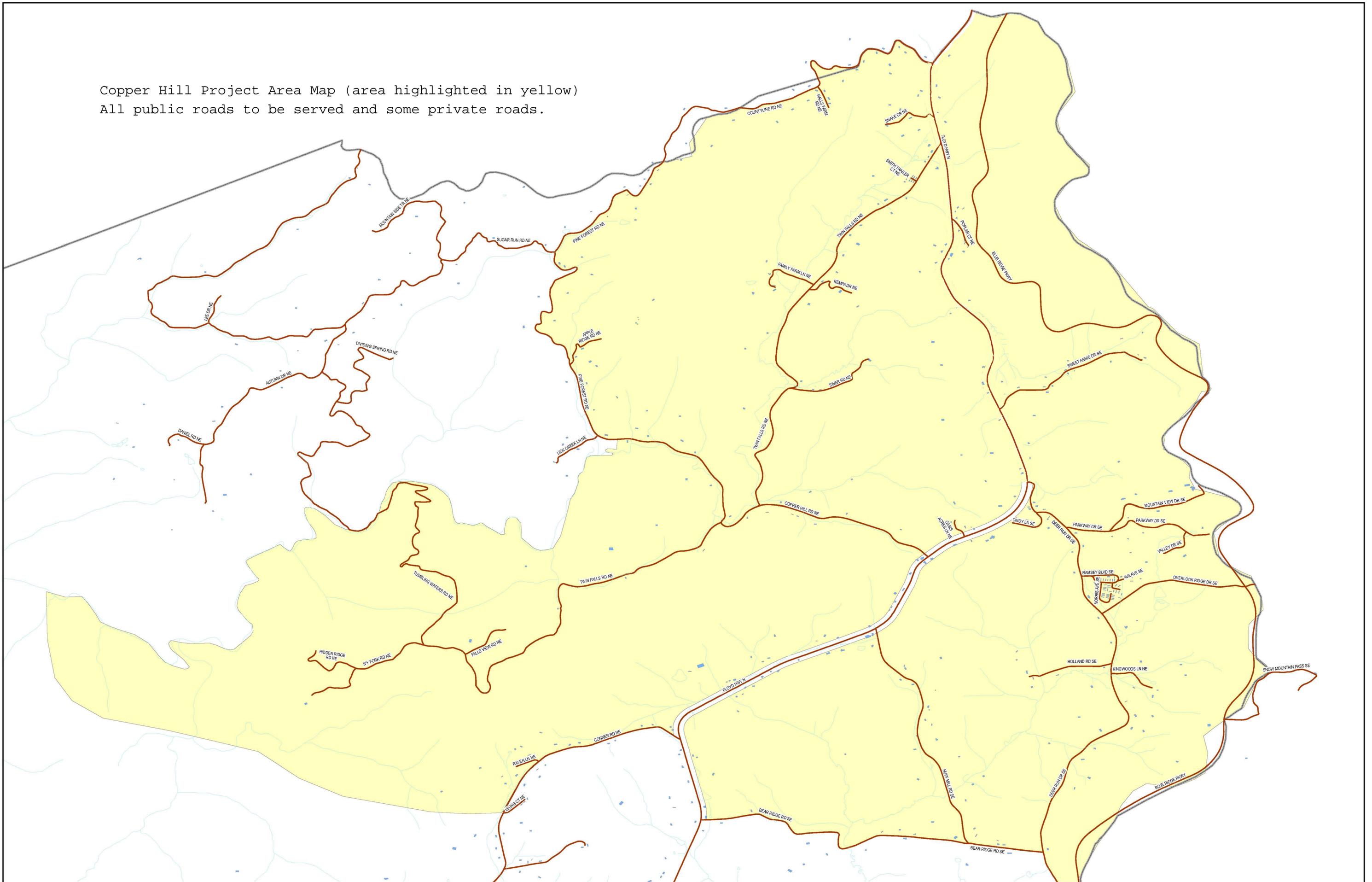
Customer Name:	CITIZENS TELEPHONE COOPERATIVE (VA)	Quote Reference Number:	609067A - 1
Project Name:	Cart: 2018-89934	Quote Type:	Equipment
Quote Description:	Copper Hill Grant	Date Created:	December 11, 2018
Author Name:	Dean Wood	Date Modified:	December 11, 2018
Contact Name:		Quote Expiration:	January 10, 2019

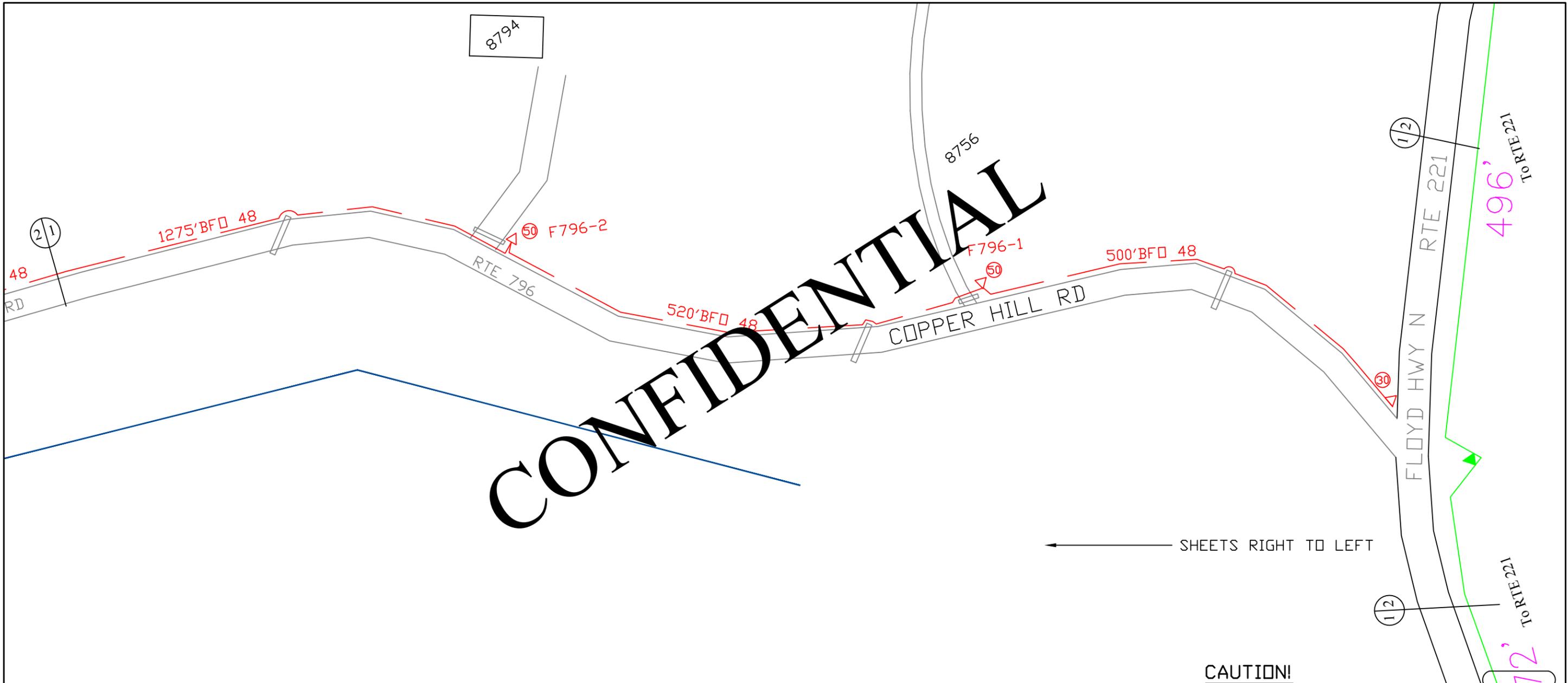
Extended Warranty Summary				
Calix Part #	Part Description	Price	Qty	Extended Price
110-01162	Extended Warranty - Upfront - 5 years for 100-04665	\$274.80	2	\$549.60
Extended Warranty Total				\$549.60

Notes

1. The Extended Warranty purchase is available at the time of hardware purchase, prior to warranty expiration or after warranty expiration. these prices reflect purchase at the time of hardware purchase. Please contact your Calix account manager for pricing for other purchase times.
2. Extended Warranty can be purchased in single or multi-year increments up to a maximum of 10 years for infrastructure equipment (line cards) and up to 5 years for premises equipment.

Copper Hill Project Area Map (area highlighted in yellow)
All public roads to be served and some private roads.





PEDESTAL NO.	BFD 48	BFC	BFC	BD	BD	BG	BM-UNITS				POLE OR BA-	PE	PF	SEB	SEB	HC	X	W	REMARKS
							2												
F796-1	500'			1			1												
F796-2	520'			1			1												
TOTALS	1150'			2			2												

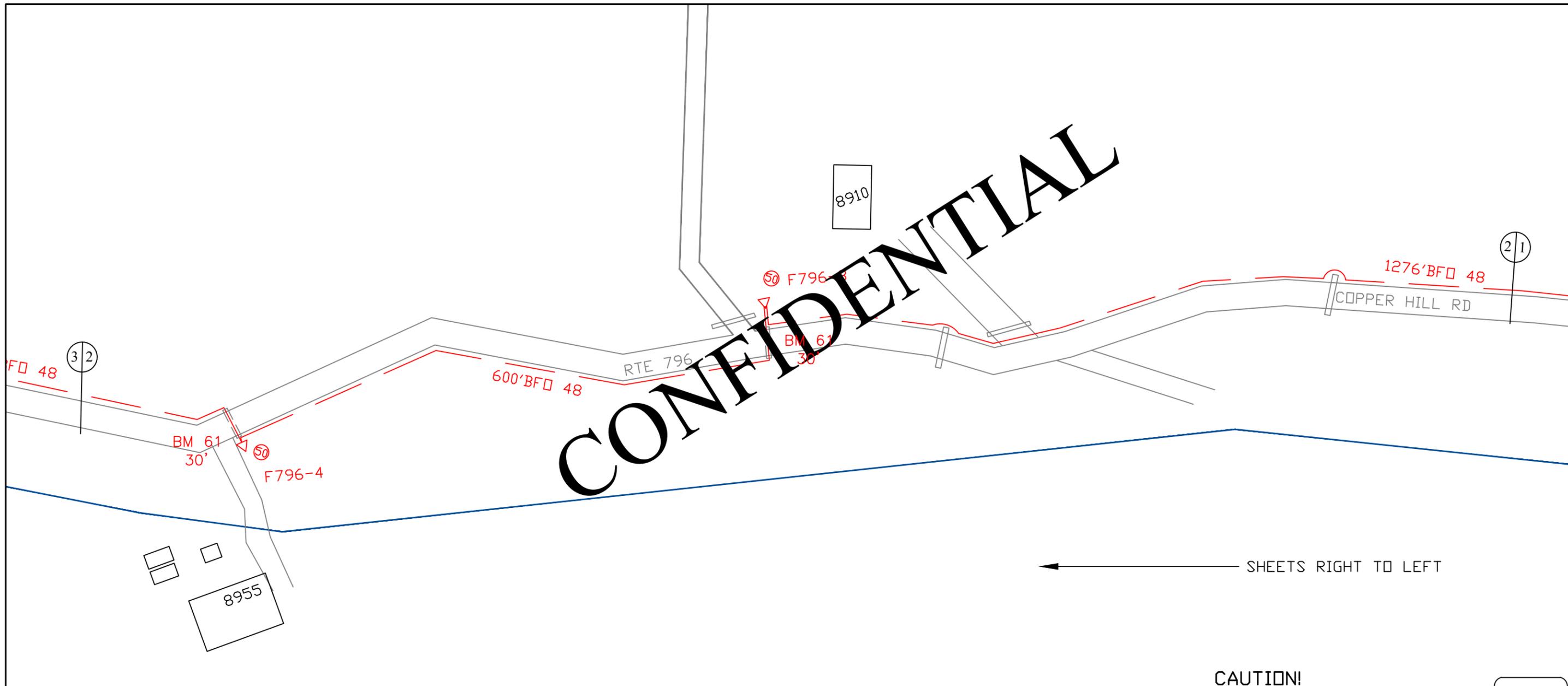
CAUTION!
RESTRICTED CONSTRUCTION CORRIDOR
 WHILE AN EFFORT HAS BEEN MADE TO INDICATE THE PRESENCE OF UNDERGROUND FACILITIES, THERE IS NO GUARANTEE THAT THOSE SHOWN ARE LOCATED PROPERLY OR THAT THOSE SHOWN ARE ALL THAT EXIST.

EASEMENT SECURED BY:
 RESIDENT
 CONTRACTOR:
 STAKED BY: BM DATE:
 AS BUILT BY: DATE:
 W.O./JOB# TAX DIST.FLOYD
 SCH# MAP#

EXCHANGE: COPPER HILL FIBER PROJECT

ROUTE 796 SHEET 1 OF 8

CONFIDENTIAL



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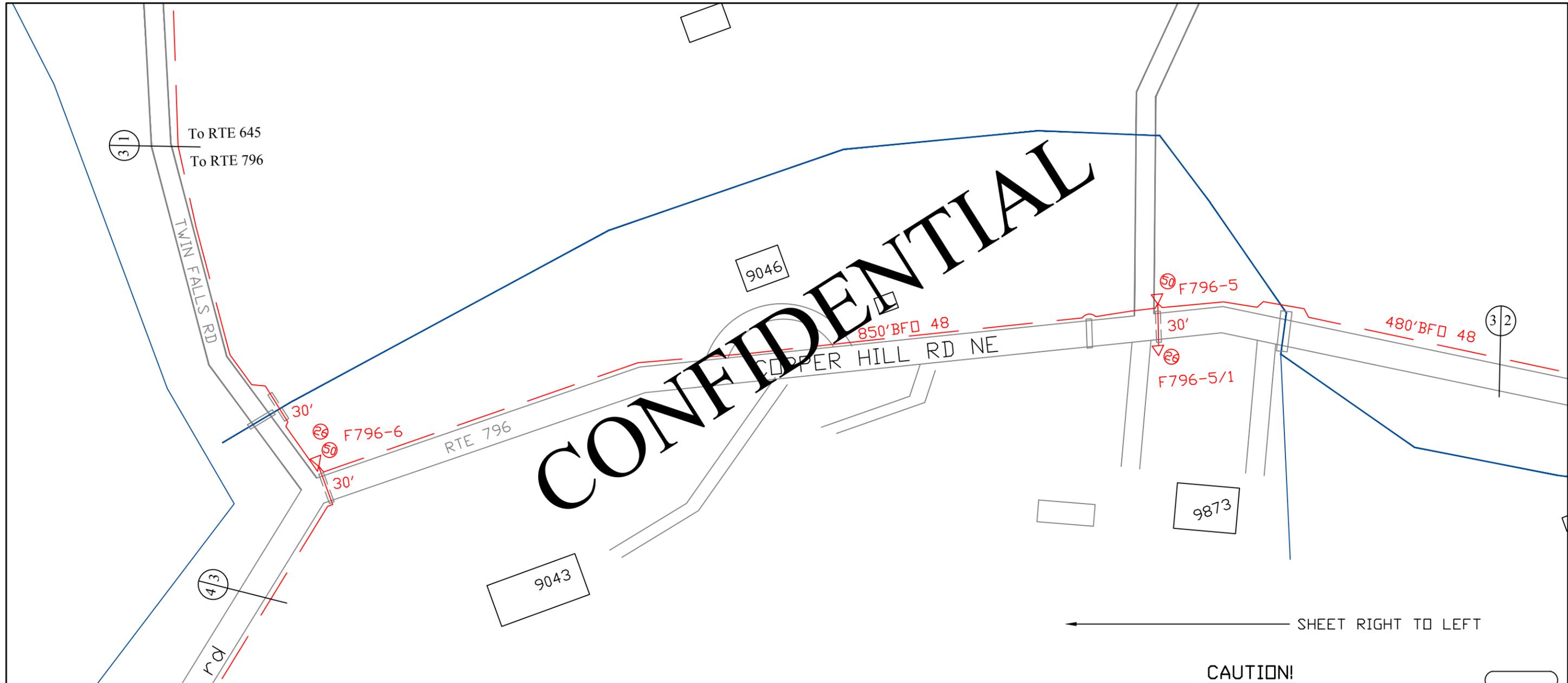
PEDESTAL NO.	BFD 48	BFC	BFC	BD	BD	BG	BM-UNITS				POLE OR BA-	PE	PF	SEB	SEB	HC	X	W	REMARKS
							2	61											
F796-3	1276'			1			1												
F796-4	600'			1			1	30'											
TOTALS	1976'			2			2	30'											

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EASEMENT SECURED BY:
 RESIDENT
 CONTRACTOR:
 STAKED BY: BM DATE:
 AS BUILT BY: DATE:
 W.O./JOB# TAX DIST. Floyd
 SCH# MAP#

EXCHANGE: COPPER HILL FIBER PROJECT

ROUTE 796  SHEET 2 OF 8



← SHEET RIGHT TO LEFT

PEDESTAL NO.	BFD 48	BFC 12	BFC	BD 5	BD 7	BG	BM-UNITS				POLE OR BA-	PE	PF	SEB	SEB	HC	X	W	REMARKS
							2	61											
F796-5	580'			1			1	30'											
F796-5-1		36'		1			1	30'											
F796-6	850'				1		1												
TOTALS	1530'	96'																	

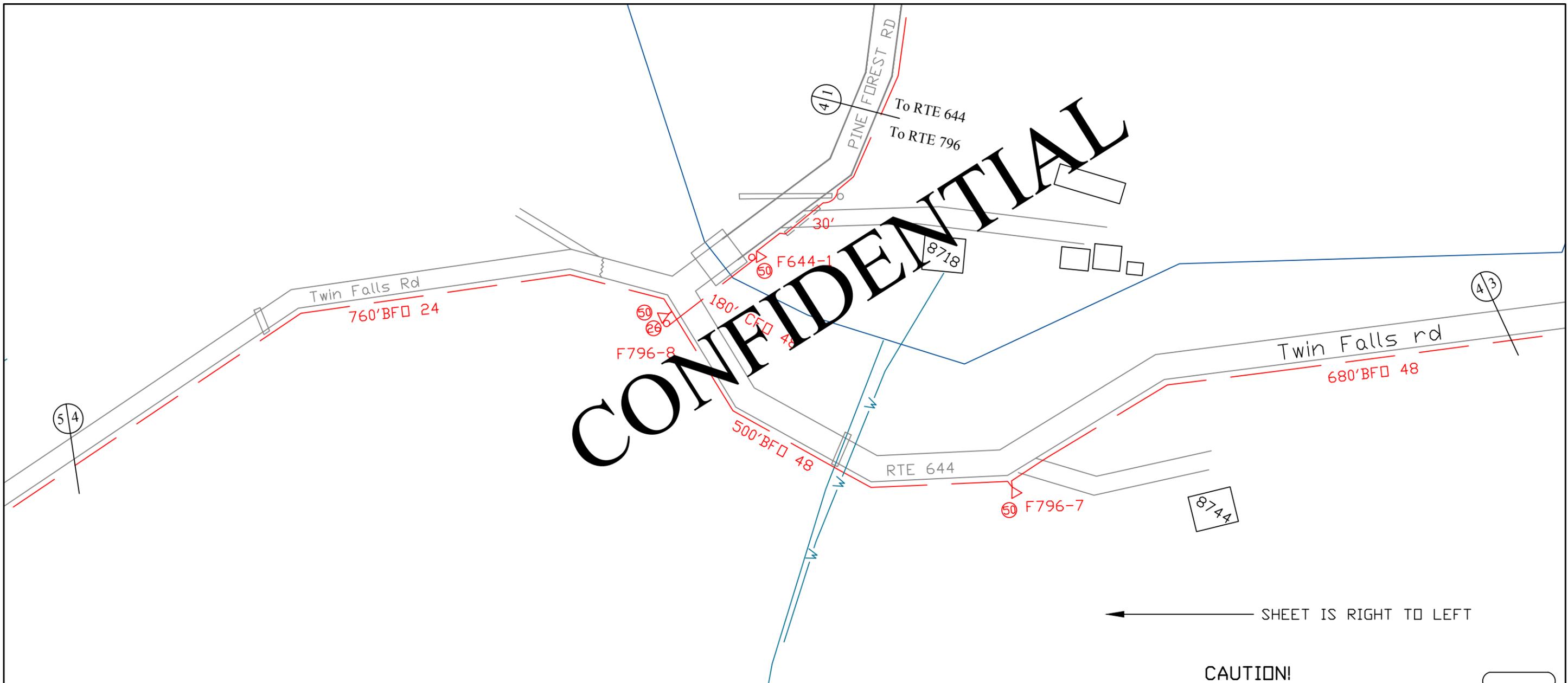
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EASEMENT SECURED BY:
 RESIDENT
 CONTRACTOR:
 STAKED BY: BM DATE:
 AS BUILT BY: DATE:
 W.O./JOB# TAX DIST. FLOYD
 SCH# MAP#

EXCHANGE: COPPER HILL FIBER PROJECT

ROUTE 796 SHEET 3 OF 8

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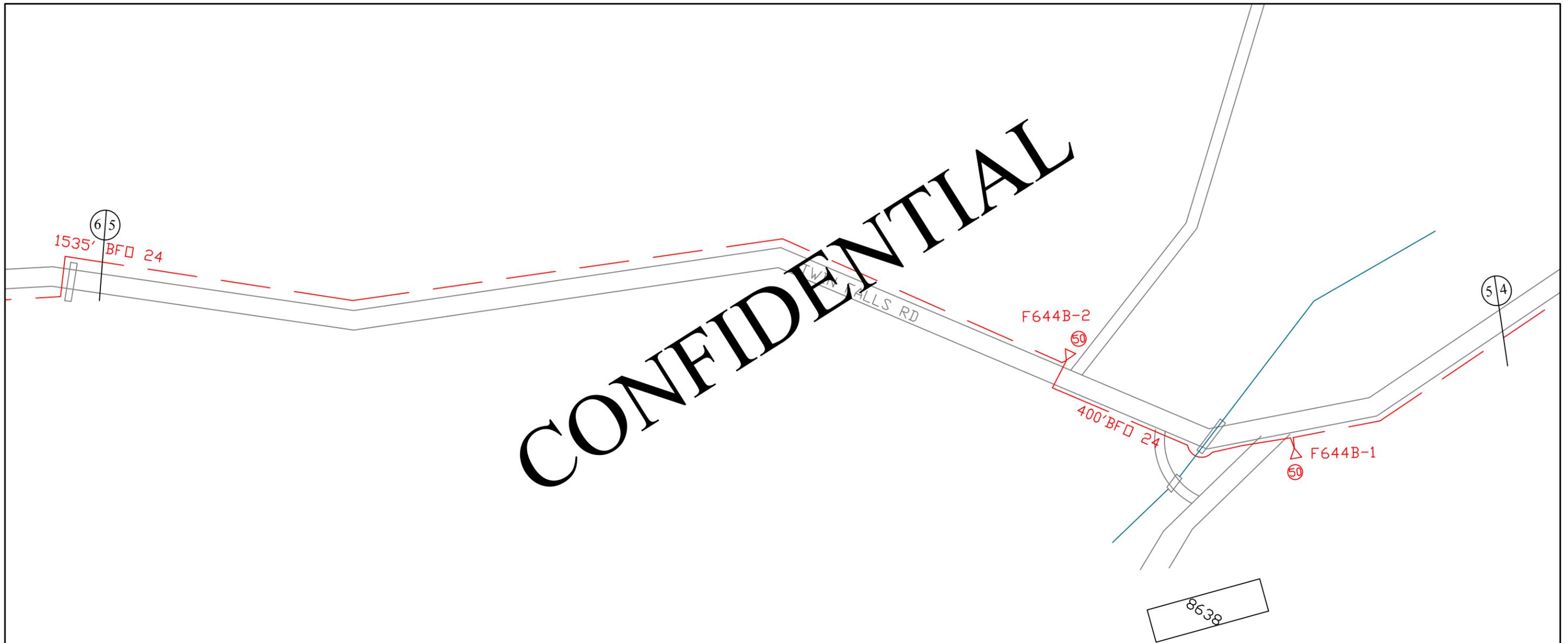
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EASEMENT SECURED BY:
 RESIDENT
 CONTRACTOR: BM
 STAKED BY: _____ DATE: _____
 AS BUILT BY: _____ DATE: _____
 W.O./JOB# _____ TAX DIST. FLOYD
 SCH# _____ MAP# _____

PEDESTAL NO.	BFD 48	CFD 48	BFC	BD 5	BD 7	BG	BM-UNITS				POLE OR BA-	PE	PF	SEB	SEB	HC	X	W	REMARKS
							2	61											
F796-7	680'			1			1	30'											
F796-8	500'				1		1			1	1	1							
F644-1		180'		1			1			1	1	1							
TOTALS	1240'	280'		2			1			2	2	2							

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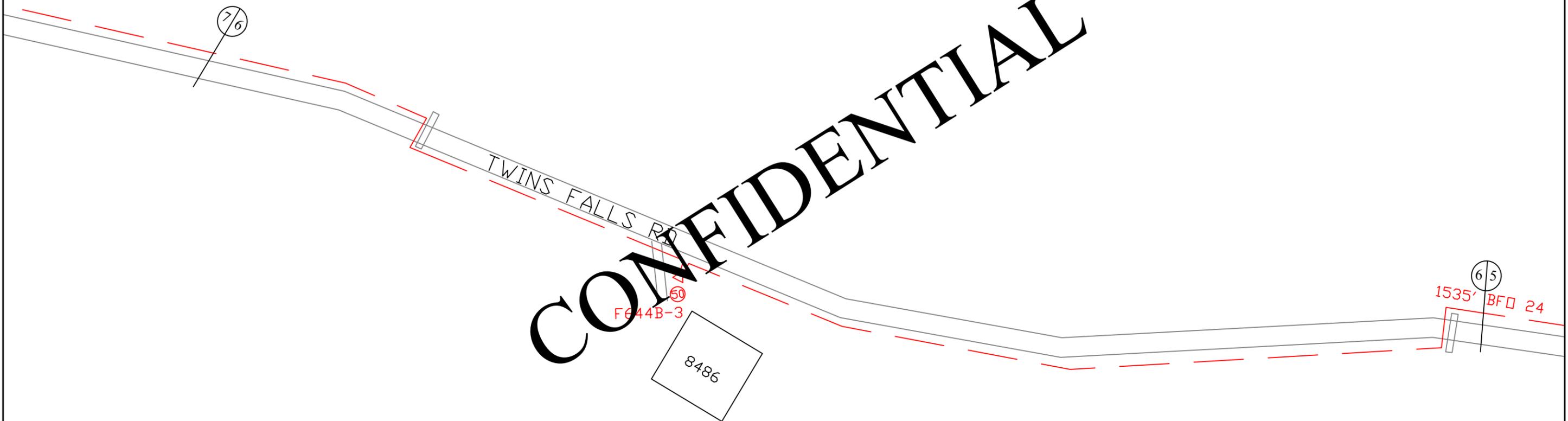
PEDESTAL NO.	BFD 24	BFC	BFC	BD 5	BD	BG	BM-UNITS				POLE OR BA-	PE	PF	SEB	SEB	HC	X	W	REMARKS
							2												
F644B-1	760'			1			1												
F644B-2	400'			1			1												
TOTALS	1260'			2			2												

EASEMENT SECURED BY:
 RESIDENT
 CONTRACTOR:
 STAKED BY: BM DATE:
 AS BUILT BY: DATE:
 W.O./JOB# TAX DIST. FLOYD
 SCH# MAP#

EXCHANGE: COPPER HILL FIBER PROJECT

ROUTE 644  SHEET 5 OF 8

CONFIDENTIAL



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CAUTION!

