



Unsolicited Concept Proposal for Wireless
Broadband Infrastructure
Redacted Version

Grayson County, VA
April 15, 2023

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1. PRIVATE PARTNER CREDENTIALS & KEY CONTACTS

UScellular is the fourth-largest full-service wireless carrier in the United States, providing national network coverage and industry-leading innovations designed to elevate the customer experience. The carrier provides a strong, reliable network supported by the latest technology and offers a wide range of communication services that enhance consumers' lives, increase the competitiveness of local business, and improve the efficiency of government operations.

UScellular has existing operations throughout Grayson County, VA, serving the community for decades with wireless connectivity. UScellular operates a retail sales and service location in Independence, VA and multiple stores in nearby Galax, VA.

- Founded in 1983
- Customers: 5 million
- Revenue (2021): \$4.1 billion
- Associates: 4,800
- UScellular offers postpaid and prepaid voice, data, and messaging service.
- Voice, in-home/business High-Speed Internet, international calling, and Internet of Things (IoT) services.
- Since 2009, the company has donated nearly \$21.4 million along with countless experiences and technology items to nonprofit organizations across the country. Additionally, through its After School Access Project UScellular has pledged up to \$13 million in hotspots and service to help up to 50,000 youth connect to reliable internet in its markets.

Additional Company information can be found at:

<https://newsroom.uscellular.com/uscellular-company-information-and-facts/>

Three Year Audited Financial Statements can be downloaded at:

<https://investors.uscellular.com/home/default.aspx>

Additional Comments on UScellular Experience

UScellular has experience providing wireless service in rural areas across America. In fact, UScellular is the wireless provider with the most exposure to rural populations in America. Over 40% of the population UScellular serves is outside Metropolitan Statistical Areas, compared to 14%, nationally. This rural focus guides UScellular's mission, including in Grayson County.

UScellular participates in the federal **Universal Service High-Cost Fund** and has previously built wireless infrastructure in Grayson County with support of supplemental federal funds for construction and operating expenses. Our tower in Volney, VA is an example of those federal universal service funds in action.

Further, UScellular is a designated **Eligible Telecommunication Carrier** in Virginia qualifying its citizens for the **Lifeline Program**, for over 12 years. And, UScellular participates in the federal **Affordable Connectivity Program**, designed to increase broadband adoption in low-income households.

As example of UScellular's experience in building infrastructure supplemented by public funds, we point you to the **Nebraska Universal Service Fund** program where UScellular has built over seventy towers in over ten years servicing areas of low population density, defined as less than 10 households per square mile.

2. CONCEPTUAL PROPOSAL FOR WIRELESS BROADBAND INFRASTRUCTURE

Grayson County is highly rural, with natural beauty abounding. Its population is just over 15,000 and declining as reported in the 2020 census.

This conceptual proposal provides a path for infrastructure broadband development, both Mobile and Fixed Wireless across the most rural areas of Grayson County, potentially overlooked in previous programs. Many parts of Grayson County lack access to either form of broadband connectivity resulting in challenges to economic development, remote work, remote education, public safety, healthcare, and general well-being.

This proposal is complementary to alternative deployment work in the county, including middle mile fiber deployments along major roads.

There is a good reason for the lack of deployment in these areas. The sparse nature of population (34 households per square mile – county wide) prohibits the type of economic returns to justify the construction, thus similar to essential utility development of the past, government support is required to drive action.

This development is lifechanging to residents in these areas who do not have broadband connectivity today.

Phased Approach:

- **Phase 1** will cover the western area of Grayson County where the most significant gaps in ANY form of connectivity exist.
- **Phase 2** expands the project to central Grayson County into two deployment sub phases, northern and southern sections.
- **Phase 3** expands the project to northeastern Grayson County.

