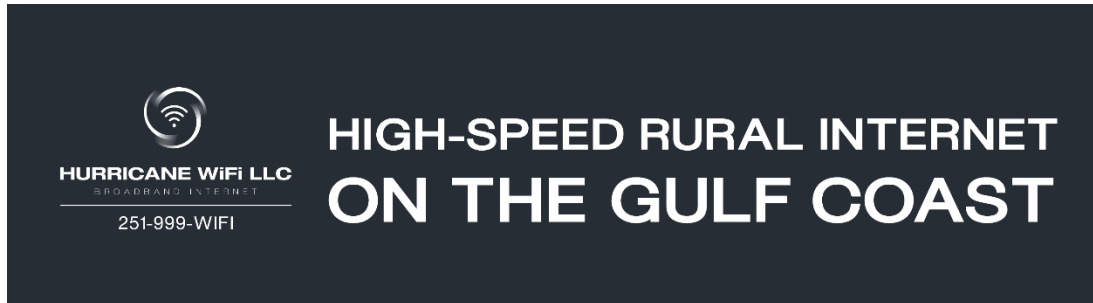


Alabama Broadband Accessibility Fund 2021 Grant Application



Rabun Alabama Hurricane WiFi
February 2021 (Amendment 3/27/21)

Attachment A Project Description

Rabun Alabama Hurricane WiFi

Attachment A - Project Description

1. Hurricane WiFi LLC plans to deploy approximately an 8-mile circumference of coverage using a private LTE network centered in the Rabun community which resides in Baldwin County, AL. The area that Hurricane WiFi LLC has decided on to use the Alabama Broadband Accessibility Grant was verified unserved by Alabama's Broadband Eligibility Map – Unserved Areas as of 11/23/2020. The number of households, businesses and Community Anchors are as follows:

Number of Households to be Served	346
Number of Businesses / Industries to be served	2
Number of Community Anchors to be served	4

This project involves building a wireless network using a private LTE network throughout the community of Rabun which is an unincorporated area considered rural according to the 2010 US Census Data. This project will provide broadband internet to 346 unserved homes, 2 unserved businesses, 1 Volunteer Fire Department and 3 churches. Additional boundaries & serviceable locations are shown in the **Attachment A.1.1** as well in our KMZ file. This is an approximate as some people do work from home and the number of businesses could increase as we start deploying.

Contained in **Attachment A.1** is our KMZ file for this proposed service area that we plan to provide internet.

2. Hurricane WiFi LLC will construct a private LTE network using the Citizens Broadband Radio Service (CBRS) shared spectrum in the 3.5 GHz referred to as Band 48, CBRS is often referred to as the private LTE as a terrestrial wireless broadband to bring internet to this rural community on our two leased towers. Hurricane WiFi LLC will use the CBRS technology to allow homes and businesses to connect to its private LTE wireless network. This wireless network will provide future capacity for homes and businesses. Once the CBRS infrastructure is in place, the equipment can be replaced easily. As technology advances this will allow Hurricane WiFi LLC to make changes to newer and faster technologies utilizing the CBRS already in place. Unlike fiber, there are less fail points due to centralized equipment installation. A tree falling on a fiber line may cause an outage as we have seen during recent storms the damage can be widespread. With a private LTE network, we have less risk of potential outages due to storm damage. Customers will be served by having either the Baicells Atom ID06 Indoor User Equipment (UE), sometimes referred to as Customer Premises Equipment (CPE), or the Baicells Atom OD06 Outdoor High-Gain (UE) at their home through our Biacells Nova 436q Outdoor Base Stations. The base stations will then connect to our 10G managed

aggregation switches, 10G routers and the rest of our network at our towers and headend. We have attached all specifications and capability to **Attachment A.2 Scalability** for our CBRs equipment as well core infrastructure equipment and cable. Once the network is in place, the equipment can be replaced and upgraded easily. As technology advances, we can swap out our tower base stations if needed to deploy upgraded radios as well as the client's end-user equipment to newer and faster technologies utilizing the frequency already in place. Most recently, we have learned that our base stations will support up to a 550 Mbps CPE. The manufacturer announced that its new Atom Outdoor CAT15 CPE has received Part 96 certification by the FCC. The new CAT15 CPE is specifically designed to provide outdoor wireless operators with superior performance to meet the increasing throughput demands of today's Internet subscribers. This CPE operates within the 3GPP Release 12 CAT15 standards and supports operations in Bands 42, 43, and 48. Equipped with an internal antenna with a gain of 18 dBi, Carrier Aggregation technology, and 4x4 MIMO, this CPE can reach peak downlink speeds of 550 Mbps making it the perfect end-user solution to meet and exceed any upcoming Rural Digital Opportunity Fund (RDOF) requirements. This would double what we would be able to provide with the current equipment installed. The primary outdoor radios proposed for installation already support this new 550 Mbps download speed at the time of application. If customers in the community have a need for extreme speeds, we can offer this as an option to deploy the latest CPE by simply upgrading the customer's CPE.