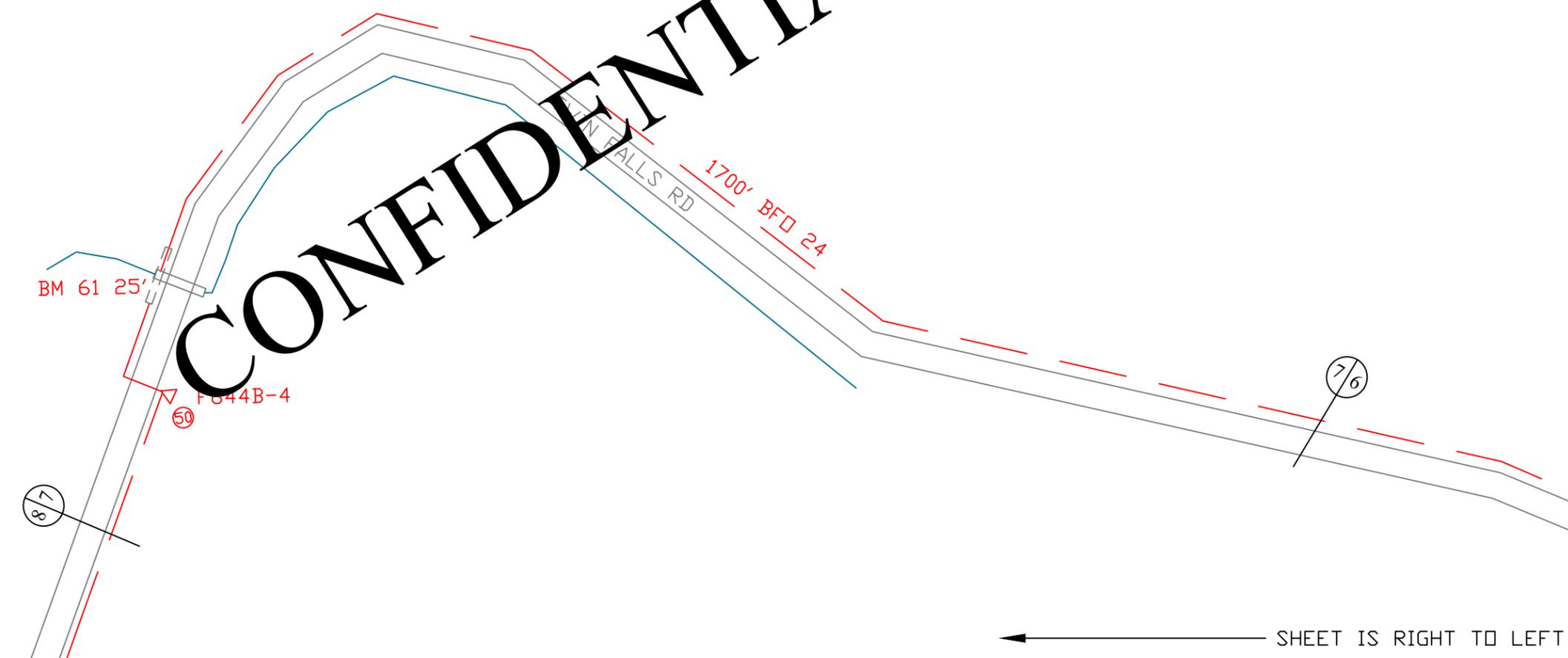
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PEDESTAL NO.	BFC 24	BFC	BFC	BD 5	BD	BG	BM-UNITS				POLE OR BA-	PE	PF	SEB	SEB	HC	X	W	REMARKS
							2												
F644B-3	1536'			1			1												
TOTALS	1586'			1			1												

EASEMENT SECURED BY:
 RESIDENT
 CONTRACTOR:
 STAKED BY: BM DATE:
 AS BUILT BY: DATE:
 W.O./JOB# TAX DIST.FLOYD
 SCH# MAP#

EXCHANGE: COPPER HILL FIBER PROJECT

CONFIDENTIAL



PEDESTAL NO.	BFC 24	BFC	BFC	BD 5	BD	BG	BM-UNITS				POLE OR BA-	PE	PF	SEB	SEB	HC	X	W	REMARKS
							2	61											
F644B-4	1700'			1			1	25'											
TOTALS	1750'			1			1	25'											

CAUTION!
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EASEMENT SECURED BY:
 RESIDENT
 CONTRACTOR:
 STAKED BY: BM DATE:
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 W.O./JOB# TAX DIST. FLOYD
 SCH# MAP#

EXCHANGE: COPPER HILL FIBER PROJECT

ROUTE 644  SHEET 7 OF 8

CONFIDENTIAL

GATE TO
TWIN FALLS PRESERVE

8317

TWIN FALLS RD

776' BFO 24

F644B-5

87

← SHEET IS RIGHT TO LEFT

PEDESTAL NO.	BFO 24	BFC	BFC	BD 5	BD	BG	BM-UNITS				POLE OR BA-	PE	PF	SEB	SEB	HC	X	W	REMARKS
							2												
F644B-5	776'			1			1												
TOTALS	826'			1			1												

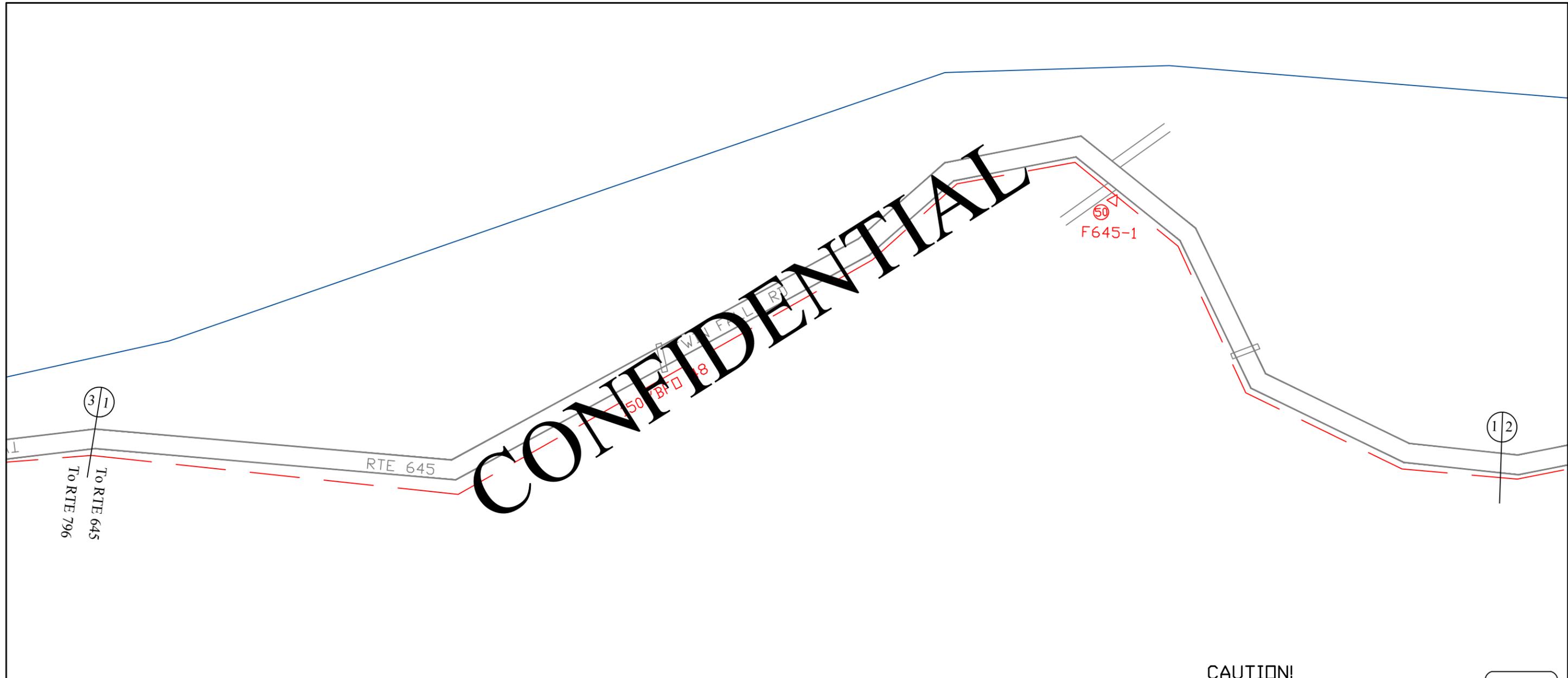
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EASEMENT SECURED BY:
 RESIDENT
 CONTRACTOR:
 STAKED BY: BM DATE:
 AS BUILT BY: DATE:
 W.O./JOB# TAX DIST.FLOYD
 SCH# MAP#

EXCHANGE: COPPER HILL FIBER PROJECT

ROUTE 644  SHEET 8 OF 8

CONFIDENTIAL



PEDESTAL NO.	BFD	BFC	BFC	BD	BD	BG	BM-UNITS				POLE OR BA-	PE	PF	SEB	SEB	HC	X	W	REMARKS
							2	61											
F645-1	1500'			1			1	30'											
TOTALS	1550'			1			1	30'											

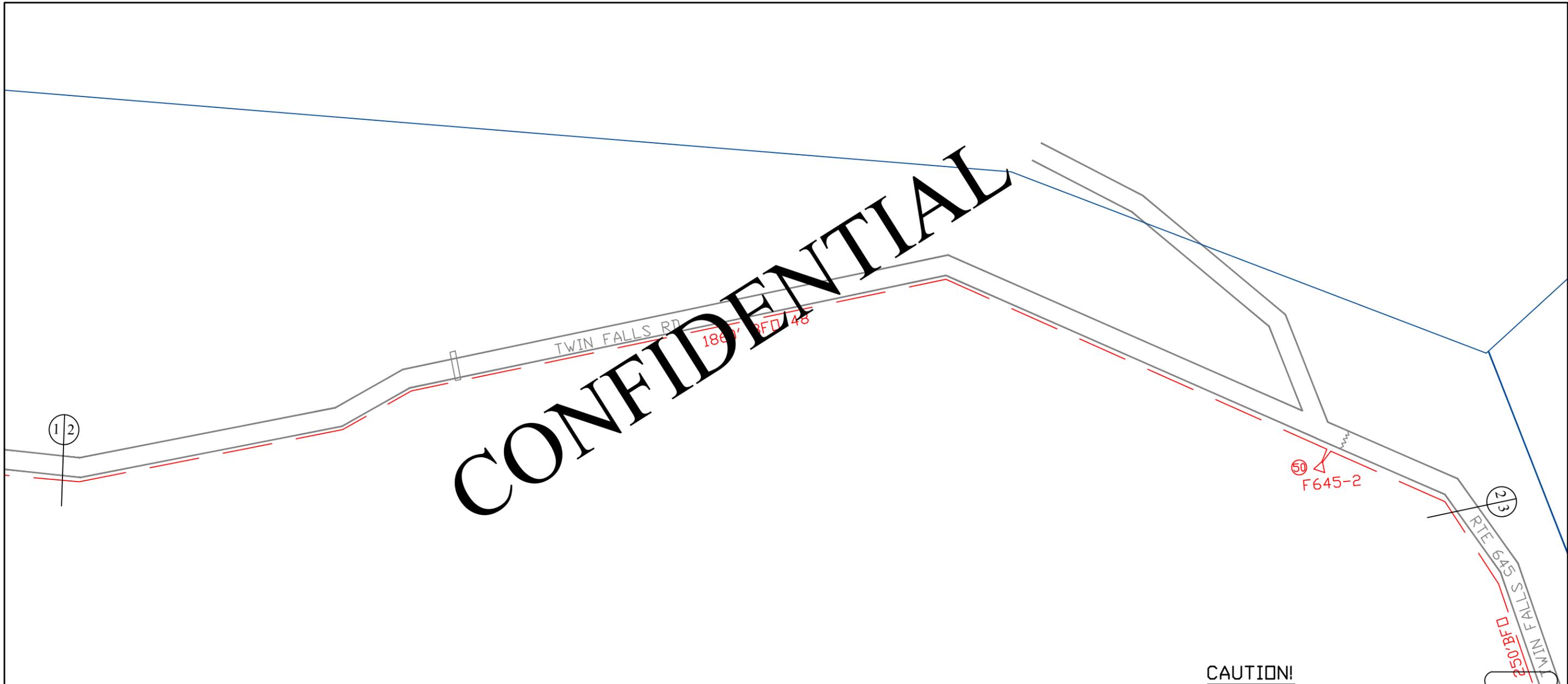
CAUTION!
RESTRICTED CONSTRUCTION CORRIDOR
 WHILE AN EFFORT HAS BEEN MADE TO INDICATE THE PRESENCE OF UNDERGROUND FACILITIES, THERE IS NO GUARANTEE THAT THOSE SHOWN ARE LOCATED PROPERLY OR THAT THOSE SHOWN ARE ALL THAT EXIST.

EASEMENT SECURED BY:
 RESIDENT
 CONTRACTOR:
 STAKED BY: BM DATE:
 AS BUILT BY: DATE:
 W.O./JOB# TAX DIST.FLOYD
 SCH# MAP#

EXCHANGE: COPPER HILL FIBER PROJECT

ROUTE 645 SHEET 1 OF 9

CONFIDENTIAL



PEDESTAL NO.	BFC	BFC	BFC	BD	BD	BG	BM-UNITS				POLE OR BA-	PE	PF	SEB	SEB	HC	X	W	REMARKS
							2												
F645-2	1860'			1			1												
TOTALS	1910'			1			1												

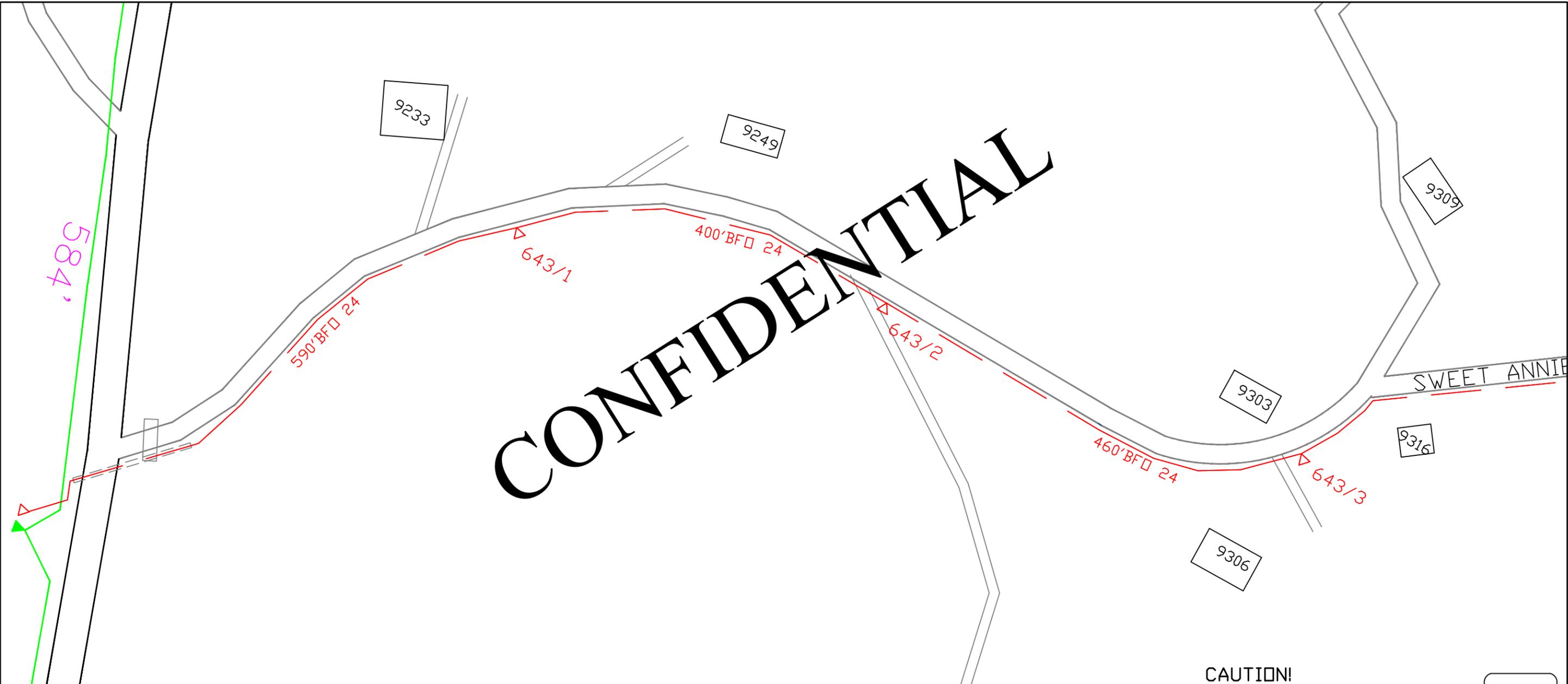
CAUTION!
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EASEMENT SECURED BY:
 RESIDENT
 CONTRACTOR:
 STAKED BY: BM DATE:
 AS BUILT BY: DATE:
 W.O./JOB# TAX DIST.FLOYD
 SCH# MAP#

EXCHANGE: COPPER HILL FIBER PROJECT

ROUTE 645 SHEET 2 OF 9

CONFIDENTIAL



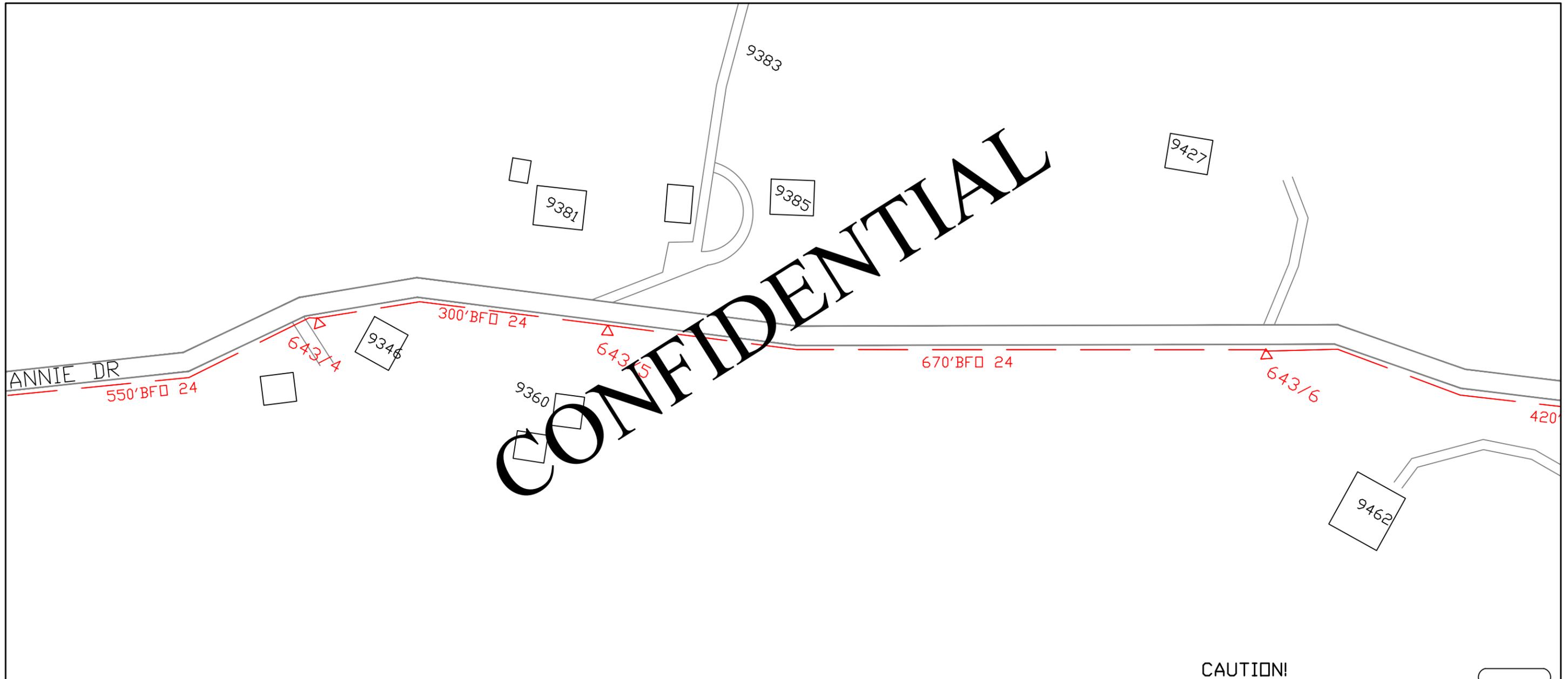
CAUTION!

RESTRICTED CONSTRUCTION CORRIDOR
 WHILE AN EFFORT HAS BEEN MADE TO INDICATE THE PRESENCE OF UNDERGROUND FACILITIES, THERE IS NO GUARANTEE THAT THOSE SHOWN ARE LOCATED PROPERLY OR THAT THOSE SHOWN ARE ALL THAT EXIST.