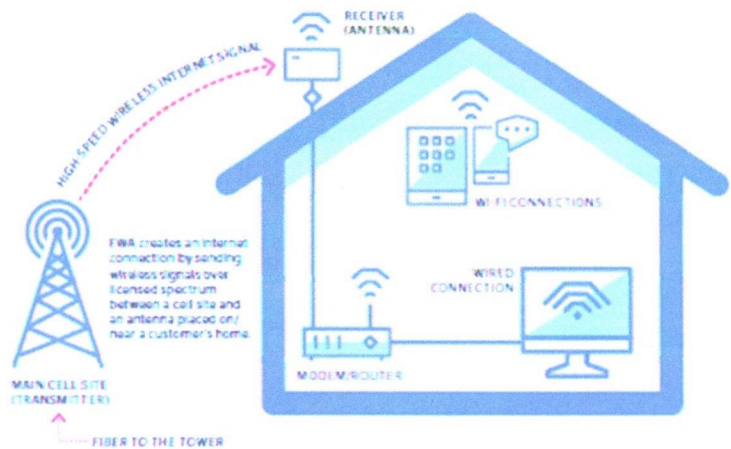
Technical Approach:

Each of the phases includes the construction of carrier grade cell towers, owned and operated by UScellular. Tower construction can begin immediately upon agreement. Carrier grade tower deployment takes 18-24 months to complete.

For each of these towers, UScellular will activate service on our full array of FCC licensed spectrum in both the low and mid band layers. Each layer provides different use characteristics. As needed, UScellular can also deploy its high band frequency for higher speeds and additional capacity, although not planned at launch.

HOW DOES 5G FIXED WIRELESS PROVIDE HIGH SPEED INTERNET?

Fixed Wireless Access (FWA) is a wireless solution to broadband connectivity for the home or business. An antenna on or in the home or business connects wirelessly to a nearby cell tower via a targeted wireless signal, providing high speed internet. The tower is connected to the internet through a combination of microwave and fiber backhaul technologies.



Once the signal is received by the antenna, an in-home router enables further connection to devices through WI-FI, just like a traditional wired connection works today. And this is accomplished without the burdens of extended deployment times and complex topographical issues of laying of cables, right of ways, and pole connections.

UScellular’s wireless broadband solution is delivered securely and reliably based on the adoption of the highest international standards and using our dedicated licensed spectrum. Only UScellular has access to the spectrum used allowing us to carefully control the user experience.

One of the most exciting aspects of 5G FWA is the dual benefit investment in wireless infrastructure provides. For each dollar of investment, consumers will receive both improved internet connectivity in the home and on-the-go. Our experience shows that people aren’t satisfied unless they have both, and we don’t believe they should have to choose one or the other.

Fixed Wireless Access Provides Three Key Benefits

1. Support for both Home Broadband and Mobility
2. Faster time to market
3. Lower cost to deploy

In summary, our solution, coupled with our various layers of licensed & regulated spectrum provides home AND mobile benefits, fast deployment and is fiscally responsible at lower costs than alternative solutions. It does so with high speeds that are suitable to today and tomorrow’s usage needs. It ushers in the benefits of 5G technology, building economic benefits.

3. FUNDING APPROACH FOR PUBLIC - PRIVATE PARTNERSHIP

Approach: To carry out this long-term wireless infrastructure investment, UScellular proposes to build, operate, and maintain wireless towers in rural areas of Grayson County. To do so, various sources of government funding may include, County Tax Funds, Virginia Tobacco Commission grants, VATI’s State Program, VATI’s administration of the federal BEAD program (rules to be determined), USDA Re-Connect, and other programs yet announced.

Length of Investment: Tower infrastructure investments are long term. The estimated operating lifespan of a constructed tower is at least 25 years. Radio equipment is generally in need of update every 7 years.

UScellular Contribution: UScellular will bear the significant expenses of radio licenses and tower operations including land lease, backhaul lease, and maintenance. UScellular is agreeable to offset portions of government investment through added forms of local County Contribution such as land lease on public land or private land at reduced values, county construction of access roads, negotiated tax or utility offsets, etc.

Priority Approach: Phase 1 will affect the least served area in Western Grayson County and is likely the most expensive to build. Phases 2 & 3 will impact Central and Eastern Grayson County.

4. PUBLIC IMPACT ASSESSMENT

It's hard to imagine non-connected life in America in 2023, for all those who take it for granted, yet vast areas of America are lacking access to basic broadband, both mobile and fixed services.

Wireless infrastructure investment benefits include:

Investment in broadband and mobility infrastructure creates jobs.