3. Hurricane WiFi LLC offers several levels of internet to meet the needs of the Rabun community. Our base internet speed of 25 Mbps download by 3 Mbps upload for a cost of \$65 with zero data caps. We also offer 50 Mbps download by 5 Mbps uploads for \$85/month, 75 Mbps download by 7 uploads for \$115/month, 100 Mbps download by 10 Mbps upload for \$145 and 125 Mbps download by 12 Mbps upload for \$165 with all plans with no data caps. Each plan is inclusive of all taxes and fees, and the bill remains consistent unless the customer requests a plan change. Hurricane WiFi LLC follows a "no contract" business model. We believe our customers will be long-term by choice after experiencing our excellent customer service and our fast, reliable, reasonably priced product.

Packages		Pricing	Data Cap
Category 1	25/3 Mbps	\$65	None
Category 2	50/5 Mbps	\$85	None
Category 3	75/7 Mbps	\$115	None
Category 4	100/10 Mbps	\$145	None
Category 5	125/12 Mbps	\$165	None

4. Hurricane WiFi LLC estimates that the Rabun, Alabama project will have a total cost of \$198,361.74. This includes match in the amount of \$128,935.13 and grant funding in the amount of \$69,426.61. Whether we are servicing 500 clients or 352 clients the core equipment and project costs stated here will provide internet needed to the community. Once awarded, Hurricane WiFi LLC will order all supplies and materials needed for the coverage area. Delivery for these orders will take 2-4. Upon equipment arrival tower installations will begin and should take no more than 2-4 weeks. Overall, the projected completion timeline will be within 3 months depending on obstacles that may arise such as weather or equipment delivery delays.

A preliminary technical evaluation of the project that is certified by an engineer is attached in the KMZ file of the requested area, which is considered underserved by Alabama's Broadband Eligibility Map – Unserved Areas as of 11/23/2020 as seen in the Attachment **A.4.1 Proposed Project Area Map**.

The heat maps seen in the KMZ as well as **Attachment A.4.2 Radio Heat Map Coverage Area** demonstrates the Reference Signals Received Power (RSRP) that our evaluation shows this community will be receiving. RSRP is a measurement of the received power level in an LTE cell network. RSRP level shows this coverage area will allow us to provide the internet services levels we will advertise as well as up to 550 Mbps with upgraded CPE devices. Our backhaul will be provided over two different radio frequencies to one of our other tower headend. A fixed 11Ghz and 5Ghz signal will provide connection between towers as seen in **Attachment A.4.3 Back Haul Map**. Our headend will provide the community with internet through our 10G managed aggregation switches, 10G routers and fiber internet provider. As we continue to expand, we plan to bring high availability with our internet uplinks with plans to implement Border Gateway Protocol (BGP) with other uplink internet providers we use.

5. Hurricane WiFi LLC is a local company eager to be Rabun's first terrestrial wireless provider. We know what it takes to build, operate, and manage quality networks in rural areas. The owner of Hurricane WiFi has been in the technology field since 2000 and has implemented twenty-seven cloud managed networks for his clients. Hurricane WiFi LLC now wants to extend this knowledge of networks and business to bring the same level of network access to the local rural communities. We are extremely confident in our capability to build out to unserved areas within less than 3 months to bring internet to the Rabun community sooner than later, as some infrastructures take years to build out.
6. Hurricane WiFi LLC chosen to build a terrestrial wireless network that will not utilize aerial pole attachments. This alternative will provide a more reliable experience for end users during storms and other unexpected events.
7. Hurricane WiFi LLC has established relationships with equipment/technology providers.

8. This project is not a Middle Mile project as we are providing internet service directly.
9. While the Rabun, Alabama project meets the definition of an unserved area, the community's school is not located in the proposed coverage area. It is in the feeder pattern of other North Baldwin County public schools, including Baldwin County High School and Perdido School, serving Pre-K through 8th grade. Included as an attachment **Attachment A.9 School Site** is the Baldwin County Public Schools 2020-2021 School Site Locator to show this project will provide internet to the students attending Perdido School. However, with the recent school closings and transition from traditional learning to digital, those schools have been essentially re-located to homes. Hurricane WiFi LLC contacted the Baldwin County Board of Education (BCBE) to inquire on the need for service in the Rabun area. According to the BCBE's Communications Project Manager, the school board conducted a system-wide survey of parents who needed help with internet on April 3, 2020 in preparation of the 2020 COVID-19 school closings. The survey's intent was to determine if there were any students in need of a hotspot in order to complete their digital distance learning when schools closed their traditional classroom education. The school board received 236 responses from parents in the North Baldwin area, 86 from Perdido School alone, indicating that their students needed the hotspot internet assistance. According to BCBE, their poll results showed that 36% of responses came from Perdido School - the highest number of requests for internet assistance out of any school in Baldwin County. The survey was sent via email and does not count parents that could not or would not respond. The school board also noted that there were North Baldwin teachers and administrators who personally reached out to specific families who they believed had internet accessibility issues. And after the April 2020 poll, the need for broadband has skyrocketed in response to the COVID-19 pandemic. BCBE's Virtual School saw more than 6,500 new students at the beginning of the 2020-2021 school year, an increase of 1,920%, in virtual school registration from last year.

This rural broadband installation would also offer services to other community anchors including the local volunteer fire department along with 5 churches which are currently in the area defined as unserved. Hurricane WiFi LLC will be able to act as a reliable backbone for the future growth of these community anchors as well as become a stable source of digital communication, education and commerce in the face of natural disasters or the events like the unparalleled COVID-19 pandemic.