PEDESTAL NO.	BFD 24	BFC	BFC	BD 5	BD	BG	BM-UNITS				POLE OR BA-	PE	PF	SEB	SEB	HC	X	W	REMARKS
221F																			
643F-1	590			1															
643F-2	400			1															
643F-3	460			1															
TOTALS																			

EASEMENT SECURED BY:
 RESIDENT
 CONTRACTOR:
 STAKED BY: DATE:
 AS BUILT BY: DATE:
 W.O./JOB# TAX DIST. Floyd
 SCH# MAP#

EXCHANGE: COPPER HILL FIBER PROJECT



PEDESTAL NO.	BFD 24	BFC	BFC	BD 5	BD	BG	BM-UNITS				POLE OR BA-	PE	PF	SEB	SEB	HC	X	W	REMARKS
643F-4	550			1															
643F-5	300			1															
643F-6	670			1															
TOTALS																			

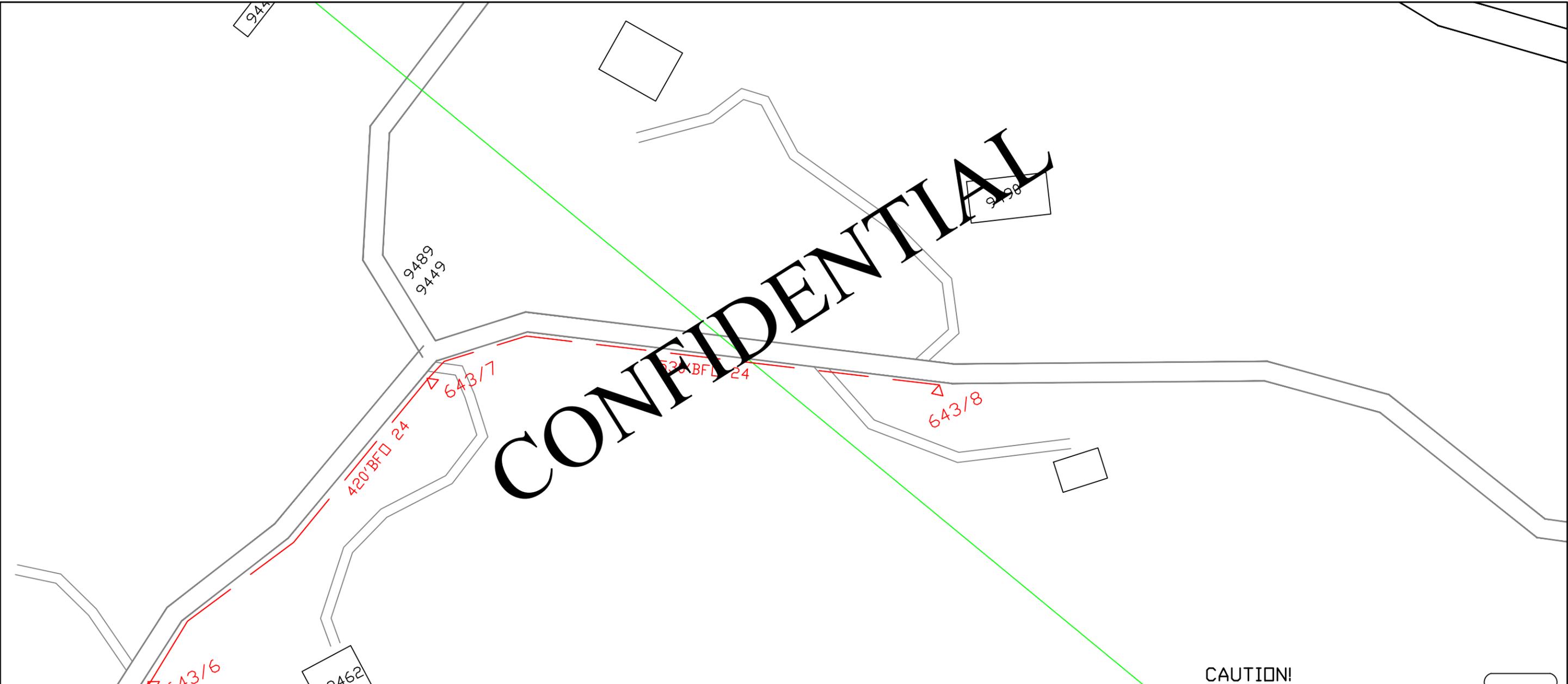
CAUTION!
RESTRICTED CONSTRUCTION CORRIDOR
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EASEMENT SECURED BY:
 RESIDENT
 CONTRACTOR:
 STAKED BY: DATE:
 AS BUILT BY: DATE:
 W.O./JOB# TAX DIST. Floyd
 SCH# MAP#

EXCHANGE: COPPER HILL FIBER PROJECT

ROUTE 643  SHEET 2 OF 3

CONFIDENTIAL



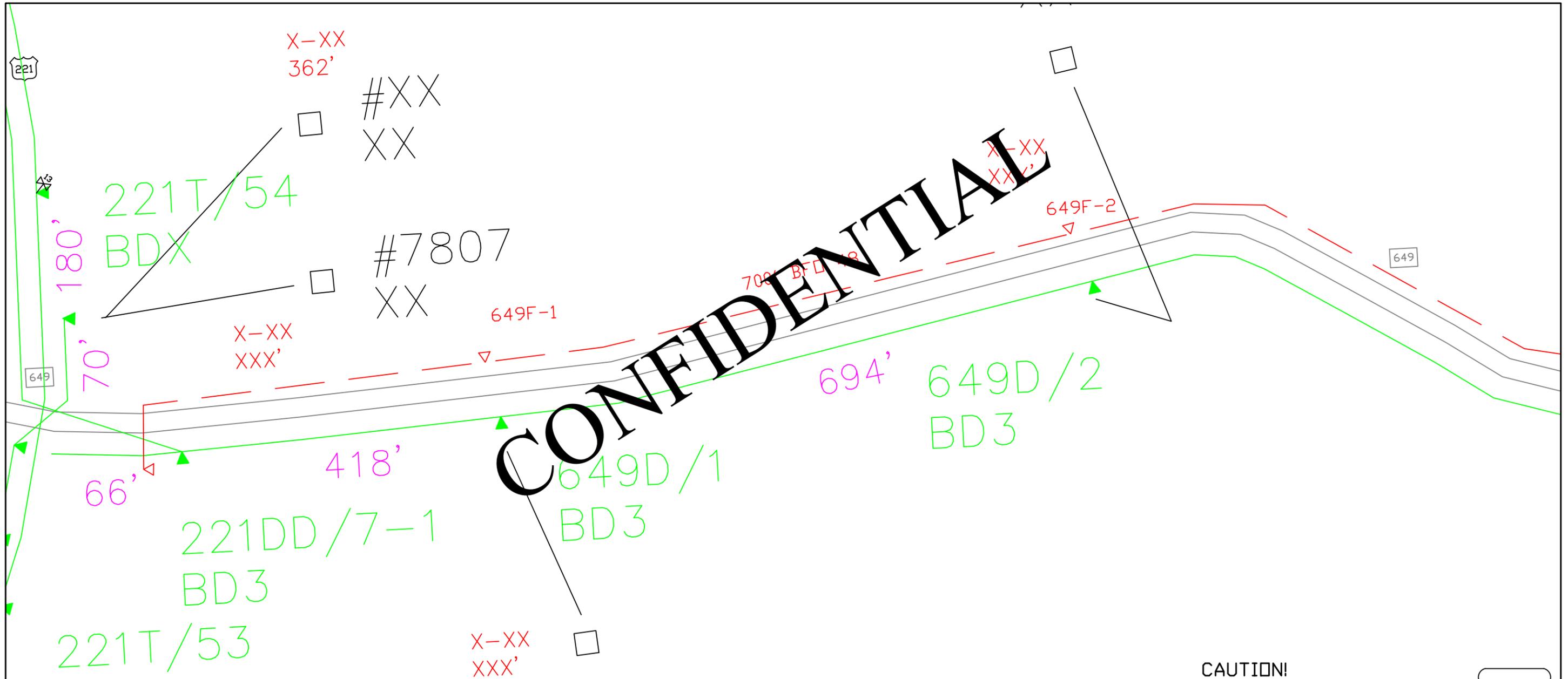
PEDESTAL NO.	BFD	BFC	BFC	BD	BD	BG	BM-UNITS					POLE OR BA-	PE	PF	SEB	SEB	HC	X	W	REMARKS
643F-7	420			1																
643F-8	530			1																
TOTALS																				

CAUTION!
RESTRICTED CONSTRUCTION CORRIDOR
 WHILE AN EFFORT HAS BEEN MADE TO INDICATE THE PRESENCE OF UNDERGROUND FACILITIES, THERE IS NO GUARANTEE THAT THOSE SHOWN ARE LOCATED PROPERLY OR THAT THOSE SHOWN ARE ALL THAT EXIST.

EASEMENT SECURED BY:
 RESIDENT
 CONTRACTOR:
 STAKED BY: DATE:
 AS BUILT BY: DATE:
 W.O./JOB# TAX DIST. Floyd
 SCH# MAP#

EXCHANGE: COPPER HILL FIBER PROJECT

ROUTE 643 SHEET 3 OF 3



PEDESTAL NO.	BFD	BFC	BFC	BD	BD	BG	BM-UNITS				POLE OR BA-	PE	PF	SEB	SEB	HC	X	W	REMARKS
221F																			
649F-1	425			1															
649F-2	620			1															
TOTALS																			

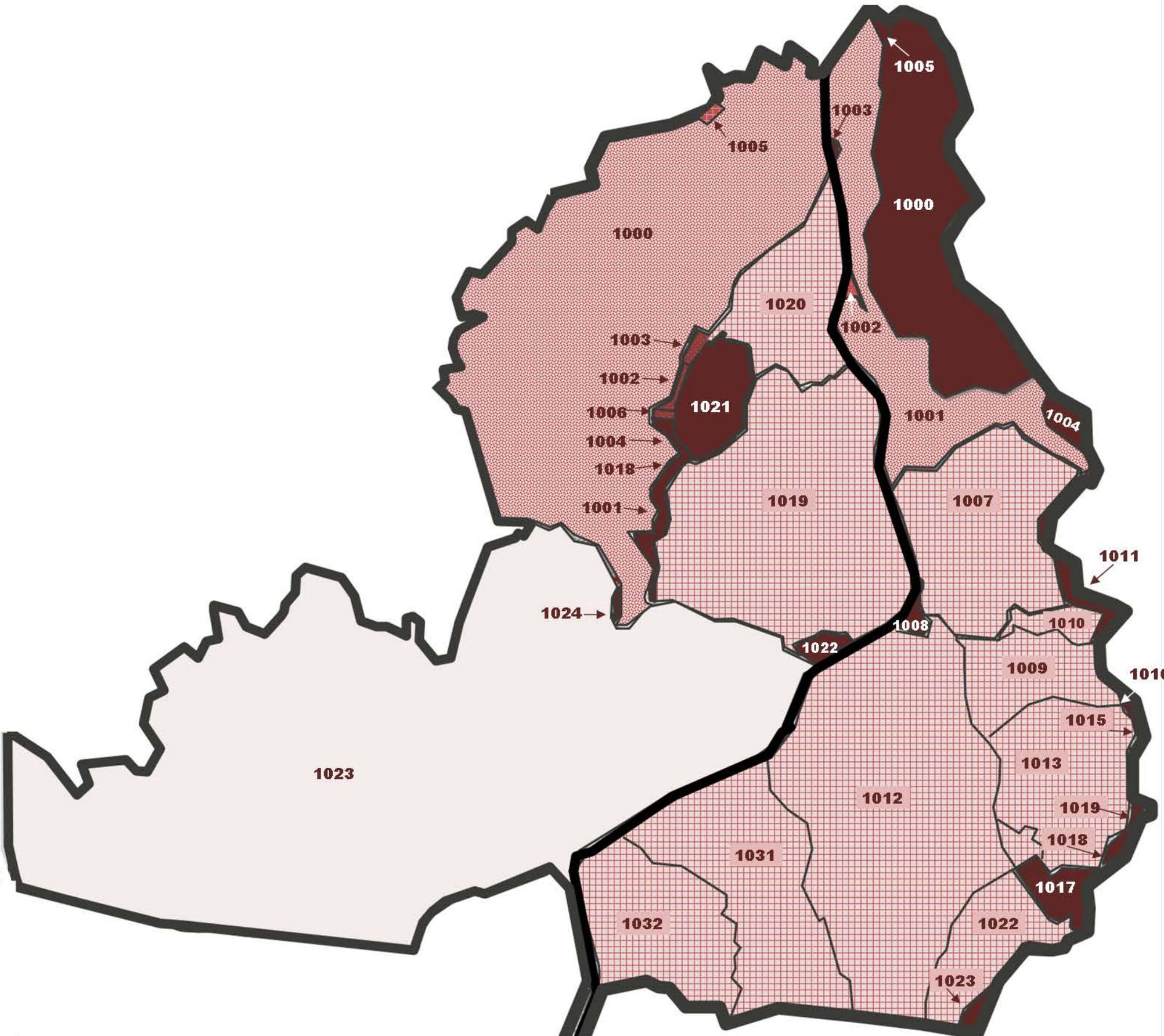
CAUTION!
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EASEMENT SECURED BY:
 RESIDENT
 CONTRACTOR:
 STAKED BY: DATE:
 AS BUILT BY: DATE:
 W.O./JOB# TAX DIST. Floyd
 SCH# MAP#

EXCHANGE: COPPER HILL FIBER PROJECT

ROUTE 649  SHEET 1 OF 6

Provider Service Map by Census Block per Broadbandnow.com



-  No providers
-  Cox Communications Only
-  Verizon High Speed Internet Only
-  Verizon High Speed Internet and Cox Communications
-  Verizon High Speed Internet and Citizens
-  Verizon High Speed Internet, Cox Communications and Citizens

 Route 221, Floyd Highway

1022 Census Block

Notes:

- 1) HughesNet offers Satellite internet, which they say offers up to 25 Mbps down and 3 Mbps up; however, our research found it is not dependable, especially in wet weather, and it is much more expensive (4 to 20 times more expensive) than Citizens would be.
- 2) Verizon and AT&T say they offer up to 10 Mbps via 4G technology to most of Copper Hill; however, the fine print confirms speeds can be 5 Mbps or less. Our research shows that they have exorbitantly more expensive rates (8-63 times more expensive than Citizens would be).
- 3) Broadbandnow.com bases information on FCC form 477 submitted twice annually.
- 4) Despite Cox Communications showing up in a few Census blocks as a provider, our extensive research revealed that only 1 customer in the Project Area has true fixed broadband, and they are literally within 400 yards of the County line with Roanoke County which is served by Cox. Otherwise, no one else in this area is believed to have access to fixed 10Mbps download/1Mbps upload service.
- 5) We researched the high and low address of every road listed in our project area with both Cox and Verizon (Cox through webchats, phone calls, and smartmove.com, and Verizon through online address look up service.)

Floyd County Board of Superbisors

P.O. Box 218
Floyd, Virginia
24091

December 13, 2018

Tamarah Holmes, Ph.D.
Associate Director of Policy and Strategic Development
Virginia Department of Housing and Community Development
600 E Main St #300, Richmond, VA 23219

Dear Dr. Holmes,

We are delighted to submit this application for infrastructure assistance to help provide over 265 homes and businesses with much-needed internet connectivity. The purpose of this letter is to commit County match in the form of in-kind assistance, and to lay out the shape and roles of the collaboration with Citizens Telephone Cooperative (Citizens), our Co-applicant which is also headquartered in Floyd.

We do not consider this a partnership in a legal sense, but rather Floyd County is pursuing grant funds to provide much-needed internet infrastructure to a portion of Floyd County and providing all of those funds to Citizens to build the infrastructure and expand their service area. Floyd County selected them as co-applicant through a request for proposals process guided by Virginia Procurement law.

The roles will be as follows:

- The co-applicant (Citizens) will perform all work as outlined in the application and follow-on agreement, if the grant is awarded.
- Grant administration including review of co-applicant requests for reimbursement, setting up EFT with funder, seeking funds, providing disbursement to Citizens, and preparing related County information for auditors will be managed by County staff (Cindy Ryan, Tabitha Hodge and Lydeana Martin), and overseen by me. All decisions on reimbursement will be made by the Grantor (DHCD), and the County will not be responsible for any non-reimbursable expenses by the co-applicant or any contractor.
- Procurement (for technical and construction services) will be led and conducted by Citizens (Dennis Reece).
- Final Engineering and permits will be led by Citizens (Dennis Reece) with support from County staff to help with local and state permits (Mark Bolt and Lydeana Martin).

- Construction will be overseen by Citizens (Dennis Reece), with planning support from County staff (Mark Bolt and Lydeana Martin).
- Promotional outreach will be led by Citizens (Robert Weeks and Lori Saltus) with support from County staff (Lydeana Martin and Tabitha Hodge).

We commit to at least 77 hours of in-kind assistance worth at least \$3,190.

We will sign a formal agreement with Citizens for services, if the grant is awarded. And we are all prepared to act promptly to get this project done within 12 months.

Thank you for your consideration and support.

Sincerely,
County of Floyd

A handwritten signature in black ink, appearing to read "Terri W. Morris". The signature is written in a cursive, flowing style.

Terri W. Morris
County Administrator



December 13, 2018

Tamarah Holmes, Ph.D.
Associate Director of Policy and Strategic Development
Virginia Department of Housing and Community Development
600 E Main St #300, Richmond, VA 23219

Tamarah,

Collaboration with Floyd County

We are delighted to be selected as a co-applicant for this project with Floyd County. This project is as close to shovel ready as possible and we plan on applying for the VDOT ROW (Right of Way) permit in January 2019. Without grant funding, Citizens will never build out this area due to the high cost and extremely long ROI (return on investment).

We have received requests to provide service in the Copper Hill area since the early 2000's, unfortunately our billing systems to date doesn't have a means for us to track such requests outside our service footprint; all data is tied to service address and facilities records and without those an account cannot be created.

We currently do not have an official collaboration, but we are willing to put that in place immediately if the project is selected.

Per discussions with the Floyd County here is our understanding of what the roles would be:

- The co-applicant (Citizens) will perform all work as outlined in the application and follow-on agreement, if the grant is awarded.
- Grant administration including review of co-applicant requests for reimbursement, setting up EFT with funder, seeking funds, providing disbursement to Citizens, and preparing related County information for auditors will be managed by County staff (Cindy Ryan, Tabitha Hodge and Lydeana Martin), and overseen by me. All decisions on reimbursement will be made by the Grantor (DHCD), and the County will not be responsible for any non-reimbursable expenses by the co-applicant or any contractor.
- Procurement (for technical and construction services) will be led and conducted by Citizens (Dennis Reece).
- Final Engineering and permits will be led by Citizens (Dennis Reece) with support from County staff to help with local and state permits (Mark Bolt and Lydeana Martin).
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- Promotional outreach will be led by Citizens (Robert Weeks and Lori Saltus) with support from County staff (Lydeana Martin and Tabitha Hodge).



Organizational and Management Skills for building FTTH networks

Citizens has been providing telecommunications service in Floyd County since 1914 and Internet service since 1995. Citizens first started building FTTH (Fiber to the Home) in Floyd County in 2014.

Our three engineers have a combined 58 years of telecommunications experience and our executive team (CEO, COO, and CFO) have a combined 67 years of telecommunications experience.

In 2013, Citizens held a FTTH (Fiber to the Home) Design Course by Light Brigade (now called FTTx OSP Design) at its office and invited all cooperatives in Virginia, West Virginia, and North Carolina, as well as Virginia Tech, Radford University, CIT, VT e-corridors, and the localities in the region to participate. Those electing to attend were Virginia Tech, CIT, VT e-corridors, and the Town of Blacksburg. Citizens had its entire engineering staff attending as well as top management and its network staff. Soon afterwards, Citizens created a new master plan to overbuild its entire ILEC (Incumbent Local Exchange Carrier) footprint with FTTH (Fiber to the Home) and it elected to start this with the Town of Floyd which was completed in 2016 offering up to 100Mbps Residential Service.

In 2017, we started a 7 year, over \$31.5 million fiber to the home (FTTH) overbuild in our ILEC (Incumbent Local Exchange Carrier) footprint after electing the FCC A-CAM (Alternative Connect America Cost Model) model. We broke down our ILEC (Incumbent Local Exchange Carrier) footprint into areas based on the placement of fiber remotes. We will be going from 55 DSL remotes to 16 fiber remotes. This plan involves building at least two areas per year, which is roughly a 100 network miles per year (excludes drops mileage which is roughly double that). Currently, we are exploring ways to speed up this deployment to be able to complete this entire project in 5 years (2021).

<https://citizens.coop/fiberexpansion/> This map shows the project areas by year and also represents our entire ILEC footprint.

This year (2018), we upgraded all FTTH customers in the town of Floyd to 1 Gbps service and that is what we offering to residential customers as we continue to build out the FTTH network over the next several years. The reason for the jump to 1 Gbps download / 500 Mbps upload was to eliminate unnecessary support calls and truck rolls related to: customers not understanding “speeds”/capacity and 80% of customers taking the lowest priced plan (the lowest “speed”/capacity) even though it doesn’t meet their needs, both of which which leads to customers using all of their download and/or upload and then a slow speed trouble ticket being created. Our 1 Gbps pricing starts at \$39.95 and is based on data usage tiers. <https://citizens.coop/citizip-fiber-pricing/>

All of our internet customer have been seeing their data usage on their bills since January of 2018. Our average internet usage per home is 165 GB per month with 40% of customers using less than 50 GB and 80% using less than 250 GB; only 1.45% use 1 TB or more per month. We believe that average users should no longer subsidize the extremely heavy data users. We also view Gigabit to the home the same as we do electricity to the home, you have more than enough capacity to support all devices in the home simultaneously and you are not having to ration out capacity to be able to use multiple devices at once. The internet “unlimited buffet” pricing model is unsustainable long term and it needs to be transition to usage based like all other utilities (electricity, water, sewer, natural gas, propane and etc). If done properly this helps with the affordability of broadband. We maintain Net Neutrality and do not throttle speeds nor do we cap usage.



As of May 2018 an estimated 1,200 homes in Floyd County could get 1 Gigabit FTTH service. We estimate that in Spring of 2019 that number will be over 2,000 homes.

On November 5th, 2018, Citizens was just recognized as a [Certified Gig-Capable Provider](#) by [NTCA \(The Rural Broadband Association\)](#), the first in Virginia.

Using our revenue and USF (Universal Service Fund including A-CAM funding), we continue to make huge investments in rural Virginia to be able to offer the services that are typically only offered in major metropolitan areas.

Financing

We have shared our latest Balance Sheet and Income Statement from October 2018 with the Floyd County for this application and each are marked "Confidential." These documents show that we have the available funding that we are committing \$347,820.42 in cash and \$117,500 in in-kind resources to this project. We are also contributing in-kind assets and the initial engineering labor for the project. For FTTH, a telecommunication remote/hut with backup power is required and without an existing hut with space this would be an estimated \$39,500 in additional project cost; (our cost a couple of years for the last hut like this that we installed).

Good Standing in Performance

Citizens is in good standing with all state, federal and local laws.

Citizens has a VITA contract with the state and with [MARIA](#) (Mid-Atlantic Research Infrastructure Alliance). Under MARIA, services are being provided to universities throughout the state with Citizens partnership with MBC (Mid-Atlantic Broadband). Under VITA, we are providing services to state agencies and under separate contracts, we are providing transport and internet circuits to local and regional libraries, four (4) local school systems, and two (2) universities and two (2) community colleges campuses.

We have successful completed four (4) projects that were at least partially funded by grants from the Tobacco Commission (TRRC) and a \$11.5 million project with \$9.2 million in grant funding from NTIA (National Telecommunications and Information Administration).

Sincerely,

A handwritten signature in black ink, appearing to read 'Dennis Reece'.