According to Deloitte, "a 10-percentage-point increase of broadband penetration in 2016 would have resulted in more than 806,000 added jobs in 2019, or an average annual increase of 269,000 jobs. Moreover, we found a strong correlation between broadband availability and jobs and GDP growth. A 10-percentage-point increase of broadband access in 2014 would have resulted in more than 875,000 added US jobs and \$186B more in economic output in 2019."¹

1 - <https://www2.deloitte.com/us/en/pages/consulting/articles/bridging-the-digital-divide-with-broadband-for-all.html>

Investment in broadband and mobility infrastructure supports Public Safety

Communications both enroute and at destination are essential elements of law enforcement, fire, and rescue. Countless lives have been saved and property secured due to real time voice, data and video connections. Sometimes, it's only a matter of minutes needed to save a life.

Investment in broadband and mobility infrastructure supports Education.

Wireless infrastructure is suitable for conducting video learning, online research, and meetings through all contemporary mediums, such as **Zoom and TEAMS**. We have a proven history of providing higher throughputs than alternative satellite services and DSL, commonly found in rural areas, which will allow teachers to extend **learning both in and out of the physical classroom**. Broadband connectivity extends beyond the school or home. Imagine a teacher taking a class outside to learn about local plant life and students having the ability to research what they are seeing on a wireless device.

Quality of education is often also tied closely to **property values**. Digital connectivity also plays a foundational role in the education system. The benefits of internet access & remote learning, combined with

the best in classroom teachers were already moving fast, but entered the high-speed lane over the pandemic year.

Investment in broadband and mobility infrastructure supports Workforce Development.

As flexible work locations continue to become the norm for many businesses, reliable, high-performance internet is essential to maintaining **productivity and employment**. Traditional urban dwellers are moving at rapid pace to smaller communities, often with lower costs of living, but only where there is supportive infrastructure. For employers, reliable connectivity solutions set up **confidence in remote working arrangements**, reducing the need for premature return-to-work decisions and increased employee satisfaction. For employees, it supplies the security and assurance that they can perform their responsibilities and continue to contribute to the workplace irrespective of location.

During the pandemic, access to the internet became a primary criterion for where people chose to work and live. Rural communities that were ready benefited from a mass migration of people from large metro cities to sometimes rural, easy to live in, communities. This began to draw the direct line between broadband availability and home prices, and the associated tax base they provide.

Investment in broadband and mobility infrastructure supports Healthcare though Telehealth & Telemedicine.

The widespread need for reliable broadband provides the foundational connectivity layer to **drive telehealth and telemedicine adoption** to improve health outcomes.

Telehealth is changing the nature of healthcare and outcomes as we know it. More healthcare providers are now faced with delivering not only an elevated level of care, but also reliability of service when practicing remote. This is particularly challenging in rural areas of America.

- **Mobile Healthcare is evolving.** \$250B of U.S. healthcare spend could be virtualized.
- **Remote Healthcare today.** More than \$1B virtual healthcare visits happen each year.
- **Home Care is rising.** 10,000 seniors turn 65 in the U.S. each day; most desire to remain in their own homes as they age.

Wireless infrastructure offers healthcare organizations the ability to provide remote healthcare for patients through reliable internet connections. This includes internet for in-home virtual visits, online consultations, remote patient outreach and remote monitoring. Home Health teams can securely gather and share patient intake data with a broader care team including specialists and primary care physicians.

Investment in broadband and mobility infrastructure supports Precision Agriculture.

Mobile and Fixed broadband is an enabling technology for **precision agriculture**, including **location and tracking of high value assets & livestock, soil monitoring, feed monitoring** and more Internet of Things options essential to yields in the farming community.

Investment in broadband and mobility infrastructure supports Tourism.

The natural beauty and musical heritage of Grayson County creates opportunity in tourism that requires connectivity for public safety and to meet visitor expectations. This includes areas where people travel to be disconnected, for even in those areas, when connectivity is desired, it is expected.

Investment in broadband and mobility infrastructure supports Small Business Operations.

It's practically impossible to run a small business today without adequate connectivity. Modern **Point of Sale, Workforce Management** (payroll), **Inventory Control** and **Marketing/Promotion** systems require connectivity for basic operations.