Dennis Reece
Chief Operating Officer



(RETAIN FOR YOUR RECORDS)
Form 477 Filing Summary

FRN: 0004381422 | Data as of: Dec 31, 2016 | Operations: ILEC | Submission Status: Original - Submitted | Last Updated: Mar 17, 2017 13:51:58

Filer Identification

Section	Question	Response
Filer Information	Provider Name	Citizens Telephone Cooperative
	Holding Company Name	Citizens Telephone Cooperative (VA)
	SAC ID	190225
	499 ID	801231
Data Contact Information	Data Contact Name	Cindy Weaver
	Data Contact Phone Number	(540) 745-9522
	Data Contact E-mail	cindyweaver@citizens.coop
Emergency Operations Contact Information	Emergency Operations Name	J. Gregory Sapp
	Emergency Operations Phone Number	(540) 745-2111
	Emergency Operations E-mail	gregsapp@citizens.coop
Certifying Official Contact Information	Certifying Official Name	J. Gregory Sapp
	Certifying Official Phone Number	(540) 745-2111
	Certifying Official E-mail	gregsapp@citizens.coop

Data Submitted

Form Section	File Name	Date & Time	Number of Rows
Fixed Broadband Deployment	Broadband Deployment 2016-12-31 version 1.csv	Mar 13, 2017 14:15:59	1581
Fixed Broadband Subscription	Interactive data entry		103
Fixed Voice Subscription	Interactive data entry		10

Fixed Broadband Deployment

Census Block Counts by State, DBA Name and Technology

State	DBA Name	Technology	Blocks
Virginia	Citizens Telephone Cooperative	ADSL2	897
		Cable Modem – DOCSIS 3.0	337
		Optical Carrier/Fiber to the End User	239
		VDSL	108
Total			1581

Fixed Broadband Subscription

Fixed Broadband Subscriptions by State, Technology and End-user Type

State	Technology	Census Tracts	Subscriptions		
			Consumer	Business / Govt	Total
Virginia	Asymmetric xDSL	44	4365	313	4678
	Cable Modem	27	767	43	810
	Optical Carrier/Fiber to the End User	32	179	108	287
Total		103	5311	464	5775

Fixed Broadband Subscriptions by Bandwidths and End-user Type

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
1.000	1.000	47	0	47
1.500	0.768	2057	130	2187
1.500	0.780	4	1	5
3.000	0.768	1614	91	1705
5.000	2.000	0	86	86
6.000	0.768	472	52	524
10.000	2.000	867	60	927
25.000	5.000	207	34	241
50.000	10.000	42	7	49
100.000	20.000	1	3	4
Total		5311	464	5775

Fixed Broadband Subscriptions by Technology, Bandwidths and End-user Type

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
Asymmetric xDSL	1.500	0.768	2057	130	2187
	1.500	0.780	4	1	5
	3.000	0.768	1614	91	1705
	5.000	2.000	0	18	18
	6.000	0.768	472	52	524
	10.000	2.000	144	14	158
	25.000	5.000	69	6	75
	50.000	10.000	5	1	6
Cable Modem	1.000	1.000	47	0	47
	5.000	2.000	0	22	22
	10.000	2.000	586	9	595

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Business		Total
			Consumer	Govt	
	25.000	5.000	101	9	110
	50.000	10.000	33	3	36
Optical Carrier/Fiber to the End User	5.000	2.000	0	46	46
	10.000	2.000	137	37	174
	25.000	5.000	37	19	56
	50.000	10.000	4	3	7
	100.000	20.000	1	3	4
Total			5311	464	5775

Fixed Voice Subscription

VGE Lines and VoIP Subscriptions by State and End-user Type

State	Total VGE Lines	Consumer VGE Lines	Total VoIP Subscriptions	Consumer VoIP Subscriptions
Virginia	6652	5748	0	0
Total	6652	5748	0	0

Fixed Voice Subscription (VGE Lines)

VGE Lines Provided to Unaffiliated Providers by State

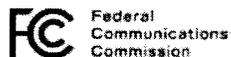
State	Wholesale	UNE-L
Virginia	0	0
Total	0	0

VGE Lines Provided to End Users by State, Bundle and Product Type

State	Total	by Bundle		by Product Type			
		Sold w/ Internet	Sold w/o Internet	Consumer		Bus-Govt	
				& No PIC	& PIC	& No PIC	& PIC
Virginia	6652	4801	1851	1665	4083	30	874
Total	6652	4801	1851	1665	4083	30	874

VGE Lines Provided to End Users by State, Ownership and Last-mile Medium

State	Total	by Ownership			by Last-mile Medium			
		Owned	UNE-L	Resale	FTTP	Coax	Fixed Wireless	Copper
Virginia	6652	6652	0	0	98	0	0	6554
Total	6652	6652	0	0	98	0	0	6554



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Form 477 Filing Summary

FRN: 0004381422 | Data as of: Jun 30, 2017 | Operations: ILEC | Submission Status: Original - Submitted | Last Updated: Aug 31, 2017 13:13:25

Filer Identification

Section	Question	Response
Filer Information	Provider Name	Citizens Telephone Cooperative
	Holding Company Name	Citizens Telephone Cooperative (VA)
	SAC ID	190225
	499 ID	801231
Data Contact Information	Data Contact Name	Cindy Weaver
	Data Contact Phone Number	(540) 745-9522
	Data Contact E-mail	cindyweaver@citizens.coop
Emergency Operations Contact Information	Emergency Operations Name	J. Gregory Sapp
	Emergency Operations Phone Number	(540) 745-2111
	Emergency Operations E-mail	gregsapp@citizens.coop
Certifying Official Contact Information	Certifying Official Name	J. Gregory Sapp
	Certifying Official Phone Number	(540) 745-2111
	Certifying Official E-mail	gregsapp@citizens.coop

Data Submitted

Form Section	File Name	Date & Time	Number of Rows
Fixed Broadband Deployment	Broadband Deployment 2017-06-30 FINAL CSV.csv	Aug 25, 2017 13:57:59	1667
Fixed Broadband Subscription	Interactive data entry		108
Fixed Voice Subscription	Interactive data entry		10

Fixed Broadband Deployment

Census Block Counts by State, DBA Name and Technology

State	DBA Name	Technology	Blocks
Virginia	Citizens Telephone Cooperative	ADSL2	900
		Cable Modem – DOCSIS 3.0	355
		Optical Carrier/Fiber to the End User	234
		VDSL	178
Total			1667

Fixed Broadband Subscription

Fixed Broadband Subscriptions by State, Technology and End-user Type

State	Technology	Census Tracts	Subscriptions		
			Consumer	Business / Govt	Total
Virginia	Asymmetric xDSL	47	4456	314	4770
	Cable Modem	26	817	49	866
	Optical Carrier/Fiber to the End User	35	200	122	322
Total		108	5473	485	5958

Fixed Broadband Subscriptions by Bandwidths and End-user Type

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
1.000	1.000	44	0	44
1.500	0.768	1942	120	2062
3.000	0.768	1626	97	1723
5.000	2.000	1	89	90
6.000	0.768	538	52	590
10.000	2.000	999	73	1072
25.000	5.000	271	42	313
50.000	10.000	50	9	59
100.000	20.000	2	3	5
Total		5473	485	5958

Fixed Broadband Subscriptions by Technology, Bandwidths and End-user Type

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
Asymmetric xDSL	1.500	0.768	1942	120	2062
	3.000	0.768	1626	97	1723
	5.000	2.000	1	20	21
	6.000	0.768	538	52	590
	10.000	2.000	242	16	258
	25.000	5.000	102	9	111
	50.000	10.000	5	0	5
Cable Modem	1.000	1.000	44	0	44
	5.000	2.000	0	20	20
	10.000	2.000	601	13	614
	25.000	5.000	130	11	141
	50.000	10.000	42	5	47

Technology	Downstream Bandwidth (in	Upstream Bandwidth (in	Business		
	Mbps)	Mbps)	Consumer	Govt	Total
Optical Carrier/Fiber to the End User	5.000	2.000	0	49	49
	10.000	2.000	156	44	200
	25.000	5.000	39	22	61
	50.000	10.000	3	4	7
	100.000	20.000	2	3	5
Total			5473	485	5958

Fixed Voice Subscription

VGE Lines and VoIP Subscriptions by State and End-user Type

State	Total VGE Lines	Consumer VGE Lines	Total VoIP Subscriptions	Consumer VoIP Subscriptions
Virginia	6656	5769	0	0
Total	6656	5769	0	0

Fixed Voice Subscription (VGE Lines)

VGE Lines Provided to Unaffiliated Providers by State

State	Wholesale	UNE-L
Virginia	0	0
Total	0	0

VGE Lines Provided to End Users by State, Bundle and Product Type

State	Total	by Bundle		by Product Type			
		Sold w/ Internet	Sold w/o Internet	Consumer		Bus-Govt	
				& No PIC	& PIC	& No PIC	& PIC
Virginia	6656	4945	1711	1745	4024	0	887
Total	6656	4945	1711	1745	4024	0	887

VGE Lines Provided to End Users by State, Ownership and Last-mile Medium

State	Total	by Ownership			by Last-mile Medium			
		Owned	UNE-L	Resale	FTTP	Coax	Fixed Wireless	Copper
Virginia	6656	6656	0	0	88	0	0	6568
Total	6656	6656	0	0	88	0	0	6568





(RETAIN FOR YOUR RECORDS)
Form 477 Filing Summary

FRN: 0004381422 | Data as of: Dec 31, 2017 | Operations: ILEC | Submission Status: Original - Submitted | Last Updated: Feb 20, 2018 10:16:25

Filer Identification

Section	Question	Response
Filer Information	Provider Name	Citizens Telephone Cooperative
	Holding Company Name	Citizens Telephone Cooperative (VA)
	SAC ID	190225
	499 ID	801231
Data Contact Information	Data Contact Name	Cindy Weaver
	Data Contact Phone Number	(540) 745-9522
	Data Contact E-mail	cindyweaver@citizens.coop
Emergency Operations Contact Information	Emergency Operations Name	J. Gregory Sapp
	Emergency Operations Phone Number	(540) 745-2111
	Emergency Operations E-mail	gregsapp@citizens.coop
Certifying Official Contact Information	Certifying Official Name	J. Gregory Sapp
	Certifying Official Phone Number	(540) 745-2111
	Certifying Official E-mail	gregsapp@citizens.coop

Data Submitted

Form Section	File Name	Date & Time	Number of Rows
Fixed Broadband Deployment	Broadband Deployment 2017-06-30 FINAL CSV.csv	Feb 15, 2018 13:32:58	1667
Fixed Broadband Subscription	Interactive data entry		113
Fixed Voice Subscription	Interactive data entry		10

Fixed Broadband Deployment

Census Block Counts by State, DBA Name and Technology

State	DBA Name	Technology	Blocks
Virginia	Citizens Telephone Cooperative	ADSL2	900
		Cable Modem – DOCSIS 3.0	355
		Optical Carrier/Fiber to the End User	234
		VDSL	178
Total			1667

**Fixed
Broadband
Subscription****Fixed Broadband Subscriptions by State, Technology and End-user Type**

State	Technology	Census Tracts	Subscriptions		
			Consumer	Business / Govt	Total
Virginia	Asymmetric xDSL	50	4528	303	4831
	Cable Modem	27	853	50	903
	Optical Carrier/Fiber to the End User	36	219	125	344
Total		113	5600	478	6078

Fixed Broadband Subscriptions by Bandwidths and End-user Type

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
1.000	1.000	42	0	42
1.500	0.768	1834	112	1946
3.000	0.768	1646	92	1738
5.000	2.000	2	91	93
6.000	0.768	642	52	694
10.000	2.000	1062	74	1136
25.000	5.000	311	43	354
50.000	10.000	59	11	70
100.000	20.000	2	3	5
Total		5600	478	6078

Fixed Broadband Subscriptions by Technology, Bandwidths and End-user Type

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
Asymmetric xDSL	1.500	0.768	1834	112	1946
	3.000	0.768	1646	92	1738
	5.000	2.000	1	20	21
	6.000	0.768	642	52	694
	10.000	2.000	287	18	305
	25.000	5.000	112	8	120
	50.000	10.000	6	1	7
Cable Modem	1.000	1.000	42	0	42
	5.000	2.000	0	21	21
	10.000	2.000	609	12	621
	25.000	5.000	152	12	164
	50.000	10.000	50	5	55

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Business		
			Consumer	Govt	Total
Optical Carrier/Fiber to the End User	5.000	2.000	1	50	51
	10.000	2.000	166	44	210
	25.000	5.000	47	23	70
	50.000	10.000	3	5	8
	100.000	20.000	2	3	5
Total			5600	478	6078

Fixed Voice Subscription

VGE Lines and VoIP Subscriptions by State and End-user Type

State	Total VGE Lines	Consumer VGE Lines	Total VoIP Subscriptions	Consumer VoIP Subscriptions
Virginia	6684	5796	0	0
Total	6684	5796	0	0

Fixed Voice Subscription (VGE Lines)

VGE Lines Provided to Unaffiliated Providers by State

State	Wholesale	UNE-L
Virginia	0	0
Total	0	0

VGE Lines Provided to End Users by State, Bundle and Product Type

State	Total	by Bundle		by Product Type			
		Sold w/ Internet	Sold w/o Internet	Consumer		Bus-Govt	
				& No PIC	& PIC	& No PIC	& PIC
Virginia	6684	4986	1698	1825	3971	0	888
Total	6684	4986	1698	1825	3971	0	888

VGE Lines Provided to End Users by State, Ownership and Last-mile Medium

State	Total	by Ownership			by Last-mile Medium			
		Owned	UNE-L	Resale	FTTP	Coax	Fixed Wireless	Copper
Virginia	6684	6684	0	0	47	0	0	6637
Total	6684	6684	0	0	47	0	0	6637



(RETAIN FOR YOUR RECORDS)
Form 477 Filing Summary

FRN: 0004381422 | Data as of: Jun 30, 2018 | Operations: ILEC | Submission Status: Original - Submitted | Last Updated: Sep 4, 2018 13:55:07

Filer Identification

Section	Question	Response
Filer Information	Provider Name	Citizens Telephone Cooperative
	Holding Company Name	Citizens Telephone Cooperative (VA)
	SAC ID	190225
	499 ID	801231
Data Contact Information	Data Contact Name	Cindy Weaver
	Data Contact Phone Number	(540) 745-9522
	Data Contact E-mail	cindyweaver@citizens.coop
Emergency Operations Contact Information	Emergency Operations Name	J. Gregory Sapp
	Emergency Operations Phone Number	(540) 745-2111
	Emergency Operations E-mail	gregsapp@citizens.coop
Certifying Official Contact Information	Certifying Official Name	J. Gregory Sapp
	Certifying Official Phone Number	(540) 745-2111
	Certifying Official E-mail	gregsapp@citizens.coop

Data Submitted

Form Section	File Name	Date & Time	Number of Rows
Fixed Broadband Deployment	Broadband Deployment 2018-06-30 FINAL.csv	Sep 1, 2018 12:05:00	1863
Fixed Broadband Subscription	Interactive data entry		127
Fixed Voice Subscription	Interactive data entry		10

Fixed Broadband Deployment

Census Block Counts by State, DBA Name and Technology

State	DBA Name	Technology	Blocks
Virginia	Citizens Telephone Cooperative	ADSL2	917
		Cable Modem – DOCSIS 3.0	366
		Optical Carrier/Fiber to the End User	356
		VDSL	224
Total			1863

Fixed Broadband Subscription

Fixed Broadband Subscriptions by State, Technology and End-user Type

State	Technology	Census Tracts	Subscriptions		
			Consumer	Business / Govt	Total
Virginia	Asymmetric xDSL	59	4520	301	4821
	Cable Modem	27	945	52	997
	Optical Carrier/Fiber to the End User	41	252	137	389
Total		127	5717	490	6207

Fixed Broadband Subscriptions by Bandwidths and End-user Type

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
1.000	1.000	41	0	41
1.500	0.768	1701	105	1806
3.000	0.768	1600	86	1686
5.000	2.000	3	94	97
6.000	0.768	620	46	666
6.000	1.500	76	11	87
10.000	2.000	1073	79	1152
25.000	5.000	339	52	391
50.000	10.000	95	11	106
100.000	20.000	0	3	3
1000.000	500.000	169	3	172
Total		5717	490	6207

Fixed Broadband Subscriptions by Technology, Bandwidths and End-user Type

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
Asymmetric xDSL	1.500	0.768	1701	105	1806
	3.000	0.768	1600	86	1686
	5.000	2.000	2	22	24
	6.000	0.768	620	46	666
	6.000	1.500	76	11	87
	10.000	2.000	363	20	383
	25.000	5.000	144	10	154
	50.000	10.000	14	1	15
Cable Modem	1.000	1.000	41	0	41
	5.000	2.000	0	23	23

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Business		Total
			Consumer	Govt	
	10.000	2.000	639	12	651
	25.000	5.000	185	13	198
	50.000	10.000	80	4	84
Optical Carrier/Fiber to the End User	5.000	2.000	1	49	50
	10.000	2.000	71	47	118
	25.000	5.000	10	29	39
	50.000	10.000	1	6	7
	100.000	20.000	0	3	3
	1000.000	500.000	169	3	172
Total			5717	490	6207

Fixed Voice Subscription

VGE Lines and VoIP Subscriptions by State and End-user Type

State	Total VGE Lines	Consumer VGE Lines	Total VoIP Subscriptions	Consumer VoIP Subscriptions
Virginia	6655	5784	0	0
Total	6655	5784	0	0

Fixed Voice Subscription (VGE Lines)

VGE Lines Provided to Unaffiliated Providers by State

State	Wholesale	UNE-L
Virginia	0	0
Total	0	0

VGE Lines Provided to End Users by State, Bundle and Product Type

State	Total	by Bundle		by Product Type			
		Sold w/ Internet	Sold w/o Internet	Consumer		Bus-Govt	
				& No PIC	& PIC	& No PIC	& PIC
Virginia	6655	5002	1653	1834	3950	0	871
Total	6655	5002	1653	1834	3950	0	871

VGE Lines Provided to End Users by State, Ownership and Last-mile Medium

State	Total	by Ownership				by Last-mile Medium			
		Owned	UNE-L	Resale	FTTP	Coax	Fixed Wireless	Copper	
Virginia	6655	6655	0	0	98	0	0	6557	
Total	6655	6655	0	0	98	0	0	6557	

Floyd County Board of Superbisors

P.O. Box 218
Floyd, Virginia
24091

December 13, 2018

Tamarah Holmes, Ph.D.
Associate Director of Policy and Strategic Development
Virginia Department of Housing and Community Development
600 E Main St #300, Richmond, VA 23219

Dear Dr. Holmes,

We are delighted to submit this application for infrastructure assistance to help provide over 265 homes and businesses with much-needed internet connectivity. The purpose of this letter is to commit County match in the form of in-kind assistance, and to lay out the shape and roles of the collaboration with Citizens Telephone Cooperative (Citizens), our Co-applicant which is also headquartered in Floyd.

We do not consider this a partnership in a legal sense, but rather Floyd County is pursuing grant funds to provide much-needed internet infrastructure to a portion of Floyd County and providing all of those funds to Citizens to build the infrastructure and expand their service area. Floyd County selected them as co-applicant through a request for proposals process guided by Virginia Procurement law.

The roles will be as follows:

- The co-applicant (Citizens) will perform all work as outlined in the application and follow-on agreement, if the grant is awarded.
- Grant administration including review of co-applicant requests for reimbursement, setting up EFT with funder, seeking funds, providing disbursement to Citizens, and preparing related County information for auditors will be managed by County staff (Cindy Ryan, Tabitha Hodge and Lydeana Martin), and overseen by me. All decisions on reimbursement will be made by the Grantor (DHCD), and the County will not be responsible for any non-reimbursable expenses by the co-applicant or any contractor.
- Procurement (for technical and construction services) will be led and conducted by Citizens (Dennis Reece).
- Final Engineering and permits will be led by Citizens (Dennis Reece) with support from County staff to help with local and state permits (Mark Bolt and Lydeana Martin).

- Construction will be overseen by Citizens (Dennis Reece), with planning support from County staff (Mark Bolt and Lydeana Martin).
- Promotional outreach will be led by Citizens (Robert Weeks and Lori Saltus) with support from County staff (Lydeana Martin and Tabitha Hodge).

We commit to at least 77 hours of in-kind assistance worth at least \$3,190.

We will sign a formal agreement with Citizens for services, if the grant is awarded. And we are all prepared to act promptly to get this project done within 12 months.

Thank you for your consideration and support.

Sincerely,
County of Floyd

A handwritten signature in black ink, appearing to read "Terri W. Morris". The signature is written in a cursive style with a large, stylized "M" at the end.

Terri W. Morris
County Administrator



December 13, 2018

Tamarah Holmes, Ph.D.
Associate Director of Policy and Strategic Development
Virginia Department of Housing and Community Development
600 E Main St #300, Richmond, VA 23219

Tamarah,

Collaboration with Floyd County

We are delighted to be selected as a co-applicant for this project with Floyd County. This project is as close to shovel ready as possible and we plan on applying for the VDOT ROW (Right of Way) permit in January 2019. Without grant funding, Citizens will never build out this area due to the high cost and extremely long ROI (return on investment).

We have received requests to provide service in the Copper Hill area since the early 2000's, unfortunately our billing systems to date doesn't have a means for us to track such requests outside our service footprint; all data is tied to service address and facilities records and without those an account cannot be created.

We currently do not have an official collaboration, but we are willing to put that in place immediately if the project is selected.

Per discussions with the Floyd County here is our understanding of what the roles would be:

- The co-applicant (Citizens) will perform all work as outlined in the application and follow-on agreement, if the grant is awarded.
- Grant administration including review of co-applicant requests for reimbursement, setting up EFT with funder, seeking funds, providing disbursement to Citizens, and preparing related County information for auditors will be managed by County staff (Cindy Ryan, Tabitha Hodge and Lydeana Martin), and overseen by me. All decisions on reimbursement will be made by the Grantor (DHCD), and the County will not be responsible for any non-reimbursable expenses by the co-applicant or any contractor.
- Procurement (for technical and construction services) will be led and conducted by Citizens (Dennis Reece).
- Final Engineering and permits will be led by Citizens (Dennis Reece) with support from County staff to help with local and state permits (Mark Bolt and Lydeana Martin).
- Construction will be overseen by Citizens (Dennis Reece), with planning support from County staff (Mark Bolt and Lydeana Martin).
- Promotional outreach will be led by Citizens (Robert Weeks and Lori Saltus) with support from County staff (Lydeana Martin and Tabitha Hodge).



Organizational and Management Skills for building FTTH networks

Citizens has been providing telecommunications service in Floyd County since 1914 and Internet service since 1995. Citizens first started building FTTH (Fiber to the Home) in Floyd County in 2014.

Our three engineers have a combined 58 years of telecommunications experience and our executive team (CEO, COO, and CFO) have a combined 67 years of telecommunications experience.

In 2013, Citizens held a FTTH (Fiber to the Home) Design Course by Light Brigade (now called FTTx OSP Design) at its office and invited all cooperatives in Virginia, West Virginia, and North Carolina, as well as Virginia Tech, Radford University, CIT, VT e-corridors, and the localities in the region to participate. Those electing to attend were Virginia Tech, CIT, VT e-corridors, and the Town of Blacksburg. Citizens had its entire engineering staff attending as well as top management and its network staff. Soon afterwards, Citizens created a new master plan to overbuild its entire ILEC (Incumbent Local Exchange Carrier) footprint with FTTH (Fiber to the Home) and it elected to start this with the Town of Floyd which was completed in 2016 offering up to 100Mbps Residential Service.

In 2017, we started a 7 year, over \$31.5 million fiber to the home (FTTH) overbuild in our ILEC (Incumbent Local Exchange Carrier) footprint after electing the FCC A-CAM (Alternative Connect America Cost Model) model. We broke down our ILEC (Incumbent Local Exchange Carrier) footprint into areas based on the placement of fiber remotes. We will be going from 55 DSL remotes to 16 fiber remotes. This plan involves building at least two areas per year, which is roughly a 100 network miles per year (excludes drops mileage which is roughly double that). Currently, we are exploring ways to speed up this deployment to be able to complete this entire project in 5 years (2021).

<https://citizens.coop/fiberexpansion/> This map shows the project areas by year and also represents our entire ILEC footprint.

This year (2018), we upgraded all FTTH customers in the town of Floyd to 1 Gbps service and that is what we offering to residential customers as we continue to build out the FTTH network over the next several years. The reason for the jump to 1 Gbps download / 500 Mbps upload was to eliminate unnecessary support calls and truck rolls related to: customers not understanding “speeds”/capacity and 80% of customers taking the lowest priced plan (the lowest “speed”/capacity) even though it doesn’t meet their needs, both of which which leads to customers using all of their download and/or upload and then a slow speed trouble ticket being created. Our 1 Gbps pricing starts at \$39.95 and is based on data usage tiers. <https://citizens.coop/citizip-fiber-pricing/>

All of our internet customer have been seeing their data usage on their bills since January of 2018. Our average internet usage per home is 165 GB per month with 40% of customers using less than 50 GB and 80% using less than 250 GB; only 1.45% use 1 TB or more per month. We believe that average users should no longer subsidize the extremely heavy data users. We also view Gigabit to the home the same as we do electricity to the home, you have more than enough capacity to support all devices in the home simultaneously and you are not having to ration out capacity to be able to use multiple devices at once. The internet “unlimited buffet” pricing model is unsustainable long term and it needs to be transition to usage based like all other utilities (electricity, water, sewer, natural gas, propane and etc). If done properly this helps with the affordability of broadband. We maintain Net Neutrality and do not throttle speeds nor do we cap usage.



As of May 2018 an estimated 1,200 homes in Floyd County could get 1 Gigabit FTTH service. We estimate that in Spring of 2019 that number will be over 2,000 homes.

On November 5th, 2018, Citizens was just recognized as a [Certified Gig-Capable Provider](#) by [NTCA \(The Rural Broadband Association\)](#), the first in Virginia.

Using our revenue and USF (Universal Service Fund including A-CAM funding), we continue to make huge investments in rural Virginia to be able to offer the services that are typically only offered in major metropolitan areas.

Financing

We have shared our latest Balance Sheet and Income Statement from October 2018 with the Floyd County for this application and each are marked "Confidential." These documents show that we have the available funding that we are committing \$347,820.42 in cash and \$117,500 in in-kind resources to this project. We are also contributing in-kind assets and the initial engineering labor for the project. For FTTH, a telecommunication remote/hut with backup power is required and without an existing hut with space this would be an estimated \$39,500 in additional project cost; (our cost a couple of years for the last hut like this that we installed).

Good Standing in Performance

Citizens is in good standing with all state, federal and local laws.

Citizens has a VITA contract with the state and with [MARIA](#) (Mid-Atlantic Research Infrastructure Alliance). Under MARIA, services are being provided to universities throughout the state with Citizens partnership with MBC (Mid-Atlantic Broadband). Under VITA, we are providing services to state agencies and under separate contracts, we are providing transport and internet circuits to local and regional libraries, four (4) local school systems, and two (2) universities and two (2) community colleges campuses.

We have successful completed four (4) projects that were at least partially funded by grants from the Tobacco Commission (TRRC) and a \$11.5 million project with \$9.2 million in grant funding from NTIA (National Telecommunications and Information Administration).

Sincerely,

A handwritten signature in black ink, appearing to read 'Dennis Reece'.

Dennis Reece
Chief Operating Officer

Cost Estimates for East of 221
(Part 1 of Copper Hill Project Area)
From Citizens Telephone Cooperative Engineering

EQUIPMENT		QTY	TOTAL		
BD	5	68			
BFO	144		36002	6.82	Miles
BFO	96				
BFO	48	27032			
BFO	24	8970			
BFO	12				
SFO	2	20900			AVERAGE 300' PER DROP

NOTE : Roads east of 221 in Copper Hill
Sweet Annie, Mountain View, Parkway, Deer run, Bear ridge, Huff Mill

MATERIAL/CONSTRUCTION PRICING ESTIMATES

MAT. / UNITS	QTY	PRICE	TOTAL	Description
BFO	36002	\$0.63	\$22,681.26	Buried fiber optic cable
BFO (LABOR)	36002	\$2.50	\$90,005.00	Labor to bury fiber optic cable
SFO	20900	\$0.25	\$5,225.00	Buried fiber optic cable drop to the building/home
SFO (LABOR)	20900	\$1.60	\$33,440.00	Labor to bury fiber optic cable drop to the buiding/home
BD5	68	\$125.00	\$8,500.00	Metal pedestal to house fiber of access and splice location
BD5 (LABOR)	68	\$100.00	\$6,800.00	Labor to set metal pedestal
SPLITTER	5	\$350.00	\$1,750.00	Device used to "split" fiber signal from 1 fiber to multiple fibers
SPLIT(LABOR)	5	\$200.00	\$1,000.00	Labor to install splitter
CASES	18	\$300.00	\$5,400.00	Enclosures used where drops or fiber optic cable ends need to be spliced together
CASES(LABOR)	18	\$400.00	\$7,200.00	Labor to instll splice cases
SPLICING	864	\$32.00	\$27,648.00	Labor to splice single strands of fiber
BM61	5400	\$15.00	\$81,000.00	Boring is a technique that consists of drilling a hole under an obstacle such as culvert, paved road or etc.
ENGINEERING	112	\$80.00	\$8,960.00	Labor for layout and design of fiber optic network
			GRAND TOTAL	
			\$299,609.26	

Cost Estimates for Twin Fall/Pine Forest

(Part 2 of Copper Hill Project Area; west of 221)

From Citizen Engineering Office

EQUIPMENT	QTY	TOTAL			
BD	5	60			
HANDHOLE	17x30x30				
BFO	144		39114	7.41	Miles
BFO	96				
BFO	48	37814			
BFO	24	1300			
BFO	12				
SFO	2	44900			AVERAGE 300' PER DROP
NOTE :	West of 221 in				
	This estimate is for twin falls rd, pine forest rd, siner rd and Copper hill rd				
MATERIAL/CONSTRUCTION PRICING ESTIMATES					
MAT. / UNITS	QTY	PRICE	TOTAL	Description	
BFO	39114	\$0.63	\$24,641.82	Buried fiber optic cable	
BFO (LABOR)	39114	\$2.50	\$97,785.00	Labor to bury fiber optic cable	
SFO	44900	\$0.25	\$11,225.00	Buried fiber optic cable drop to the building/home	
SFO (LABOR)	44900	\$1.60	\$71,840.00	Labor to bury fiber optic cable drop to the buiding/home	
BD5	60	\$125.00	\$7,500.00	Metal pedestal to house fiber of access and splice location	
BD5 (LABOR)	60	\$100.00	\$6,000.00	Labor to set metal pedestal	
SPLITTER	5	\$350.00	\$1,750.00	Device used to "split" fiber signal from 1 fiber to multiple fibers	
SPLIT(LABOR)	5	\$200.00	\$1,000.00	Labor to install splitter	
CASES	21	\$300.00	\$6,300.00	Enclosures used where drops or fiber optic cable ends need to be spliced together	
CASES(LABOR)	21	\$400.00	\$8,400.00	Labor to instll splice cases	
SPLICING	1008	\$32.00	\$32,256.00	Labor to splice single strands of fiber	
BM61	5850	\$15.00	\$87,750.00	Boring is a technique that consists of drilling a hole under an obstacle such as culvert, paved road or etc.	
ENGINEERING	120	\$80.00	\$9,600.00	Labor for layout and design of fiber optic network	
			GRAND TOTAL		
			\$366,047.82		

From Citizens Telephone Cooperative Engineering

Calix Network Configuration & Quotation

Customer Name:	CITIZENS TELEPHONE COOPERATIVE (VA)	Quote Reference Number:	609067A - 1
Project Name:	Cart: 2018-89934	Quote Type:	Equipment
Quote Description:	Copper Hill Grant	Date Created:	December 11, 2018
Author Name:	Dean Wood	Date Modified:	December 11, 2018
Contact Name:		Quote Expiration:	January 10, 2019

Equipment Summary					
Calix Part #	Part Description	CLEI	Price	Qty	Extended Price
	E7				
000-00372	E7-2 Field Install Package (CO & ODC/RT): Shelf with Blank Card, FTA, and Field installation Kit		\$646.75	1	\$646.75
	E7-2 AXOS				
100-04665	E7-2 GPON-8 r2 card	BVL3BA5FAA	\$9,096.50	2	\$18,193.00
	OIM 10GE Transport				
100-01512	10GE SFP+, Single Mode dual fiber transceiver, 10Km, 1310nm, LC, I-temp	BVL3AMDFAA	\$698.25	2	\$1,396.50
	OIM GPON AXOS				
100-05121	GPON SFP OIM, Class B+, 20Km, 1490/1310nm Single Fiber Transceiver, C-Temp, AXOS	BVL3BACFAA	\$599.65	16	\$9,594.40
Equipment Total					\$29,830.65
Extended Warranty					\$549.60
Annuity Services Total					\$549.60
Grand Total					\$30,380.25

Package Details:

000-00372 package consists of the following:

100-01449	E7-2 Shelf, 1RU, 2 Slots, with 1 Blank Card	1
100-01830	E7-2 Field Install Kit for CO & RT (19" and 23" mounting brackets, power and ground cables, etc)	1
100-03590	E7-2 Fan Tray Assembly 2 - FTA2	1

Notes & Optional Equipment and Services

All prices are being quoted in US \$ (Dollars).

Due to rounding, some totals may not correspond with the sum of the separate figures.

Unless specifically listed above, the order total shown does not reflect any charges related to shipping, taxes, insurance, customs duties or tariffs, which are the customer's sole responsibility. Unless specifically listed above, the actual freight charges incurred and related taxes will be added to your order at the time of shipping and will be reflected on your invoice. Equipment purchases are subject to our standard terms and conditions of sale, a copy of which can be found at the <https://www.calix.com/pages/terms-of-sale.html>, or (if applicable) the terms and conditions of a previously executed written sales agreement between us.

Calix Warranty Summary

With the exception of Premises Products (e.g. Optical Network Terminal equipment), Calix warrants its Products for five (5) years from the date of shipment. The warranty for Premises Products is one (1) year from date of shipment. Certain 3rd party products

Calix Network Configuration & Quotation

Customer Name:	CITIZENS TELEPHONE COOPERATIVE (VA)	Quote Reference Number:	609067A - 1
Project Name:	Cart: 2018-89934	Quote Type:	Equipment
Quote Description:	Copper Hill Grant	Date Created:	December 11, 2018
Author Name:	Dean Wood	Date Modified:	December 11, 2018
Contact Name:		Quote Expiration:	January 10, 2019

are not warranted by Calix. For these items we "pass-through" the manufacturer's warranty. For the complete Calix warranty policy please visit the Customer Service Page inside your Calix Customer Center and look for the RMA and Warranty information module. For a list of the 3rd party equipment and applicable warranties, please contact your Calix account manager.

Important Ordering Instructions:

Please include the Calix quote number (found in the upper right hand corner) on your PO. You may also provide an internal PO number to be used with your order. Orders received without an internal PO number will use the Calix quote number by default.

Include contact information (Name, Email & Tel) for the person who will receive the order acknowledgements and shipping notifications as well as the required billing and shipping addresses for your order.

Send Purchase Orders to Calix Order Management:

Email: om@calix.com

Fax: 707-283-3771

You may check the status of your order at any time on our website. (www.calix.com, click Login)

Calix Network Configuration & Quotation

Customer Name: CITIZENS TELEPHONE
COOPERATIVE (VA)
Project Name: Cart: 2018-89934
Quote Description: Copper Hill Grant
Author Name: Dean Wood
Contact Name:

Quote Reference Number: 609067A - 1
Quote Type: Equipment
Date Created: December 11, 2018
Date Modified: December 11, 2018
Quote Expiration: January 10, 2019

Optional Items Summary					
Calix Part #	Part Description	CLEI	Price	Qty	Extended Price
Extended Warranty					
110-01164	Extended Warranty - Upfront - 5 years for 100-01449		\$100.20	1	\$100.20
Optional Items Total					\$100.20

Calix Network Configuration & Quotation

Customer Name:	CITIZENS TELEPHONE COOPERATIVE (VA)	Quote Reference Number:	609067A - 1
Project Name:	Cart: 2018-89934	Quote Type:	Equipment
Quote Description:	Copper Hill Grant	Date Created:	December 11, 2018
Author Name:	Dean Wood	Date Modified:	December 11, 2018
Contact Name:		Quote Expiration:	January 10, 2019

Extended Warranty Summary				
Calix Part #	Part Description	Price	Qty	Extended Price
110-01162	Extended Warranty - Upfront - 5 years for 100-04665	\$274.80	2	\$549.60
Extended Warranty Total				\$549.60

Notes

1. The Extended Warranty purchase is available at the time of hardware purchase, prior to warranty expiration or after warranty expiration. these prices reflect purchase at the time of hardware purchase. Please contact your Calix account manager for pricing for other purchase times.
2. Extended Warranty can be purchased in single or multi-year increments up to a maximum of 10 years for infrastructure equipment (line cards) and up to 5 years for premises equipment.

Floyd County Board of Superbisors

P.O. Box 218
Floyd, Virginia
24091

December 13, 2018

Tamarah Holmes, Ph.D.
Associate Director of Policy and Strategic Development
Virginia Department of Housing and Community Development
600 E Main St #300, Richmond, VA 23219

Dear Dr. Holmes,

We are delighted to submit this application for infrastructure assistance to help provide over 265 homes and businesses with much-needed internet connectivity. The purpose of this letter is to commit County match in the form of in-kind assistance, and to lay out the shape and roles of the collaboration with Citizens Telephone Cooperative (Citizens), our Co-applicant which is also headquartered in Floyd.

We do not consider this a partnership in a legal sense, but rather Floyd County is pursuing grant funds to provide much-needed internet infrastructure to a portion of Floyd County and providing all of those funds to Citizens to build the infrastructure and expand their service area. Floyd County selected them as co-applicant through a request for proposals process guided by Virginia Procurement law.

The roles will be as follows:

- The co-applicant (Citizens) will perform all work as outlined in the application and follow-on agreement, if the grant is awarded.
- Grant administration including review of co-applicant requests for reimbursement, setting up EFT with funder, seeking funds, providing disbursement to Citizens, and preparing related County information for auditors will be managed by County staff (Cindy Ryan, Tabitha Hodge and Lydeana Martin), and overseen by me. All decisions on reimbursement will be made by the Grantor (DHCD), and the County will not be responsible for any non-reimbursable expenses by the co-applicant or any contractor.
- Procurement (for technical and construction services) will be led and conducted by Citizens (Dennis Reece).
- Final Engineering and permits will be led by Citizens (Dennis Reece) with support from County staff to help with local and state permits (Mark Bolt and Lydeana Martin).

- Construction will be overseen by Citizens (Dennis Reece), with planning support from County staff (Mark Bolt and Lydeana Martin).
- Promotional outreach will be led by Citizens (Robert Weeks and Lori Saltus) with support from County staff (Lydeana Martin and Tabitha Hodge).

We commit to at least 77 hours of in-kind assistance worth at least \$3,190.

We will sign a formal agreement with Citizens for services, if the grant is awarded. And we are all prepared to act promptly to get this project done within 12 months.

Thank you for your consideration and support.

Sincerely,
County of Floyd

A handwritten signature in black ink, appearing to read "Terri W. Morris". The signature is written in a cursive style with a large, stylized "M" at the end.

Terri W. Morris
County Administrator



December 13, 2018

Tamarah Holmes, Ph.D.
Associate Director of Policy and Strategic Development
Virginia Department of Housing and Community Development
600 E Main St #300, Richmond, VA 23219

Tamarah,

Collaboration with Floyd County

We are delighted to be selected as a co-applicant for this project with Floyd County. This project is as close to shovel ready as possible and we plan on applying for the VDOT ROW (Right of Way) permit in January 2019. Without grant funding, Citizens will never build out this area due to the high cost and extremely long ROI (return on investment).

We have received requests to provide service in the Copper Hill area since the early 2000's, unfortunately our billing systems to date doesn't have a means for us to track such requests outside our service footprint; all data is tied to service address and facilities records and without those an account cannot be created.

We currently do not have an official collaboration, but we are willing to put that in place immediately if the project is selected.

Per discussions with the Floyd County here is our understanding of what the roles would be:

- The co-applicant (Citizens) will perform all work as outlined in the application and follow-on agreement, if the grant is awarded.
- Grant administration including review of co-applicant requests for reimbursement, setting up EFT with funder, seeking funds, providing disbursement to Citizens, and preparing related County information for auditors will be managed by County staff (Cindy Ryan, Tabitha Hodge and Lydeana Martin), and overseen by me. All decisions on reimbursement will be made by the Grantor (DHCD), and the County will not be responsible for any non-reimbursable expenses by the co-applicant or any contractor.
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- Promotional outreach will be led by Citizens (Robert Weeks and Lori Saltus) with support from County staff (Lydeana Martin and Tabitha Hodge).



Organizational and Management Skills for building FTTH networks

Citizens has been providing telecommunications service in Floyd County since 1914 and Internet service since 1995. Citizens first started building FTTH (Fiber to the Home) in Floyd County in 2014.

Our three engineers have a combined 58 years of telecommunications experience and our executive team (CEO, COO, and CFO) have a combined 67 years of telecommunications experience.

In 2013, Citizens held a FTTH (Fiber to the Home) Design Course by Light Brigade (now called FTTx OSP Design) at its office and invited all cooperatives in Virginia, West Virginia, and North Carolina, as well as Virginia Tech, Radford University, CIT, VT e-corridors, and the localities in the region to participate. Those electing to attend were Virginia Tech, CIT, VT e-corridors, and the Town of Blacksburg. Citizens had its entire engineering staff attending as well as top management and its network staff. Soon afterwards, Citizens created a new master plan to overbuild its entire ILEC (Incumbent Local Exchange Carrier) footprint with FTTH (Fiber to the Home) and it elected to start this with the Town of Floyd which was completed in 2016 offering up to 100Mbps Residential Service.

In 2017, we started a 7 year, over \$31.5 million fiber to the home (FTTH) overbuild in our ILEC (Incumbent Local Exchange Carrier) footprint after electing the FCC A-CAM (Alternative Connect America Cost Model) model. We broke down our ILEC (Incumbent Local Exchange Carrier) footprint into areas based on the placement of fiber remotes. We will be going from 55 DSL remotes to 16 fiber remotes. This plan involves building at least two areas per year, which is roughly a 100 network miles per year (excludes drops mileage which is roughly double that). Currently, we are exploring ways to speed up this deployment to be able to complete this entire project in 5 years (2021).

<https://citizens.coop/fiberexpansion/> This map shows the project areas by year and also represents our entire ILEC footprint.

This year (2018), we upgraded all FTTH customers in the town of Floyd to 1 Gbps service and that is what we offering to residential customers as we continue to build out the FTTH network over the next several years. The reason for the jump to 1 Gbps download / 500 Mbps upload was to eliminate unnecessary support calls and truck rolls related to: customers not understanding “speeds”/capacity and 80% of customers taking the lowest priced plan (the lowest “speed”/capacity) even though it doesn’t meet their needs, both of which which leads to customers using all of their download and/or upload and then a slow speed trouble ticket being created. Our 1 Gbps pricing starts at \$39.95 and is based on data usage tiers. <https://citizens.coop/citizip-fiber-pricing/>

All of our internet customer have been seeing their data usage on their bills since January of 2018. Our average internet usage per home is 165 GB per month with 40% of customers using less than 50 GB and 80% using less than 250 GB; only 1.45% use 1 TB or more per month. We believe that average users should no longer subsidize the extremely heavy data users. We also view Gigabit to the home the same as we do electricity to the home, you have more than enough capacity to support all devices in the home simultaneously and you are not having to ration out capacity to be able to use multiple devices at once. The internet “unlimited buffet” pricing model is unsustainable long term and it needs to be transition to usage based like all other utilities (electricity, water, sewer, natural gas, propane and etc). If done properly this helps with the affordability of broadband. We maintain Net Neutrality and do not throttle speeds nor do we cap usage.



As of May 2018 an estimated 1,200 homes in Floyd County could get 1 Gigabit FTTH service. We estimate that in Spring of 2019 that number will be over 2,000 homes.

On November 5th, 2018, Citizens was just recognized as a [Certified Gig-Capable Provider](#) by [NTCA \(The Rural Broadband Association\)](#), the first in Virginia.

Using our revenue and USF (Universal Service Fund including A-CAM funding), we continue to make huge investments in rural Virginia to be able to offer the services that are typically only offered in major metropolitan areas.

Financing

We have shared our latest Balance Sheet and Income Statement from October 2018 with the Floyd County for this application and each are marked "Confidential." These documents show that we have the available funding that we are committing \$347,820.42 in cash and \$117,500 in in-kind resources to this project. We are also contributing in-kind assets and the initial engineering labor for the project. For FTTH, a telecommunication remote/hut with backup power is required and without an existing hut with space this would be an estimated \$39,500 in additional project cost; (our cost a couple of years for the last hut like this that we installed).

Good Standing in Performance

Citizens is in good standing with all state, federal and local laws.

Citizens has a VITA contract with the state and with [MARIA](#) (Mid-Atlantic Research Infrastructure Alliance). Under MARIA, services are being provided to universities throughout the state with Citizens partnership with MBC (Mid-Atlantic Broadband). Under VITA, we are providing services to state agencies and under separate contracts, we are providing transport and internet circuits to local and regional libraries, four (4) local school systems, and two (2) universities and two (2) community colleges campuses.

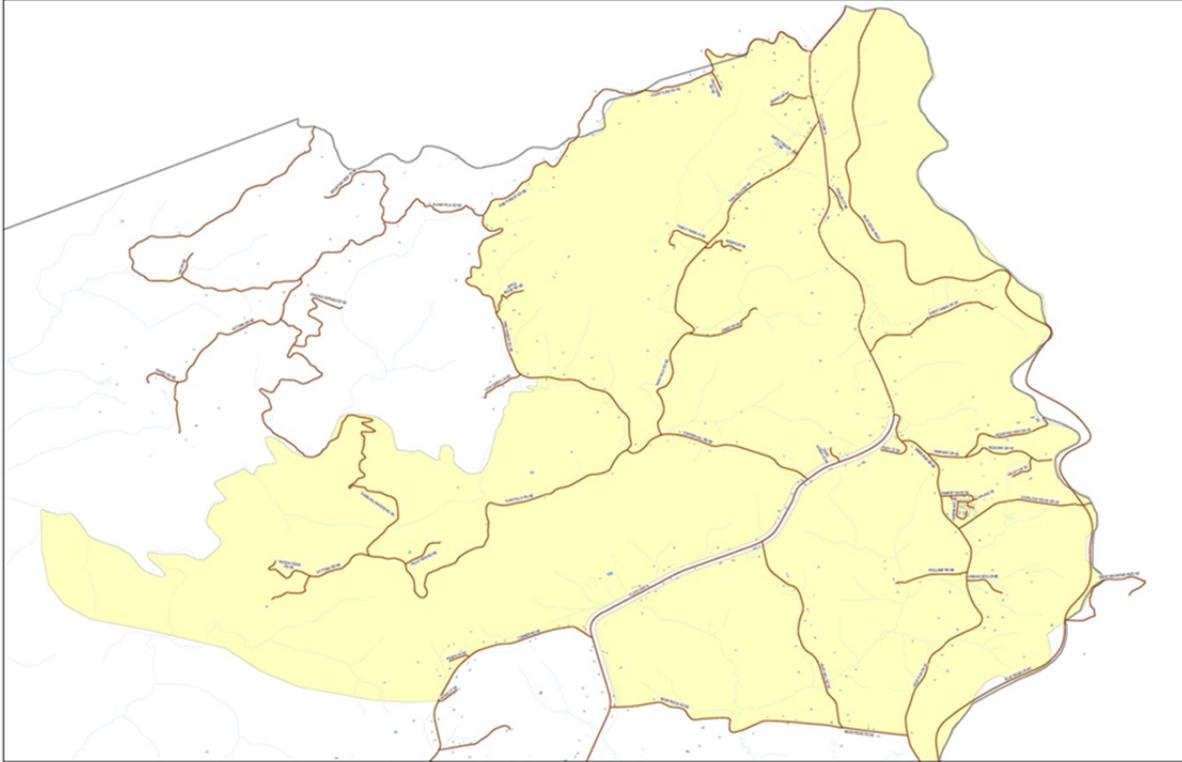
We have successful completed four (4) projects that were at least partially funded by grants from the Tobacco Commission (TRRC) and a \$11.5 million project with \$9.2 million in grant funding from NTIA (National Telecommunications and Information Administration).

Sincerely,

A handwritten signature in black ink, appearing to read 'Dennis Reece'.

Dennis Reece
Chief Operating Officer

**Broadband Service and Pricing Study
for Copper Hill Project**



December 12, 2018

Lydeana Martin and Tabitha Hodge

Floyd County Economic Development Office



Executive Summary

Floyd County is a mountainous, rural community in southwest Virginia that has a population of 15,755 people spread down over 600 miles of public roads. Local wages are the 4th lowest for any locality in Virginia.

The Project Area explored here is the northern-most tip of Floyd County and is circumscribed by the Roanoke and Franklin County lines on the north and east, Bear Ridge Rd and Conner Road to the south, and Pine Forest Rd to the west. There are approximately 307 addresses within the defined Project Area, which includes all state roads and a few private roads. About 5 of these are small businesses and one is Apple Ridge Farm, a non-profit employer which is an anchor institution for the community and thousands of youth who have been transformed by the STEM and other summer curricula. The remainder of the addresses are households, representing a population of approximately 740 people. Approximately 267 of these units will be served directly; the other 40 units are in a private development and will have fiber brought to the intersection of the state road and their private road, such that they can more easily cost-share the last stretch in the future.

Multiple research methods were used to understand and document what internet service options are available in this project area. These include use of secondary data from FCC Forms 477 made available through Broadbandnow.com, as well as primary data from Internet Service Provider website and conversations, and two surveys of residents.

As this study shows, **only 1 household out of more than 300 in this project area have access to fixed internet service greater than 10 Mbps download.** Cellular hotspot and satellite service are theoretically possibilities, but based on the pricing of significant data plans, it is readily apparent that for anyone needing the full functionality of the internet (using 250GB per month or more), there is no good and affordable option currently for these residents.

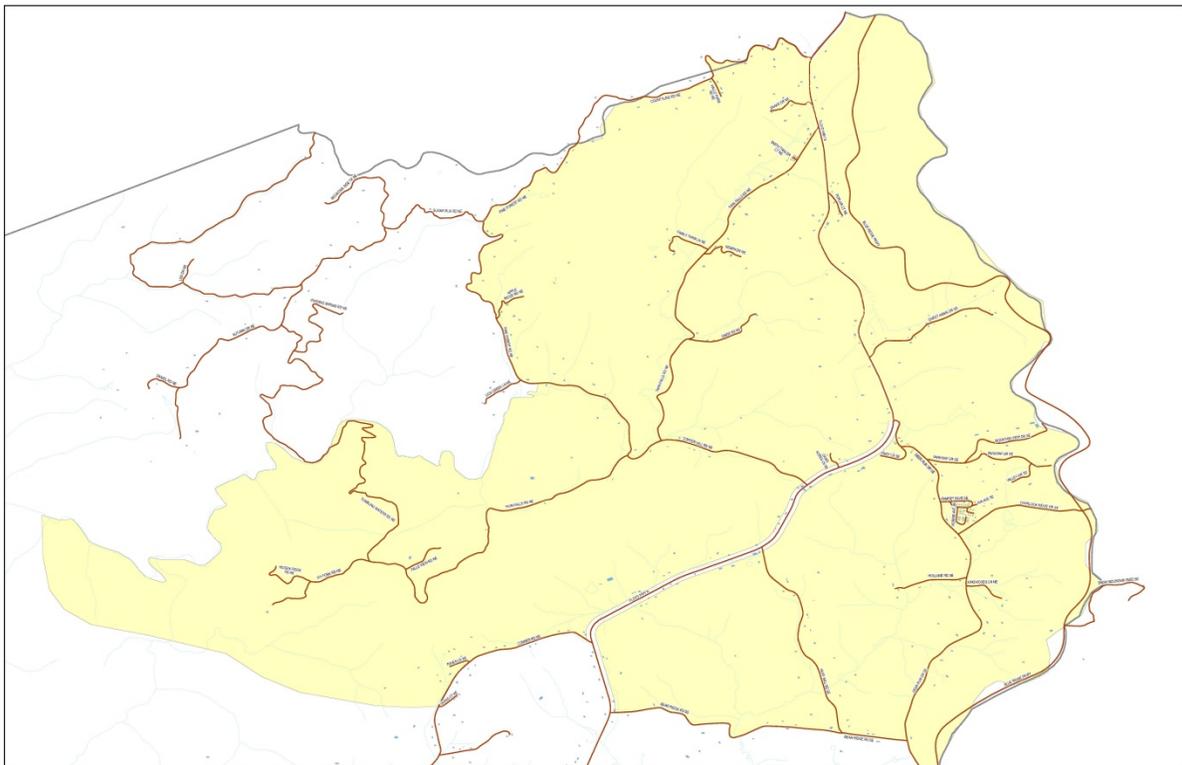
Citizens proposed offering, should the VATI grant be awarded, would offer residents speeds comparable to the major urban areas in the US at very reasonable rates: 1,000Mbps (1Gbps) Download / 500Mbps (0.5Gbps) Upload and residential pricing is based on data tiers starting as low as \$39.95 per month for 50 GB. Additional residential tiers include 250GB costing only \$59.95 (90% of current Citizens customers use less than this). These prices are a fraction of what residents would currently have to pay to access much slower satellite service or cellular hotspots. With this advanced internet service from Citizens, residents and businesses can be transformed through better access to jobs, education, health care, and entrepreneurial opportunities. All Citizen lines will be buried which provides additional protection in difficult winter weather. Unfortunately, without the grant, the costs involved to serve these rural spans are prohibitive, and Citizens would not be able to build the infrastructure and extend these services.

Project Area

The project area is along the northern tip of Floyd County, as shown in the map below. Floyd County is rural, mountainous county in southwestern Virginia with a population of about 15,755 people. There is only one town in the County, and its population is about 450. Otherwise, people are scattered down over 600 miles of state roads, about half of which are unpaved. Average weekly wages in Floyd County are \$543 (first quarter 2018 per the Virginia Employment Commission). This the 4th lowest average wage of all localities in Virginia.

The northern and eastern boundaries of the Project area are the approximately the county lines with Roanoke and Franklin counties. The southern boundaries of the project area are Bear Ridge Rd SE, Twin Falls Rd NE and Copper Hill Rd NE. The western project area boundary is Pine Forest Rd NE and Countyline Rd NE. (Note that both sides of Bear Ridge Rd SE, Twin Falls Rd NE, Copper Hill Rd NE, and Pine Forest Rd would be served.) More specifically, it's all of the state roads (listed below) in this area, with the only exclusion within this area being the southern-most portion of US 221 (about 2.5 miles of Floyd Hwy North) where Citizens already extended fiber on their own to be able to serve businesses and households. Some private roads will also be served.

Project Area Map (Highlighted Area)



The project area was selected based on unserved area, per the Virginia Telecommunications Initiative and the feasibility of extending service (benefit-to-cost ratio). Dwellings and businesses on the following

roads will be served (both sides): Apple Ridge Rd, Bear Ridge Rd SE, Cindy LN SE, Conner Rd NE, Copper Hill Rd NE, Deer Run Dr SE, Family Farm LN NE, Floyd Highway North, Holland Rd SE, Huff Mill Rd SE, Kempa Dr NE, Mountain View DR SE, Overlook Ridge Dr SE, Parkway DR SE, Pine Forest RD NE, Siner Rd NE, Smith Trailer Ct NE, Snow Mountain Pass, Sweet Annie Dr SE, Twin Falls Rd NE, and Valley Drive SE.. Note that as Fiber would pass Deer Run Dr SE, it will also pass the intersection with Ramsey Blvd SE, which then connects to Norris Ave; these are private streets in a private development, where service could be extended in the future in collaboration with the owners.

According to Floyd County 911/GIS data, the project area includes approximately 309 addresses, and over 300 of those are households. There are 2.41 people per household in Floyd County, per the American Community Survey 2013-17, so that means a total of an estimated 740 people served. Approximately 267 of these units will be served directly; the other 40 units are in a private development and will have fiber brought to the intersection of the state road and their private road, such that they can more easily cost-share the last stretch in the future.

Only 1 household in this Project Area has service that exceeds the 10 Mbps download and 1 Mbps upload; it is on 221 N at the Floyd/Roanoke County line and has a 300 Mbps connection with Cox. More on internet service and needs shortly.

There is also an important public school educational program in place since 2015 called Student Connect that the low-to-moderate-income high school students (and their families) in this area are currently deprived of. All 9th-12th grade students in our high school are loaned Chrome books for high school as they are central for their learning and homework. Most areas of the County have broadband, and to make sure income is not a barrier for access, Citizens and Floyd County Public Schools collaborate to provide Tier 3 service to each of those households. They are technically on the school's network, which provides protective filtering, and also connects them automatically to New River Community College, Radford University and Virginia Tech for any classes they take there. But students in this Copper Hill area are unable to access this currently due to being unserved by internet service. If this project is approved, Student Connect would be available to these students.

Apple Ridge Farm, a community anchor institution, will also be served. Since 1978, Apple Ridge has helped transformed the lives of 72,000 underserved children and families through engagement in "unparalleled educational, cultural and outdoor experience." Their flagship program is the Academic Summer Camp, which each summer serves 350 students aged 6-16; instructional areas include reading, writing, STEM and environmental education. They also have programs in computer programming (10 laptops) and an off-grid E-Base classroom to help students learn about sustainable energy, including analysis. But sadly, both of these programs require secured, strong, and consistent internet access, and all they have are wireless hotspots, which are sometimes damped or slowed by inclement weather, area, service or multiple device usage (see Apple Ridge Letter in Letters of Support.) They have 13 buildings in addition to dormitories, and they all lack broadband service (except wireless hotspot.)

There are also at least 5 small businesses that will gain service, including an office of Bent Mountain Lodge (see Bent Mountain Lodge letter in Letters of Support), Fusion (formerly Birch Communications), Board Farm Holdings, Apex Properties, and Alice Walker Batik.

**29.3% OF CONSUMERS IN COPPER
HILL**

500 People

Only have access to 1 or fewer wired internet providers available at their address.

This data is calculated from FCC datasets which providers are legally required to supply twice a year. We further validate this data for accuracy.

Current Internet Service in the Copper Hill Project Area

We used 4 approaches to identify providers and services and plans offered in the area: FCC data sets provided through Broadbandnow.com (updated twice/year); Internet Service Provider Websites; resident surveys from the target area (2018 on Service Currently Available and 2017 Survey on What Residents Would Do with Good Internet connectivity); and direct knowledge of Citizens Telephone Cooperative, our co-applicant to the VATI program..

Broadbandnow.Com and Provider Websites

Note that the proposed service area is comprised of multiple Census blocks, and it is only a portion of the Copper Hill zip code area. Broadbandnow.com reports that the average download speed in all of Copper Hill is 2.75 Mbps, 94.7% slower than the average in Virginia and 1396% slower than the national average; and that is all of Copper Hill, so it would be significantly lower in the targeted area, as adjacent parts of Copper Hill have much faster service.

For fixed providers, some blocks are shown as having “0 Providers,” one block is shown as having 3 providers (Verizon DSL, Cox cable, and Citizens DSL), and several are shown as having 2 providers (2 of 3 just mentioned, but combinations vary.) But this is very misleading. As will be described below, deeper research revealed that only 1 customer in the Project Area has true fixed broadband, and they are literally within 400 yards of the County line with Roanoke County along 221 and served by Cox cable. Otherwise, no one else in this area is believed to have access to fixed 10 Mbps download/1Mbps upload service. One satellite service (HughesNet) says on its website that it offers up to 25 Mbps down and 3 Mbps up, but our research (survey responses and interview with Apple Ridge Farm) found it is not dependable, especially in wet weather, and it is much more expensive (4 to 20 times more expensive) than Citizens would be. And 2 mobile providers (Verizon and ATT) say they offer up to 10 Mbps via 4G technology, but at exorbitantly more expensive rates (8-63 times more expensive than Citizens would be), but the fine print confirms speeds can be 5 Mbps or less (see inset below).

Verizon 4G LTE wireless broadband is 10 times faster than 3G—able to handle download speeds between 5 and **12 Mbps** (Megabits per second) and upload speeds between 2 and **5 Mbps**...

[4G LTE speeds vs. your home network | Verizon Wireless](https://www.verizonwireless.com/articles/4g-lte-speeds-vs-your-home-network/)

<https://www.verizonwireless.com/articles/4g-lte-speeds-vs-your-home-network/>

Also, we have checked the high and low address of every road to be served in our project area with both Cox and Verizon. We checked on Cox through webchats, phone calls, and smartmove.us, on Verizon via their direct online address look up function.) Cox provides broadband service to only 1 location (300 Mbps) in the Project Area, and it is right on 221 at the County line with Roanoke; this has to be why it shows up as being a provider in the zip code. (Anecdotally we have heard this is a Cox employee, but have not confirmed.) The highest fixed service that Verizon offers to anyone is 3 Mbps download and 1

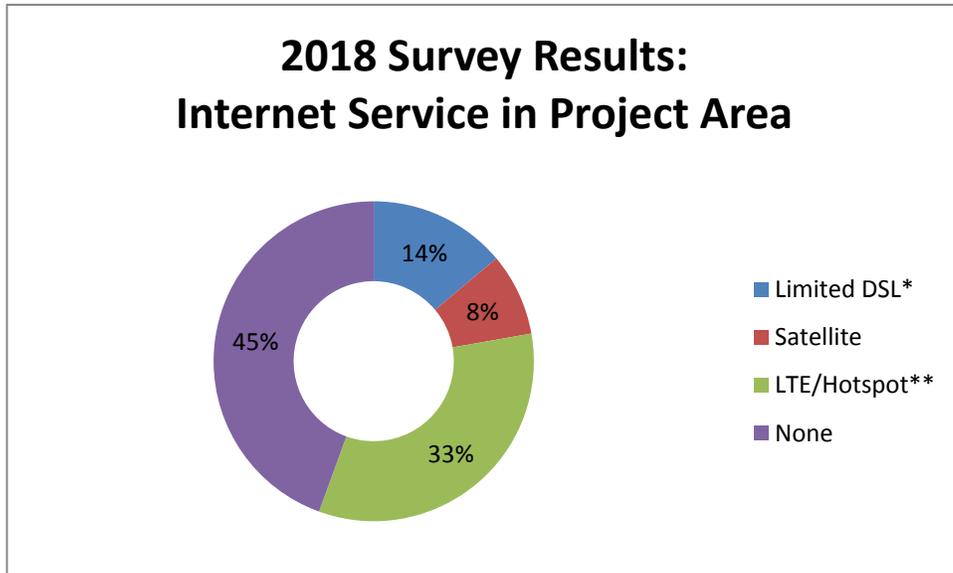
Mbps upload; and clearly this does not support residents' work, education, health and other online needs Likewise, the most that Citizens can offer currently is 6 Mbps down/1 Mbps up, but those are only the people closest to their huts.

Surveys of Residents

This lack of service was corroborated in a 2017 door-to-door survey of residents that revealed that only 5.7% had sufficient internet connectivity, and 94% needed more for bandwidth. Results shown below.

Summary of All Completed Copper Hill Surveys					
Completed Surveys	Total	%			
	52	27.66%			
AGE	Total	%	Home-based Business?	Total	%
18-24	1	1.92%	Yes	8	15.38%
25-34	11	21.15%	No	41	78.85%
35-44	3	5.77%			
45-54	11	21.15%	Own a Business?	Total	
55-64	5	9.62%	Yes	11	21.15%
65-74	13	25.00%	No	38	73.08%
75+	4	7.69%			
			Use Internet For:	Total	
Employment Status	Total		Browsing	42	80.77%
Employed Full Time	24	46.15%	Business	16	30.77%
Employed Part Time	0	0.00%	Email	43	82.69%
Self Employed	8	15.38%	Music Streaming	25	48.08%
Unemployed	2	3.85%	News	31	59.62%
Retired	15	28.85%	Online Shopping	35	67.31%
			Pay bills, banking	34	65.38%
Have Internet?			Search for Work	21	40.38%
Yes	8	15.38%	Social Media	36	69.23%
Yes, not reliable	22	42.31%	Telehealth	10	19.23%
No, but would if available	13	25.00%	Video Phone calls	23	44.23%
No		0.00%	Video Games	22	42.31%
			Video Streaming	28	53.85%
Children K-12 in home?	Total		Would Like to use Internet for: Total		
Yes	26	50.00%	Nothing - current needs met	3	5.77%
No	24	46.15%	Work from Home	13	25.00%
			Online Education and Training	20	38.46%
College Courses/Online Training?	Total		Audio/video streaming	30	57.69%
Yes	17	32.69%	Video/Web conferencing	20	38.46%
No	33	63.46%	Transmit large data files	20	38.46%
			Healthcare/monitoring	13	25.00%
Work from Home/Telecommute?	Total		Financial/banking	22	42.31%
Yes	12	23.08%	Online shopping	25	48.08%
No	38	73.08%	Other	21	40.38%
Comments: Please see the 3 files of the actual completed surveys for residents' comments					

Finally we verified the available service through an additional Broadband Survey conducted from November 27 to December 5, 2018. We had responses from 36 households in the service area, which is approximately 12%. As shown in the graph below, 45% of residents report no known option for internet, 33% rely on mobile hotspot only, and 8% on satellite service. Fourteen percent report having DSL, but the maximum speed reported was well under the 10 Mbps down/1 Mbps upload. Of the 36 survey responses, the only 2 who indicated higher speeds were 2 satellite subscribers who pay for 25 MB, but both reported that in reality they usually get way less than that. And, again, the cost of multi-gigabit data download through satellite service is exorbitant, as will be discussed next.



Pricing of Broadband

For the sake of comparison, we gathered pricing and plan information from any provider that appeared to have more than 1 customer with advertised speeds at or above the 10 Mbps down/1 Mbps threshold. Those providers are: Verizon Wireless, AT&T Wireless, HughesNet Satellite Service, and the proposed service by Citizens. The following pages provide more detail and pricing printouts from all of their websites are attached, but the table below summarizes the findings.

	Cost for Monthly Data Amounts			Speeds
	50 GB	250 GB	500 GB	
HughesNet Satellite	\$159.99	\$690.99	\$1,509.99	Up to 25 Mbps down/3 Mbps up
ATT Wireless Mobile Hotspot	\$500.00	\$2,500.00	\$5,000.00	4G LTE Wireless; up to 10 Mbps download
Verizon Wireless Mobile Hotspot	\$310.00	\$1,710.00	\$3,460.00	4G LTE Wireless; up to 10 Mbps download
Citizens	\$39.95	\$59.95	\$79.95	1 Gbps (1000 Mbps) down; 500 Mbps up

Notes about table:

- HughesNet Satellite: based on 20GB/month plan (largest); base rate is \$59.99 plus equipment lease; \$3 more per GB.
- ATT Wireless Mobile Hotspot: based on 5 GB/month data plan (largest); base rate is \$50/month; \$10 more per GB.

- Verizon Wireless Mobile Hotspot: based on "Above Unlimited" plan (largest); base rate is \$100/month; with 15GB mobile hotspot, \$35 more per 5 GB.
- Citizens: based on residential service packages.
- Verizon Broadband (fixed): not included in table because service doesn't meet definition of served per VATI.
- Cox Cable (fixed)-only found 1 address where it is available in the entire project area, despite broadband now indicating that they are in 2 or 3 Census blocks. So not included in table.

Conclusion

As this study as shown, only 1 household out of more than 300 in this project area have access to fixed internet service greater than 10 Mbps download. Cellular hotspot and satellite service are theoretically possibilities, but based on the above pricing summary table, it is readily apparent that for anyone needing the full functionality of the internet (using 250MB per month or more), there is no good and affordable option currently for these residents.

Citizens proposed offering, should the VATI grant be awarded, would offer residents speeds comparable to the major urban areas in the US at very reasonable rates: 1,000Mbps (1Gbps) Download / 500Mbps (0.5Gbps) Upload and residential pricing is based on data tiers starting as low as \$39.95 per month for 50 GB. Additional residential tiers include 250GB costing only \$59.95 (90% of current Citizens customers use less than this). Services go up to 4 TB (4,000 GB) for \$139.96/month. Business services will range from \$39.95, \$59.95, \$99.95, \$179.95 and \$299.95.

All Citizen lines will be buried which provides additional protection in difficult winter weather. With this advanced internet service, residents and businesses can be transformed through better access to jobs, education, health care, and entrepreneurial opportunities.

Floyd County is fortunate to being working with Citizens on this project. They are a well-known regional provider who has successfully managed many fiber projects from a major regional middle-mile project to recently extending fiber-to-the-premises service in and around the Town of Floyd. They have served Floyd County for over 100 years.

Recent Accolade for Citizens Telephone Cooperative

Citizens Telephone Cooperative's New River Valley Regional Open-Access Network (NRV-ROAN) project was funded in part by a federal Recovery Act's Broadband Technology Opportunities Program (BTOP) grant. This \$11.5 million project was one of only 12 Round 2 projects in a 67-project study and the only Round 2 project in Virginia to build the network initially proposed in its grant application and be completed within their proposed budget in the designated period of 36 months.

~From the Executive Summary of Postmortem Analysis of Citizens Telephone Cooperative's New River Valley Regional Open-Access Network (NRV-ROAN) Project as Funded by the Broadband Technology Opportunities Program, by Meredith Hundley, PhD.

Attachment 1

Street-Level Research on Cox and Verizon Broadband Service

Cox & Verizon Service by Street

Copper Hill Project Area

We checked for service at the first and last address for each street.

FullAddress	CITY	ZipCode	Verizon	Cox
130 APPLE RIDGE RD NE	COPPER HILL	24079	unavailable	unavailable
173 APPLE RIDGE RD NE	COPPER HILL	24079	unavailable	unavailable
7840 BEAR RIDGE RD SE	COPPER HILL	24079		
7909 BEAR RIDGE RD SE	COPPER HILL	24079	unavailable	unavailable
8012 BEAR RIDGE RD SE	COPPER HILL	24079		
8014 BEAR RIDGE RD SE	COPPER HILL	24079		
8016 BEAR RIDGE RD SE	COPPER HILL	24079		
8136 BEAR RIDGE RD SE	COPPER HILL	24079		
8154 BEAR RIDGE RD SE	COPPER HILL	24079		
8225 BEAR RIDGE RD SE	COPPER HILL	24079		
8237 BEAR RIDGE RD SE	COPPER HILL	24079		
8250 BEAR RIDGE RD SE	COPPER HILL	24079		
8256 BEAR RIDGE RD SE	COPPER HILL	24079		
8281 BEAR RIDGE RD SE	COPPER HILL	24079		
8325 BEAR RIDGE RD SE	COPPER HILL	24079		
8385 BEAR RIDGE RD SE	COPPER HILL	24079		
8405 BEAR RIDGE RD SE	COPPER HILL	24079		
8406 BEAR RIDGE RD SE	COPPER HILL	24079		
8407 BEAR RIDGE RD SE	COPPER HILL	24079		
8508 BEAR RIDGE RD SE	COPPER HILL	24079		
8463 BEAR RIDGE RD SE	COPPER HILL	24079		
8467 BEAR RIDGE RD SE	COPPER HILL	24079		
8491 BEAR RIDGE RD SE	COPPER HILL	24079	up to 3mbps	unavailable
8821 CINDY LN SE	COPPER HILL	24079	up to 3mbps	unavailable
8823 CINDY LN SE	COPPER HILL	24079		
8868 CINDY LN SE	COPPER HILL	24079	up to 3mbps	unavailable
7557 CONNER RD NE	COPPER HILL	24079	unavailable	unavailable
7654 CONNER RD NE	COPPER HILL	24079		
7665 CONNER RD NE	COPPER HILL	24079		
7667 CONNER RD NE	COPPER HILL	24079		
7669 CONNER RD NE	COPPER HILL	24079		
7677 CONNER RD NE	COPPER HILL	24079		
7688 CONNER RD NE	COPPER HILL	24079		
7710 CONNER RD NE	COPPER HILL	24079		
7726 CONNER RD NE	COPPER HILL	24079		
7753 CONNER RD NE	COPPER HILL	24079	unavailable	unavailable
7771 CONNER RD NE	COPPER HILL	24079		
7793 CONNER RD NE	COPPER HILL	24079		
7815 CONNER RD NE	COPPER HILL	24079		
7864 CONNER RD NE	COPPER HILL	24079		
7868 CONNER RD NE	COPPER HILL	24079		
7947 CONNER RD NE	COPPER HILL	24079		

FullAddress	CITY	ZipCode	Verizon	Cox
7951 CONNER RD NE	COPPER HILL	24079		
7975 CONNER RD NE	COPPER HILL	24079		
7977 CONNER RD NE	COPPER HILL	24079	up to 3mbps	unavailable
8756 COPPER HILL RD NE	COPPER HILL	24079		
8794 COPPER HILL RD NE	COPPER HILL	24079	up to 3mbps	unavailable
8910 COPPER HILL RD NE	COPPER HILL	24079		
8955 COPPER HILL RD NE	COPPER HILL	24079		
8973 COPPER HILL RD NE	COPPER HILL	24079		
9012 COPPER HILL RD NE	COPPER HILL	24079		
9014 COPPER HILL RD NE	COPPER HILL	24079		
9019 COPPER HILL RD NE	COPPER HILL	24079		
9043 COPPER HILL RD NE	COPPER HILL	24079		
9046 COPPER HILL RD NE	COPPER HILL	24079	up to 3mbps	unavailable
8948 DEER RUN DR SE	COPPER HILL	24079		
8285 DEER RUN DR SE	COPPER HILL	24079		
8016 DEER RUN DR SE	COPPER HILL	24079	up to 3mbps	unavailable
8158 DEER RUN DR SE	COPPER HILL	24079		
8236 DEER RUN DR SE	COPPER HILL	24079		
8250 DEER RUN DR SE	COPPER HILL	24079		
8261 DEER RUN DR SE	COPPER HILL	24079		
8268 DEER RUN DR SE	COPPER HILL	24079		
8305 DEER RUN DR SE	COPPER HILL	24079		
8358 DEER RUN DR SE	COPPER HILL	24079		
8360 DEER RUN DR SE	COPPER HILL	24079		
8362 DEER RUN DR SE	COPPER HILL	24079		
8364 DEER RUN DR SE	COPPER HILL	24079		
8366 DEER RUN DR SE	COPPER HILL	24079		
8402 DEER RUN DR SE	COPPER HILL	24079		
8452 DEER RUN DR SE	COPPER HILL	24079		
8479 DEER RUN DR SE	COPPER HILL	24079		
8502 DEER RUN DR SE	COPPER HILL	24079		
8530 DEER RUN DR SE	COPPER HILL	24079		
8533 DEER RUN DR SE	COPPER HILL	24079	up to 3mbps	unavailable
8570 DEER RUN DR SE	COPPER HILL	24079		
8611 DEER RUN DR SE	COPPER HILL	24079		
8650 DEER RUN DR SE	COPPER HILL	24079		
8660 DEER RUN DR SE	COPPER HILL	24079		
8723 DEER RUN DR SE	COPPER HILL	24079		
8726 DEER RUN DR SE	COPPER HILL	24079		
8765 DEER RUN DR SE	COPPER HILL	24079		
8782 DEER RUN DR SE	COPPER HILL	24079		
8865 DEER RUN DR SE	COPPER HILL	24079		
8869 DEER RUN DR SE	COPPER HILL	24079		
8904 DEER RUN DR SE	COPPER HILL	24079		
8910 DEER RUN DR SE	COPPER HILL	24079		
8911 DEER RUN DR SE	COPPER HILL	24079		
8922 DEER RUN DR SE	COPPER HILL	24079	up to 3mbps	unavailable

FullAddress	CITY	ZipCode	Verizon	Cox
231 FAMILY FARM LN NE	COPPER HILL	24079	unavailable	unavailable
251 FAMILY FARM LN NE	COPPER HILL	24079		
284 FAMILY FARM LN NE	COPPER HILL	24079		
293 FAMILY FARM LN NE	COPPER HILL	24079	unavailable	unavailable
8125 FLOYD HWY N	COPPER HILL	24079		
9025 FLOYD HWY N	COPPER HILL	24079	unavailable	unavailable
9035 FLOYD HWY N	COPPER HILL	24079		
9052 FLOYD HWY N	COPPER HILL	24079		
9104 FLOYD HWY N	COPPER HILL	24079		
9165 FLOYD HWY N	COPPER HILL	24079		
9241 FLOYD HWY N	COPPER HILL	24079		
9254 FLOYD HWY N	COPPER HILL	24079		
9263 FLOYD HWY N	COPPER HILL	24079		
9279 FLOYD HWY N	COPPER HILL	24079		
9435 FLOYD HWY N	COPPER HILL	24079		
9444 FLOYD HWY N	COPPER HILL	24079		
9539 FLOYD HWY N	COPPER HILL	24079		
9552 FLOYD HWY N	COPPER HILL	24079		
9563 FLOYD HWY N	COPPER HILL	24079		
9564 FLOYD HWY N	COPPER HILL	24079		
9572 FLOYD HWY N	COPPER HILL	24079		
9575 FLOYD HWY N	COPPER HILL	24079		
9642 FLOYD HWY N	COPPER HILL	24079		
9658 FLOYD HWY N	COPPER HILL	24079		
9660 FLOYD HWY N	COPPER HILL	24079		
9662 FLOYD HWY N	COPPER HILL	24079		
9751 FLOYD HWY N	COPPER HILL	24079		
9759 FLOYD HWY N	COPPER HILL	24079		
9791 FLOYD HWY N	COPPER HILL	24079		
9860 FLOYD HWY N	COPPER HILL	24079		
9868 FLOYD HWY N	COPPER HILL	24079		
9907 FLOYD HWY N	COPPER HILL	24079		
9918 FLOYD HWY N	COPPER HILL	24079		
9925 FLOYD HWY N	COPPER HILL	24079		
9932 FLOYD HWY N	COPPER HILL	24079		
10022 FLOYD HWY N	COPPER HILL	24079	unavailable	up to 300 mbps
8342 HOLLAND RD SE	COPPER HILL	24079	up to 3mbps	unavailable
8348 HOLLAND RD SE	COPPER HILL	24079		
8349 HOLLAND RD SE	COPPER HILL	24079		
8351 HOLLAND RD SE	COPPER HILL	24079		
8359 HOLLAND RD SE	COPPER HILL	24079		
8390 HOLLAND RD SE	COPPER HILL	24079	up to 3mbps	unavailable
8480 HOLLAND RD SE	COPPER HILL	24079		
7984 HUFF MILL RD SE	COPPER HILL	24079	unavailable	unavailable
8006 HUFF MILL RD SE	COPPER HILL	24079		
8020 HUFF MILL RD SE	COPPER HILL	24079		
8074 HUFF MILL RD SE	COPPER HILL	24079		

FullAddress	CITY	ZipCode	Verizon	Cox
8125 HUFF MILL RD SE	COPPER HILL	24079		
8151 HUFF MILL RD SE	COPPER HILL	24079		
8162 HUFF MILL RD SE	COPPER HILL	24079		
8173 HUFF MILL RD SE	COPPER HILL	24079		
8181 HUFF MILL RD SE	COPPER HILL	24079		
8228 HUFF MILL RD SE	COPPER HILL	24079		
8230 HUFF MILL RD SE	COPPER HILL	24079		
8244 HUFF MILL RD SE	COPPER HILL	24079		
8248 HUFF MILL RD SE	COPPER HILL	24079		
8315 HUFF MILL RD SE	COPPER HILL	24079		
8318 HUFF MILL RD SE	COPPER HILL	24079		
8322 HUFF MILL RD SE	COPPER HILL	24079		
8349 HUFF MILL RD SE	COPPER HILL	24079		
8364 HUFF MILL RD SE	COPPER HILL	24079		
8366 HUFF MILL RD SE	COPPER HILL	24079		
8449 HUFF MILL RD SE	COPPER HILL	24079	up to 3mbps	unavailable
124 KEMPA DR NE	COPPER HILL	24079		
107 KEMPA DR NE	COPPER HILL	24079	unavailable	unavailable
179 KEMPA DR NE	COPPER HILL	24079		
212 KEMPA DR NE	COPPER HILL	24079	unavailable	unavailable
8839 MOUNTAIN VIEW DR SE	COPPER HILL	24079	up to 3mbps	
8903 MOUNTAIN VIEW DR SE	COPPER HILL	24079		
8916 MOUNTAIN VIEW DR SE	COPPER HILL	24079		
8969 MOUNTAIN VIEW DR SE	COPPER HILL	24079		
9039 MOUNTAIN VIEW DR SE	COPPER HILL	24079	unavailable	unavailable
9041 MOUNTAIN VIEW DR SE	COPPER HILL	24079		
221 OVERLOOK RIDGE DR SE	COPPER HILL	24079	up to 3mbps	unavailable
8614 PARKWAY DR SE	COPPER HILL	24079		
8718 PARKWAY DR SE	COPPER HILL	24079		
8787 PARKWAY DR SE	COPPER HILL	24079		
8796 PARKWAY DR SE	COPPER HILL	24079	up to 3mbps	unavailable
8894 PARKWAY DR SE	COPPER HILL	24079		
8910 PARKWAY DR SE	COPPER HILL	24079		
9013 PARKWAY DR SE	COPPER HILL	24079	up to 3mbps	unavailable
9178 PINE FOREST RD NE	COPPER HILL	24079		
8718 PINE FOREST RD NE	COPPER HILL	24079		
8755 PINE FOREST RD NE	COPPER HILL	24079		
8863 PINE FOREST RD NE	COPPER HILL	24079		
8878 PINE FOREST RD NE	COPPER HILL	24079		
8950 PINE FOREST RD NE	COPPER HILL	24079		
8956 PINE FOREST RD NE	COPPER HILL	24079		
8960 PINE FOREST RD NE	COPPER HILL	24079		
8972 PINE FOREST RD NE	COPPER HILL	24079	unavailable	unavailable
8974 PINE FOREST RD NE	COPPER HILL	24079		
9011 PINE FOREST RD NE	COPPER HILL	24079		
9042 PINE FOREST RD NE	COPPER HILL	24079		
9122 PINE FOREST RD NE	COPPER HILL	24079		

FullAddress	CITY	ZipCode	Verizon	Cox
9126 PINE FOREST RD NE	COPPER HILL	24079		
9150 PINE FOREST RD NE	COPPER HILL	24079		
9198 PINE FOREST RD NE	COPPER HILL	24079		
9202 PINE FOREST RD NE	COPPER HILL	24079		
9215 PINE FOREST RD NE	COPPER HILL	24079		
9370 PINE FOREST RD NE	COPPER HILL	24079		
9385 PINE FOREST RD NE	COPPER HILL	24079		
9432 PINE FOREST RD NE	COPPER HILL	24079		
9472 PINE FOREST RD NE	COPPER HILL	24079		
9544 PINE FOREST RD NE	COPPER HILL	24079		
9548 PINE FOREST RD NE	COPPER HILL	24079		
9552 PINE FOREST RD NE	COPPER HILL	24079		
9716 PINE FOREST RD NE	COPPER HILL	24079		
9737 PINE FOREST RD NE	COPPER HILL	24079		
9786 PINE FOREST RD NE	COPPER HILL	24079		
9787 PINE FOREST RD NE	COPPER HILL	24079		
9804 PINE FOREST RD NE	COPPER HILL	24079		
9812 PINE FOREST RD NE	COPPER HILL	24079		
9831 PINE FOREST RD NE	COPPER HILL	24079		
9834 PINE FOREST RD NE	COPPER HILL	24079		
9841 PINE FOREST RD NE	COPPER HILL	24079		
9861 PINE FOREST RD NE	COPPER HILL	24079		
11879 PINE FOREST RD NE	COPPER HILL	24079		
11880 PINE FOREST RD NE	COPPER HILL	24079	unavailable	unavailable
9135 SINER RD NE	COPPER HILL	24079		
9137 SINER RD NE	COPPER HILL	24079	unavailable	unavailable
9219 SINER RD NE	COPPER HILL	24079		
9703 SMITH TRAILER CT NE	COPPER HILL	24079		
9704 SMITH TRAILER CT NE	COPPER HILL	24079		
9707 SMITH TRAILER CT NE	COPPER HILL	24079		
9708 SMITH TRAILER CT NE	COPPER HILL	24079	unavailable	unavailable
9711 SMITH TRAILER CT NE	COPPER HILL	24079		
9712 SMITH TRAILER CT NE	COPPER HILL	24079		
10 SNOW MTN PASS	COPPER HILL	24079	up to 3mbps	unavailable
9233 SWEET ANNIE DR SE	COPPER HILL	24079	up to 3mbps	unavailable
9249 SWEET ANNIE DR SE	COPPER HILL	24079		
9266 SWEET ANNIE DR SE	COPPER HILL	24079		
9303 SWEET ANNIE DR SE	COPPER HILL	24079		
9306 SWEET ANNIE DR SE	COPPER HILL	24079		
9309 SWEET ANNIE DR SE	COPPER HILL	24079		
9316 SWEET ANNIE DR SE	COPPER HILL	24079		
9346 SWEET ANNIE DR SE	COPPER HILL	24079		
9360 SWEET ANNIE DR SE	COPPER HILL	24079		
9381 SWEET ANNIE DR SE	COPPER HILL	24079		
9383 SWEET ANNIE DR SE	COPPER HILL	24079		
9385 SWEET ANNIE DR SE	COPPER HILL	24079		
9427 SWEET ANNIE DR SE	COPPER HILL	24079		

FullAddress	CITY	ZipCode	Verizon	Cox
9449 SWEET ANNIE DR SE	COPPER HILL	24079		
9462 SWEET ANNIE DR SE	COPPER HILL	24079		
9489 SWEET ANNIE DR SE	COPPER HILL	24079		
9490 SWEET ANNIE DR SE	COPPER HILL	24079		
9505 SWEET ANNIE DR SE	COPPER HILL	24079	up to 3mbps	unavailable
9775 TWIN FALLS RD NE	COPPER HILL	24079		
8317 TWIN FALLS RD NE	COPPER HILL	24079	up to 3mbps	unavailable
8371 TWIN FALLS RD NE	COPPER HILL	24079		
8486 TWIN FALLS RD NE	COPPER HILL	24079	up to 3mbps	unavailable
8609 TWIN FALLS RD NE	COPPER HILL	24079		
8613 TWIN FALLS RD NE	COPPER HILL	24079	up to 3mbps	unavailable
8638 TWIN FALLS RD NE	COPPER HILL	24079		
8744 TWIN FALLS RD NE	COPPER HILL	24079		
9067 TWIN FALLS RD NE	COPPER HILL	24079		
9114 TWIN FALLS RD NE	COPPER HILL	24079		
9183 TWIN FALLS RD NE	COPPER HILL	24079		
9261 TWIN FALLS RD NE	COPPER HILL	24079		
9315 TWIN FALLS RD NE	COPPER HILL	24079		
9432 TWIN FALLS RD NE	COPPER HILL	24079		
9456 TWIN FALLS RD NE	COPPER HILL	24079		
9480 TWIN FALLS RD NE	COPPER HILL	24079		
9520 TWIN FALLS RD NE	COPPER HILL	24079		
9540 TWIN FALLS RD NE	COPPER HILL	24079		
9604 TWIN FALLS RD NE	COPPER HILL	24079		
9609 TWIN FALLS RD NE	COPPER HILL	24079		
9631 TWIN FALLS RD NE	COPPER HILL	24079		
9671 TWIN FALLS RD NE	COPPER HILL	24079		
9676 TWIN FALLS RD NE	COPPER HILL	24079		
9687 TWIN FALLS RD NE	COPPER HILL	24079		
9691 TWIN FALLS RD NE	COPPER HILL	24079		
9745 TWIN FALLS RD NE	COPPER HILL	24079		
9761 TWIN FALLS RD NE	COPPER HILL	24079		
9773 TWIN FALLS RD NE	COPPER HILL	24079		
9783 TWIN FALLS RD NE	COPPER HILL	24079	up to 3mbps	unavailable
8960 VALLEY DR SE	COPPER HILL	24079		unavailable
8987 VALLEY DR SE	COPPER HILL	24079	up to 3 mbps	
9020 VALLEY DR SE	COPPER HILL	24079	up to 3 mbps	unavailable
125 AVA AVE SE	COPPER HILL	24079	These in yellow	
128 AVA AVE SE	COPPER HILL	24079	are in a private	
129 AVA AVE SE	COPPER HILL	24079	subdivision that	
104 LEE DR SE	COPPER HILL	24079	fiber will come to	
112 LEE DR SE	COPPER HILL	24079	perimeter of in	
114 LEE DR SE	COPPER HILL	24079	this project.	
118 LEE DR SE	COPPER HILL	24079		
119 LEE DR SE	COPPER HILL	24079		
120 LEE DR SE	COPPER HILL	24079		
124 LEE DR SE	COPPER HILL	24079		

FullAddress	CITY	ZipCode	Verizon	Cox
127 LEE DR SE	COPPER HILL	24079		
132 LEE DR SE	COPPER HILL	24079		
187 NORRIS AVE SE	COPPER HILL	24079		
105 NORRIS AVE SE	COPPER HILL	24079		
112 NORRIS AVE SE	COPPER HILL	24079		
115 NORRIS AVE SE	COPPER HILL	24079		
117 NORRIS AVE SE	COPPER HILL	24079		
118 NORRIS AVE SE	COPPER HILL	24079		
119 NORRIS AVE SE	COPPER HILL	24079		
122 NORRIS AVE SE	COPPER HILL	24079		
126 NORRIS AVE SE	COPPER HILL	24079		
131 NORRIS AVE SE	COPPER HILL	24079		
134 NORRIS AVE SE	COPPER HILL	24079		
135 NORRIS AVE SE	COPPER HILL	24079		
139 NORRIS AVE SE	COPPER HILL	24079		
143 NORRIS AVE SE	COPPER HILL	24079		
172 NORRIS AVE SE	COPPER HILL	24079		
176 NORRIS AVE SE	COPPER HILL	24079		
179 NORRIS AVE SE	COPPER HILL	24079		
180 NORRIS AVE SE	COPPER HILL	24079		
183 NORRIS AVE SE	COPPER HILL	24079		
184 NORRIS AVE SE	COPPER HILL	24079		
188 NORRIS AVE SE	COPPER HILL	24079		
191 NORRIS AVE SE	COPPER HILL	24079		
192 NORRIS AVE SE	COPPER HILL	24079		
129 RAMSEY BLVD SE	COPPER HILL	24079		
133 RAMSEY BLVD SE	COPPER HILL	24079		
137 RAMSEY BLVD SE	COPPER HILL	24079		
142 RAMSEY BLVD SE	COPPER HILL	24079		
155 RAMSEY BLVD SE	COPPER HILL	24079		
159 RAMSEY BLVD SE	COPPER HILL	24079		
163 RAMSEY BLVD SE	COPPER HILL	24079		
169 RAMSEY BLVD SE	COPPER HILL	24079		
173 RAMSEY BLVD SE	COPPER HILL	24079		
179 RAMSEY BLVD SE	COPPER HILL	24079		
183 RAMSEY BLVD SE	COPPER HILL	24079		
201 RAMSEY BLVD SE	COPPER HILL	24079		
203 RAMSEY BLVD SE	COPPER HILL	24079		
215 RAMSEY BLVD SE	COPPER HILL	24079		
229 RAMSEY BLVD SE	COPPER HILL	24079		
*Note: Addresses not included in official count but are being assisted indirectly				

Attachment 2

Details on Plans

from Verizon Wireless, ATT Wireless, HughesNet Satellite Service and proposed Citizens Service

Also see attached pages for printouts from websites on these plus services Verizon Broadband available in the area and Cox service available to one household.

“Beyond Unlimited” by Verizon

4G LTE speeds (5-12 Mbps download and 2-5Mbps upload)

22 GB per month (15 GB/line for mobile hot spot)

\$90/month for first phone, \$170 for 2 phones, \$195 for 3 phones)

“Above Unlimited” by Verizon (Highest by Verizon)

4G LTE speeds (5-12 Mbps download and 2-5Mbps upload)

75 GB per month (20 GB/line for mobile hot spot)

\$100/month for first phone, \$180 for 2 phones, \$210 for 3 phones)

Once you reach the 20GB/line limit for Mobile Hotspot each month, your Hotspot speed will be reduced to 600 Kbps for that month, unless you purchase 5GB Data Boost for \$35. So to get 50 GB of Hotspot data at 5-12 Mbps speeds on this plan, it would cost \$310/month. To get 250 GB of Hotspot data at 5-12 Mbps speeds on this plan, it would cost \$1,710. To get 500 GB of \$3,460.

<https://www.verizonwireless.com/support/above-unlimited-faqs/>

AT&T Wireless

Advertise speeds up to 10 Mbps download on Broadbandnow.com

Offer Data only plans \$50/month for 5 GB

Each extra GB/month is \$10.

So 50 GB per month at 4G speeds would be \$500; 250 GB per month would be \$2,500; and 500 GB per month would be \$5,000.

Note: only 84% of County has cell coverage from AT&T, so impractical if you work in or near Town of Floyd because no service here.

HughesNet Satellite Internet Service

25 Mbps download speeds, 3 Mbps Upload speeds (but says in fine print “Actual speeds may vary and are not guaranteed.”) The following plans are offered:

10 GB per month is \$59.99

20 GB per month is \$69.99

After those limits speeds slow down to 1-3Mbps. Data tokens can be bought to get extra data each month; it's \$3/GB. So with 20 GB plan, using 50 GB per month would cost \$159.99/month; using 250B would cost \$690/month; using 500 GB would cost \$1,509.99/month.

And satellite service is not dependable in moist weather in the mountains.

Proposed Citizens Service

The speeds Citizens will provide to customers are: 1,000Mbps (1Gbps) Download / 500Mbps (0.5Gbps) Upload. Residential pricing is based on data tiers starting as low as \$39.95 per month for 50 GB for residences, with 250GB costing only \$59.95 (90% of current Citizens customers use less than this). Services go up to 4 TB (4,000 GB) for \$139.96/month.

All Citizen lines will be buried which provides additional protection in difficult winter weather.

Attachment 3

Pricing Details from ISP Websites



Measured
Just Right

What's the Right Amount of Data for Your Home?

Families have trusted Citizens to provide Quality Service, Excellent Support, and Advanced Technology for over 100 years. We are known for pioneering services that connect people and communities. As your local Cooperative, we are building the infrastructure for the future generations and bringing the newest Internet technology to your door.

As unique as every snowflake and thumbprint, so is your data use. For this reason, we are throwing away traditional Internet plans based on 'speeds' and opening up a way for you to get the fastest speeds and only pay for the data you and your family need.

No two homes are alike. Therefore, Citizens lets you customize your service by selecting the Internet Data Plan that best meets your needs. But don't worry. If you use more data than your subscribed plan, your service will not be interrupted. A charge of \$5 per 50 GB increment will be added to your monthly invoice. You can adjust your plan at any time. For example, if you know that you are having guests in to stay this summer and anticipate additional devices that will use data, you can increase your plan for a month OR you can simply pay the overages. You have the flexibility to change plans as your needs change.

Use our Data Calculator to estimate your monthly data usage so you can choose the best plan for you!

All Plans at Blazing 1Gbps Speed!

<p>CitiZip Fiber 50 GB</p> <p>Up to 50 GB Usage</p> <p>Basic Web Browsing Streaming Audio</p> <p>\$39.95</p>	<p>CitiZip Fiber 250 GB</p> <p>Up to 250 GB Usage</p> <p>Basic Web Browsing Streaming Audio Online Gaming (live game play) Uploading High Resolution Pics</p> <p>\$59.95</p>	<p>CitiZip Fiber 500 GB</p> <p>Up to 500 GB Usage</p> <p>Basic Web Browsing Streaming Audio Online Gaming (live game play) Uploading High Resolution Pics Streaming SD Video</p> <p>\$79.95</p>
<p>CitiZip Fiber 1 TB</p> <p>Up to 1 TB Usage</p> <p>Basic Web Browsing Streaming Audio Online Gaming (live game play) Uploading High Resolution Pics Streaming SD Video Streaming HD Video</p> <p>\$99.95</p>	<p>CitiZip Fiber 2 TB</p> <p>Up to 2 TB Usage</p> <p>Basic Web Browsing Streaming Audio Online Gaming (live game play) Uploading High Resolution Pics Streaming SD Video Streaming HD Video Uploading High Def Video Moderate 4k Streaming</p> <p>\$119.95</p>	<p>CitiZip Fiber 4 TB</p> <p>Up to 4 TB Usage</p> <p>Basic Web Browsing Streaming Audio Online Gaming (live game play) Uploading High Resolution Pics Streaming SD Video Streaming HD Video Uploading High Def Video Heavy 4k Streaming</p> <p>\$139.95</p>

*1TB = 1,000 GB Streaming Video = Netflix, YouTube, Hulu, Amazon, etc.

- No peak/off-peak hours
- No Interruption of Service should you exceed data usage on your Plan
- Only \$5 per 50 GB increment charged should you go over your subscribed monthly usage
- Email notifications will be sent when you reach 50%, 75%, 90%, and 100% of your Data Plan
- Data Cycle is billed for usage the 21st thru the 20th of each month
- Whole Home WiFi access available for only \$4.95 a month
- FREE 24/7 Technical Support

Just think what more you can do!

More bandwidth gives you the freedom to add more devices. If you have been waiting to add PVR or HD TV, now is the time! Let us answer questions that you may have about adding a Security System to your home or business.

WHEN TO START?

Once fiber construction is complete in your area, start enjoying 1Gig Internet service!

Existing customers can migrate to the new service upon the completion of construction and testing. Visit our Fiber Map for estimated construction period. Your data plan will be based on your current pricing structure. However, based on usage of data in your home, your plan can be adjusted at any time by calling our office or through your Citizens E-Care Account at <https://citizens.coop/myaccount/>



About

Call to Order

1.855.417.6713

Limited time offer! **\$99 instant savings** on all plans. Offer ends 01/02/2019.¹¹

Pick your plan

ALL PLANS INCLUDE:

- ✓ 2-year price guarantee
- ✓ 25 Mbps download speeds¹
- ✓ No hard data limits⁷



10 GB at 25 Mbps¹ /mo.

\$59⁹⁹ /mo.

Order Online



20 GB at 25 Mbps¹ /mo.

\$69⁹⁹ /mo.

Order Online

★ MOST POPULAR

BEST FOR	Light Users	Average Users
SPEED	25 Mbps ¹	25 Mbps ¹
GIGS	10 GB	20 GB
HOW MUCH CAN I STREAM EACH MONTH? ⁵	 OR  135 hrs of music streaming 15 hrs of movie streaming	 OR  270 hrs of music streaming 30 hrs of movie streaming



How do HughesNet plans work?

HughesNet plans are determined by data. But they all come with the same high speed of 25 Mbps.¹ Here's how it works:



 GBs

Each plan has a different data allotment measured in gigabytes, or GBs. You use GBs every time you connect to the Internet. So if you have multiple people in your home connecting, you'll want a plan with more GBs.

Mbps

Mbps is the speed of data. It measures how fast you upload or download data – like uploading a video or downloading an email attachment. All HughesNet plans come with download speeds up to 25 Mbps and upload of 3 Mbps.¹

DO MORE WITH YOUR DATA

Worried about exceeding your monthly data limit?
Don't be. With HughesNet Gen5, you'll get:



Video Data Saver⁵

We'll adjust data rates when you stream videos to help you use less data without sacrificing picture quality.

Bonus Zone

All plans come with 50 GB of bonus data per month. You can access your bonus data from 2 am to 8 am.

No hard data limits⁷

Gen5 plans have no hard data limits. We won't ever cut you off or charge you more.



Stay connected with the right equipment from HughesNet

HughesNet uses the latest satellite technology to get to your home. Lease your equipment with



- ✓ Free Standard Installation
- ✓ Built-in Wi-Fi
- ✓ Home satellite dish

Lease equipment for just ~~\$14.99~~ **\$9.99⁴**/mo.

HughesNet FAQs

What is HughesNet?



Does HughesNet Gen5 come with built-in Wi-Fi?



How do Gen5 plans work?



What happens if I use all my data before the month is up?



Does HughesNet Gen5 support gaming?



HughesNet.

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[1] Actual speeds may vary and are not guaranteed.

[3] Free standard Installation applies to new Lease subscribers only. Not valid with Purchase option. Limited-time offer.

[4] \$9.99 offer represents a \$5 monthly savings for 24 months. After 24 months, the monthly equipment lease fee reverts to \$14.99. 24-month commitment required. Restrictions may apply. Offer void where prohibited. Offer ends 01/02/2019.

[5] Assumes DVD-quality video streaming consumes data at a rate of 700 MB/hour, HD-quality video streaming consumes data at a rate of 2 GB/hour, streaming audio/radio consumes data at a rate of 75 MB/hour, an average web page is 2 MB, and social media pages consume data at a rate of 350 MB/hour. Please be advised that the values provided should only be used as a general estimation, as data usage may vary by device, by type and by quality of content.

[6] Streaming is optimized with video streams at DVD quality (up to 480p).

Cox High Speed Internet plans

Choose an internet plan that best fits your speed needs. For internet plans that include other Cox services, we offer several [bundle options](#) to choose from.

MOST POPULAR

Cox Internet Preferred 100

\$59.99/mo.
for 12 months with 1-yr. svc. agr.
Regularly ~~\$84.99/mo.~~ | Save 29%
[Offer Details & Terms >](#)

Our Most Popular plan with 10x the speed of Internet Starter 10.

Ideal for 5 to 7 devices and internet users who are power web users and gamers

Up to 100 Mbps download

Up to 10 Mbps upload

Add to Cart to Customize

Cox Internet Ultimate

\$79.99/mo.
for 12 months with 1-yr. svc. agr.
Regularly ~~\$104.99/mo.~~ | Save 23%
[Offer Details & Terms >](#)

Get super-fast speeds on more of your devices.

Ideal for 7 to 9 devices and advanced users who manage large files or stream videos

Up to 300 Mbps download

Up to 30 Mbps upload

Add to Cart to Customize

OUR FASTEST SPEED

Gigablast

\$119.99/mo.
[Offer Details & Terms >](#)

Get 1 Gigabit download speeds plus 10 email accounts with 15GB storage each!

Ideal for more than 9 connected devices and advanced users who need to manage large files or stream videos

Up to 1 Gbps download

Up to 35 Mbps upload

Add to Cart to Customize





Build your High Speed Internet bundle

Looking for Fios? Find out when [Fios](#) is available by signing up for our notification list.



Add Internet

High Speed Internet

Up to .5 - 1 Mbps

\$29.99

[details](#)

High Speed Internet Enhanced

Up to 1.1 - 3 Mbps

\$39.99

[details](#)



Build your High Speed Internet bundle

Looking for Fios? Find out when [Fios](#) is available by signing up for our notification list.



Add Internet

High Speed Internet

Up to .5 - 1 Mbps

\$29.99

[details](#)

High Speed Internet Enhanced

Up to 1.1 - 3 Mbps

\$39.99

[details](#)

[\(https://www.verizonwireless.com/\)](https://www.verizonwireless.com/)[Sign In](#)[Home \(/www.verizonwireless.com\)](#) > [Support \(/support/\)](#) > [Plans \(/support/plans/\)](#) > [Unlimited \(/support/unlimited/\)](#) > **Above Unlimited FAQs**

Above Unlimited FAQs

Above Unlimited is the plan for those who demand the ultimate in performance, service and global access.

- [How do I get Above Unlimited?](#)
- [How do I get Above Unlimited for \\$60 per phone?](#)
- [Can I mix and match unlimited plans with Above Unlimited?](#)

General Information

1. What is Above Unlimited?

Above Unlimited is for everyone that demands the most from their phones and plan. Get the ultimate in performance, service and global access.

Every phone on Above Unlimited gets:

- Premium Unlimited 4G LTE data (75 GB) ⓘ
- Unlimited Talk & Text
- Mexico & Canada included
- 5 TravelPass® days per month to use in more than 185 countries ⓘ
- Unlimited international messaging from the US
- HD-quality streaming (720p)

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- Unlimited Mobile Hotspot with 20 GB/line at full 4G LTE speeds
- 500 GB Verizon Cloud storage
- Verizon Up rewards

  
(<https://www.verizonwireless.com/>)

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Above Unlimited is perfect for those who:

- Stream HD video
- Stream music
- Play online games
- Use Mobile Hotspot on a regular basis
- Have a Jetpack®, netbook or notebook
- Visit or call Canada and/or Mexico often
- Are frequent overseas travelers

2. How much will Above Unlimited cost me?

Above Unlimited pricing is based on how many phones you have on your account. The price also depends on whether you sign up for Auto Pay and paper-free billing, which gives a \$5 discount for each phone. 

[Learn more about the Auto Pay and paper-free billing discount \(/support/auto-pay-faqs/#discount\).](/support/auto-pay-faqs/#discount)

Above Unlimited monthly fees:

Phones	Monthly Plan Cost	Monthly Plan Cost with Auto Pay and Paper-Free Billing
1	\$100	\$95
2	\$180 (\$90 each)	\$170
3	\$210 (\$70 each)	\$195
4 or more	\$65 each	\$5 off each

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(<https://www.verizonwireless.com/>)

3. How do I get Above Unlimited for \$60 per phone?

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When you have 4 phones on Above Unlimited, you pay \$65 for each phone for a total monthly cost of \$260. When you pay through [Auto Pay](/support/auto-pay-faqs/) (using a debit card or bank account) with [paper-free billing](/support/paper-free-billing-faqs/), you get a \$5 discount on every phone, giving you a net \$20 discount.

[Learn more about the Auto Pay and paper-free billing discount](/support/auto-pay-faqs/#discount).

[Sign up now](/wcms/myverizon/paperless-billing.html) for Auto Pay and paper-free billing.

Above Unlimited (4 phones x \$65)	\$260
Auto pay and paper-free discount (4 phones x \$5)	-\$20
Total	\$240 (\$60 for each phone)/month

If you want to lower your monthly costs even more, you can also mix and match unlimited plans for the different phones on your account. If 1 or 2 phones don't need as much data for streaming, you can select Beyond Unlimited or Go Unlimited for those phones.

4. How do I get Above Unlimited?

If you already have Verizon: Switch to Above Unlimited on the [Change Plan](/vzw/secure/authDecision.jsp?amLogin=true&flow=CPCONLY) page in My Verizon, or in the My Verizon app:

- Tap the **Menu** icon.
- Tap **Account**.
- Tap **My Plan**.

If you're new to Verizon: Sign up for Above Unlimited on our [Verizon Plan](/plans/verizon-plan/) page.

5. Can I mix and match unlimited plans with Above Unlimited?

[Chat with us](#)

(<https://www.verizonwireless.com>) unlimited plans for every phone on your account, as long as all your phones are on one of the following unlimited plans:

- Above Unlimited
- Beyond Unlimited
- Go Unlimited

Pick the one that's right for each user. For example, you could have 2 phones on Above Unlimited, 1 phone on Beyond Unlimited and 1 phone on Go Unlimited.

[Learn about mix and match unlimited pricing \(/support/the-new-verizon-plan-fags/#mix-match-unlimited\)](/support/the-new-verizon-plan-fags/#mix-match-unlimited).

Note: When you first switch your plan to a mix and match option in My Verizon, you'll be asked to select the unlimited plan you want for each line on your account, including your tablets and connected devices.



[Sign In](#)

6. How many devices can I have on my account with Above Unlimited?

For multi-line accounts:

- 10 smartphones, basic phones or tablets
- 20 connected devices (e.g., Palm, smartwatch, streaming camera, etc.)

7. What happens once I've used the 20 GB limit for Mobile Hotspot? Can I buy a Data Boost with Above Unlimited?

On each line with Above Unlimited, you get a 20 GB allowance of data at 4G LTE speeds for Mobile Hotspot each bill cycle. Once you've used the 20 GB of 4G LTE data, your Mobile Hotspot data speed for that line will be reduced to up to 600 Kbps speeds for the rest of the bill cycle.

Non-Mobile-Hotspot data will continue to be at 4G LTE speeds until 75 GB, while your Mobile Hotspot is reduced to up to 600 Kbps.

You can purchase a 5 GB Data Boost on a line for \$35 to extend 4G LTE speeds for Mobile Hotspot. You can buy up to 20 Data Boosts per line per bill cycle.

Visit our [Data Boost FAQs \(/support/data-boost-fags/\)](/support/data-boost-fags/) to learn more.

Note: A Data Boost won't extend your 4G LTE speeds on non-Mobile-Hotspot data. Once you've used 75 GB in a month on a line, in times of congestion your data may be slower than other traffic.

8. What video quality will I get with Above Unlimited?

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(<https://www.verizonwireless.com/above-unlimited>)



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9. What are my Verizon Cloud media storage options with Above Unlimited?

You get 500 GB of Verizon Cloud storage with Above Unlimited.

You can add up to 1 TB of Verizon Cloud media storage online in [My Verizon](#) (<https://login.verizonwireless.com/vzauth/UI/Login?realm=vzw&goto=https%3A%2F%2Fcloud.verizonwireless.com%2FvzCloud%2Fhome%2FcloudOverview.action>) and in the My Verizon app.

To add Cloud storage in the My Verizon app:

- a. Tap **Account** (sign in if prompted).
- b. Tap **Add-Ons**.
- c. Select the line you want to add Cloud storage to.
- d. Tap the **Essential Services** tab and scroll down to Verizon Cloud.

10. I travel to Mexico and Canada a lot. Can I use my phone like I do at home with Above Unlimited?

Yes, Above Unlimited includes calling, texting and dataⁱ use within Mexico and Canada.

If more than 50% of your talk, text or data usage in a 60-day period is in Canada or Mexico, use of those services in those countries may be removed or limited.

11. What is TravelPass, and how does it work on Above Unlimited?

TravelPass lets you use your domestic talk, text and data allowances while traveling outside the US in more than 185 countries.ⁱ

Above Unlimited includes 5 TravelPass days per month, which you can use when you add TravelPass to your line. TravelPass daily charges of \$10/day will start on the 6th day of using your service outside of the US, Puerto Rico and US Virgin Islands, Mexico and Canada.ⁱ

To add TravelPass: Text "TRAVEL" to 4004.

Visit our [TravelPass FAQs \(/support/travelpass-faqs/\)](/support/travelpass-faqs/) or [TravelPass countries \(/landingpages/travelpass-countries/\)](/landingpages/travelpass-countries/) page for more information.

Note: Using your device in Mexico and Canada is included with Above Unlimited.

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(<https://www.verizonwireless.com/>)



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12. Which types of devices are eligible for Above Unlimited?

Smartphones and basic phones are eligible for Above Unlimited.

If you sign up for Unlimited after 6/18/18, the connected devices (e.g., Palm, tablet, Jetpack, smartwatch, etc.) on your account need to have their own [compatible data-only plan \(/support/the-new-verizon-plan-faqs/#data-only-option\)](/support/the-new-verizon-plan-faqs/#data-only-option). When you add devices, you'll be asked to choose the data plan for each device.

13. How do tablets, laptops, wearables and other data devices work with Above Unlimited?

When you switch to Above Unlimited, you'll be asked to select an unlimited option for each phone line on your account. You'll also need to select a compatible plan for each of your connected devices, like a tablet, Palm, Jetpack, smartwatch or other data device.

Each of these devices will have its own data plan and monthly high speed data allowance.

[View connected device data options \(/support/the-new-verizon-plan-faqs/#data-only-option\)](/support/the-new-verizon-plan-faqs/#data-only-option)

14. What happens after I use 75 GB of data on Above Unlimited?

Once your line exceeds 75 GB during your bill cycle, most of the time you'll continue to enjoy the same great network experience.

If you're on a cell site that's congested at that moment, your download may be temporarily queued behind other Verizon customers. This may result in slower download speeds relative to another Verizon customer's experience on the same cell site at that moment.

15. Can I get an employee, military or business discount with Above Unlimited?

Above Unlimited is a great value. It's not eligible for an employer discount or corporate plan discount, but you can still take advantage of any other benefits your employer's program offers with Verizon Wireless.

Active duty military service members and veterans are eligible to receive the following account-level discount for Above Unlimited.

- 1 phone – \$15 discount
- 2 phones – \$35 discount
- 3+ phones – \$40 discount

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(<https://www.verizonwireless.com/military-discount>) military discount. Visit our [Military and Veterans FAQs \(/support/military-veterans-faqs/\)](/support/military-veterans-faqs/) for more information.

Save an additional \$5 off the regular monthly account access fee for each phone, when you sign up for [Auto Pay \(/support/auto-pay-faqs/\)](/support/auto-pay-faqs/) (with a debit card or bank account) and [paper-free billing \(/support/paper-free-billing-faqs/\)](/support/paper-free-billing-faqs/).

[Sign up now \(/wcms/myverizon/paperless-billing.html\)](/wcms/myverizon/paperless-billing.html) for Auto Pay and paper-free billing.



16. What happens if I switch my plan from Above Unlimited to a shared data plan?

If you change your plan to the new Verizon Plan S, M, L or other shared data size, all lines on your account will change to that plan as well.

Your plan will no longer include:

- 500 GBs of Verizon Cloud or a discount on 1 TB of Verizon Cloud
- 5 TravelPass days
- \$5/month per phone discount for Auto Pay and paper-free billingⁱ

Also, if you're currently receiving a military discount on each line, your discount will change to a percentage off the monthly service fee for your entire account.

If you're eligible for a discount because of your employer's agreement with Verizon, but your unlimited plan wasn't eligible for the discount, that discount will be applied to your new shared data plan.

Apps & Services

[My Verizon \(https://www.verizonwireless.com/solutions-and-services/my-verizon-mobile/\)](https://www.verizonwireless.com/solutions-and-services/my-verizon-mobile/)

[Verizon Cloud \(https://www.verizonwireless.com/solutions-and-services/verizon-cloud/\)](https://www.verizonwireless.com/solutions-and-services/verizon-cloud/)

[Verizon Smart Family \(https://www.verizonwireless.com/solutions-and-services/family-base/\)](https://www.verizonwireless.com/solutions-and-services/family-base/)

[Device Trade-in \(https://www.verizonwireless.com/od/trade-in/\)](https://www.verizonwireless.com/od/trade-in/)

[Caller Name ID \(https://www.verizonwireless.com/solutions-and-services/caller-name-id/\)](https://www.verizonwireless.com/solutions-and-services/caller-name-id/)

[Apple Music \(https://www.verizonwireless.com/solutions-and-services/apple-music/\)](https://www.verizonwireless.com/solutions-and-services/apple-music/)

[Premium Visual Voicemail \(https://www.verizonwireless.com/solutions-and-services/visual-voicemail/\)](https://www.verizonwireless.com/solutions-and-services/visual-voicemail/)

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[See More Apps \(https://www.verizonwireless.com/solutions-and-services/products/\)](https://www.verizonwireless.com/solutions-and-services/products/)

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Brands

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- LG (<https://www.verizonwireless.com/smartphones/lg/>)
- Motorola (<https://www.verizonwireless.com/wireless-devices/smartphones/motorola/>)
- Palm (<https://www.verizonwireless.com/connected-devices/palm-companion-device/>)
- Samsung (<https://www.verizonwireless.com/wireless-devices/samsung/>)

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Careers (<http://www.verizon.com/about/careers>)

Responsibility (<http://www.verizon.com/about/responsibility>)

Verizon Innovation Program (<http://innovation.verizon.com/>)

Privacy (<http://www.verizon.com/about/privacy/privacy-policy-summary>)

Legal Notices (<https://www.verizonwireless.com/legal/notices/legal-notices/>)

Customer Agreement (<https://www.verizonwireless.com/legal/notices/customer-agreement/>)

Brochures (<https://www.verizonwireless.com/support/collateraldownload/>)

Important Wireless Issues (<http://www.verizon.com/about/consumer-safety/overview>)

Radio Frequency Emissions (<https://www.verizonwireless.com/support/radio-emissions/>)

Avoid Potential Hearing Loss (<http://www.verizon.com/about/consumer-safety/avoiding-potential-hearing-loss>)

Website Use (<https://www.verizonwireless.com/one-support/web-use/>)

Return Policy (<https://www.verizonwireless.com/one-support/return-policy/>)

Accessibility (<http://www.verizon.com/about/accessibility/overview>)

Product Terms (<https://www.verizonwireless.com/support/other-wireless-topics/legal-notices-and-industry-information/>)

My Verizon Terms & Conditions (<https://www.verizonwireless.com/wcms/myverizon/terms.html>)

Device Payment Terms & Conditions

(<https://ss7.vzw.com/is/content/VerizonWireless/Legal/Documents/Footer/device-payment-t-c-122016.pdf>)

Open Internet (<https://www.verizon.com/about/our-company/open-internet>)

Lifeline/Link-Up (<https://www.verizonwireless.com/solutions-and-services/lifeline/>)

About Our Ads (<http://www.verizon.com/about/privacy/about-our-ads>)

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Copper Hill Project Area & Connect America Funding

There are only 7 serviceable units in the tiny overlap area, of 306 in the project area overall.

Roanoke Mill

LEGEND

-  Auction-eligible blocks
-  Citizens newest service area

Only portion of project area CAF eligible

ROANOKE COUNTY

Bent Mountain

MONTGOMERY COUNTY

FRANKLIN COUNTY

Project area

Copper Hill

Citizens existing service

Simpsons

Google Earth

© 2018 Google



2 mi

VATI FUNDING SOURCES TABLE

Please fill in the chart below with a description of the project funding source (local, federal, state, private, other), the amount from that source, the percentage of total project funding that source represents, and a description of the current status of the funds (pending, secured, etc.).

Source	Amount	%	Status
REQUESTED VATI	\$ 348,018.67	42.6%	Pending
Citizens Telephone	\$465,518.67	57.0%	Committed matching funds
Floyd County	\$3190.00	0.4%	Committed matching funds
	\$		
	\$		
	\$		
	\$		
TOTAL	\$ 816,727.33	100 %	



Jefferson Center, Suite 304
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Roanoke, VA 24016

Phone: 540.982.1322 Fax:
540.982.1670

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www.appleridge.org
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Steven Murden

Gary L. Phillips

C/O Bob Miller

Citizens Telephone Cooperative, Inc.
220 Webbs Mill Rd N,
Floyd, VA 24091

To whom it may concern,

Apple Ridge Farm's mission is to transform the lives of our community's underserved children and families through engagement in unparalleled educational, cultural and outdoor experiences. Our overall goals are to equip young people from low-income families and public housing developments with the skills and self-esteem necessary to overcome barriers they face daily, encourage academic success, strengthen self-confidence, and build leadership skills. Since its founding in 1978, Apple Ridge Farm has provided over 72,000 at-risk youth with a path for success.

Academic Summer Camp is Apple Ridge Farm's flagship program with facilities located in Copper Hill, VA, providing low-income children ages 6-16 from underserved communities with a daily mix of instruction and outdoor activity. Campers attend one of three sessions depending upon their age. There are no fees for qualifying low-income students, and all the approximately 350 students receive a free breakfast and lunch.

Instructional areas focus on reading, writing, STEM (Science, Technology, Engineering, and Math), and environmental education. Apple Ridge Summer Academic Camp students are given the opportunity to embrace STEM in many ways, such as computer programming using the SCRATCH language, complex math problems, eco-system self-sustainability, and mechanics. Opportunities for teens to gain hands-on experience with technology include computer programming instruction with SCRATCH, and learning about wind and solar power at EBase, our off-grid classroom.

EBase USA is a unique component of Apple Ridge Farm's technology and environmental education facilities. An EBase (Educational Base) is an off-grid classroom designed to teach young people about sustainable energy technology. EBase USA is part of a global EBase movement started in 2008 by Sir Robert Swan, polar explorer and environmentalist.

Apple Ridge's EBase is the only such facility in North America, and is housed in a fully transformed 99-year-old boxcar. It is powered by 18 solar panels and a wind turbine, serving as a laboratory and model to educate students of all ages on how wind and solar power work. The ten laptop computers at our EBASE are fully connected to the internet through a wireless router. Three exterior motion detector cameras equipped with night vision record all human and animal movement around the EBase, and are shown on a 40" flat screen TV.

Apple Ridge's EBase is used to provide students with introductions to renewable and non-renewable energy, and to building and operating solar, wind, and water-powered energy system models. Through EBase, our teens:

- Learn about and become familiar with the various technologies currently in use worldwide for small-scale wind and photovoltaic energy generation
- Become familiar with the math and science involved in small-scale wind and photovoltaic energy generation;
- Study weather patterns as needed to analyze which sites are best suited to wind and solar generation

Celebrating 39 Years of Helping Kids Grow

Please consider a planned gift that will help kids grow for generations to come.



Jefferson Center, Suite 304
541 Luck Avenue, SW
Roanoke, VA 24016

Phone: 540.982.1322 Fax:
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Steven Murden

Gary L. Phillips

- Learn about storage batteries and how they make sustainable systems practical
- Study the technical innovations that have advanced solar and wind utilization in the U.S. and worldwide
- Become versed in the basic knowledge and skills needed for jobs in the emerging green technology economy

Both our SCRATCH instructional program and our EBase facility are in place and operational, but all activities require secured, strong and consistent internet access. Located in rural Floyd County, Copper Hill, VA, like many other individuals and businesses that are located in our area, we have significantly slower internet access compared to most urban areas. Currently, Apple Ridge Farm uses mobile hotspots to access the internet, however, the signals are sometimes dampened or slowed by inclement weather, area, service or multiple device usage.

We are in desperate need of secure and viable internet access in order to effectively run our technology related education activities, and we believe Citizens can help. *Citizens Telephone Cooperative, Inc.* is a regional full service communications provider offering land-line telephone, VoIP, IPTV Video, web and e-mail hosting, DSL, and FTTP (Fiber to the Premise: Business Ethernet and FTTH, Fiber to the Home), serving 7 counties in Southwest Virginia. They have had many years of successful work serving the Floyd area and we believe that they will be able to help us and other individuals and businesses in need of reliable internet access.

Please consider our statement of need when advising funding for *Citizens Telephone Cooperative, Inc.* Feel free to contact me with any questions or concerns.

Sincerely,

John R. F. Lewis
Executive Director

Celebrating 39 Years of Helping Kids Grow

Please consider a planned gift that will help kids grow for generations to come.



FLOYD COUNTY PUBLIC SCHOOLS

140 Harris Hart Road NE

Floyd, VA 24091

Telephone: (540) 745-9400 FAX: (540) 745-9496

December 10, 2018

Tamarah Holmes, Ph.D.
Associate Director of Policy and Strategic Development
Virginia Department of Housing and Community Development
600 E Main St #300, Richmond, VA 23219

Copper Hill Project for Broadband

Dear Dr. Holmes,

I am writing to express my strong support for the grant application for broadband coverage for the Copper Hill community. Obviously broadband access is very important for rural communities to expand access to job and business opportunities, health care monitoring and access, and so much more. But in this case, there is also an important public school educational program in place since 2015 in Floyd County called Student Connect that the low-to-moderate-income high school students (and their families) in this area are currently deprived of, while most of the rest of the County is served.

For several years now, we have been able to loan all 9th-12th grade students in our high school Chrome books as they are central for their learning at school and home. Most areas of the County have broadband, and to make sure income is not a barrier for access, Citizens and Floyd County Public Schools collaborate to provide Tier 3 service to each of those households through Student Connect. They are technically on the school's network, which provides protective filtering, and also connects them automatically to New River Community College, Radford University and Virginia Tech for any classes they take there. But students in this Copper Hill area are unable to access this currently due to lack of good internet service.

If this project is approved, Student Connect would be available to the estimated 20-30 high school students who live in that area. And we are in discussions about possibly expanding Student Connect to also serve elementary students, so that they could benefit from have reliable internet service. This would help another approximately 80-90 students in the target area. Thank you for your consideration.

Sincerely,

John F. Wheeler, Ed.D.
Superintendent
Floyd County Public Schools

Revealing Potential and Realizing Dreams

Floyd County Public Schools does not discriminate on the basis of race, color, national origin, sex, disability, age, or any other basis prohibited by law.

**Bent Mountain Lodge Bed & Breakfast, Inc.
P. O. Box 134
Copper Hill, Va. 24079**

December 11, 2018

**Tamarah Holmes, Ph.D.
Associate Director of Policy and Strategic Development
Virginia Department of Housing and Community Development
600 E Main St #300
Richmond, VA 23219**

Re: Copper Hill Project for Broadband

Dear Dr. Holmes,

We are writing to let you know we lack broadband service, and it hurts our business. We have 10 suites here, and have a perfect wedding venue with fantastic long-range views. While our business does well, we could do much better if we had advanced broadband service. It would allow real-time streaming of weddings, plus online services and videos for guests. Our guest this past year were from 42 states and 14 foreign countries and require much more sophisticated WIFI and speed capabilities to carry on their work during their stay with us. We are having continuous complaints and poor ratings because of our current capability. These guest also use local businesses in the area for shopping and dining needs.

Thank you for your consideration and support.

Sincerely,

Jesse and Bonnie Lawrence
**Jesse and Bonnie Lawrence,
Owners**



Skyline
National Bank
Post Office Box 186
Independence, Virginia 24348
www.skylinenationalbank.com

Confidential

Account Number	XXXXXXXXXXXX0003
Statement Date	11/23/2018
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CITIZENS TELEPHONE COOPERATIVE

MMDA BUSINESS ACCOUNT XXXXXXXXXXXX0003



DESCRIPTION	DEBITS	CREDITS	DATE	BALANCE
DEPOSIT		690.61	11/21/18	728,775.30
DEPOSIT		987.25	11/21/18	729,762.55
DEPOSIT		1,053.68	11/21/18	730,816.23
DEPOSIT		2,075.05	11/21/18	732,891.28
DEPOSIT		2,461.47	11/21/18	735,352.75
DEPOSIT		3,998.09	11/21/18	739,350.84
CHECKFREE CITIZENS T		14,662.74	11/21/18	754,013.58
RETURNED ITEM CHARGE	7.00		11/21/18	754,006.58
Charge Back Item Check 9641	203.50		11/21/18	753,803.08
RETURNED DEPOSIT ITEMS	269.31		11/21/18	753,533.77
CHECK	90,000.00		11/21/18	663,533.77
TRANSFER FROM BUSINESS ACCOUNT XXXXXXXXXXXXXXXXXXXX7686		26.08	11/21/18	663,559.85
DEPOSIT		211.06	11/23/18	663,770.91
DEPOSIT		255.29	11/23/18	664,026.20
DEPOSIT		391.20	11/23/18	664,417.40
DEPOSIT		671.16	11/23/18	665,088.56
DEPOSIT		1,206.77	11/23/18	666,295.33
DEPOSIT		1,262.23	11/23/18	667,557.56
DEPOSIT		1,382.20	11/23/18	668,939.76
DEPOSIT		5,443.71	11/23/18	674,383.47
DEPOSIT		24,951.78	11/23/18	699,335.25
ISA*00* *00* *ZZ*CITIBANK *ZZ*AEP-ACH *181121*140		857.17	11/23/18	700,192.42
CHECKFREE CITIZENS T		1,375.04	11/23/18	701,567.46
RETURNED ITEM CHARGE	.00		11/23/18	701,567.46
RETURNED ITEM CHARGE	7.00		11/23/18	701,560.46
Charge Back Item Check 2505	28.68		11/23/18	701,531.78
Charge Back Item Check 3235	85.11		11/23/18	701,446.67
INTEREST		170.66	11/23/18	701,617.33
BALANCE THIS STATEMENT			11/23/18	701,617.33

TOTAL CREDITS (192) 1,201,966.67
TOTAL DEBITS (27) 2,243,036.82

YOUR CHECKS SEQUENCED

DATE...	CHECK #.....	AMOUNT	DATE...	CHECK #.....	AMOUNT	DATE...	CHECK #.....	AMOUNT
10/26	*1034,	000.00	11/09	* 142,	000.00	11/14	* 100,	000.00
11/01	* 140,	000.00	11/13	* 20,	000.00	11/19	* 40,	000.00
11/07	* 14,	000.00	11/13	* 400,	000.00	11/19	* 200,	000.00
11/09	* 47,	000.00	11/14	* 10,	000.00	11/21	90,	000.00

(*) INDICATES A GAP IN CHECK NUMBER SEQUENCE

* * * C O N T I N U E D * * *

Connect America Fund Phase II: Auction 903 Results

