

# Project Information

**Company:** AMG Technology Investment Group

## Project Description

### General Info

<b>Project #:</b>	209
<b>Project Name:</b>	Project GUMBO West Carroll - NextLink
<b>Total Project Cost:</b>	537,305.59
<b>Total project cost per prospective broadband recipient:</b>	1,350.01
<b>Infrastructure cost per prospective broadband recipient:</b>	1,350.01
<b>Number of households to be served:</b>	3694
<b>Number of businesses to be served:</b>	74
<b>GUMBO cost per prospective broadband recipient:</b>	945.01
<b>Number of GUMBO households to be served:</b>	381
<b>Number of GUMBO businesses to be served:</b>	12
<b>General Location/Parishes:</b>	West Carroll
<b>Base Speed (Minimum Download/Upload):</b>	100/100
<b>Supported Scalability Speeds (Minimum Download/Upload):</b>	300/300+ 2023 / 500/500+ starting in 2024

### Qualifications and Experience:

Provide the following details:

- Number of years the applicant has provided internet services;
- A history of the number of households and consumers, by year of service, to which the applicant has provided broadband internet access, as well as the current number of households to which broadband internet access (at least 25:3 Mbps) is offered;
- The number of completed internet service infrastructure projects funded, in part, through federal or state grant programs, prior to the date of application submittal;
- Whether the applicant has ever participated in an internet service infrastructure project funded, in part, through federal or state grant programs, and if so, for each project, the nature and impact of the project, the role of the applicant, the total cost of the project, and the dollar amount of federal or state grant funding;
- The number of penalties paid by the applicant, a subsidiary or affiliate of the applicant, or the holding company of the applicant, relative to internet service infrastructure projects funded, in part, through federal or state grant programs, prior to the date of application submittal; and
- The number of times the applicant, a subsidiary or affiliate of the applicant, or the holding company of the applicant has ever been a defendant in any federal or state criminal proceeding or civil litigation as a result of its participation in an internet service infrastructure project funded, in part, through federal or state grant programs, prior to the date of application submittal

Number of years the applicant has provided internet services; Answer: Nextlink Internet has provided internet services for 10 years in Texas and has expanded its geographic footprint into Oklahoma, Kansas, Nebraska, Iowa, Illinois, and South Dakota. The applicant is also a provisional Rural Digital Opportunity Fund (RDOF) winner in the above states plus Indiana, Louisiana, Minnesota, Wisconsin, and Wyoming. The applicant provides internet service using its hybrid deep fiber/fixed wireless technologies to deliver broadband of 100Mbps symmetrical speeds, plus future upgrades planned. Our approach helps to ensure rapid deployment and efficient use of capital, particularly in rural markets. A history of the number of households and consumers, by year of service, to which the applicant has provided broadband internet access, as well as the current number of households to which broadband internet access (at least 25:3 Mbps) is offered; Answer: Nextlink currently serves 80,000 residential and business subscribers, increasing from 6,000 at the end of 2015, with performance ranging between 25/3 to 10 Gbps. The

network currently covers approximately 1.35 million households and growing. The number of completed internet service infrastructure projects funded, in part, through federal or state grant programs, prior to the date of application submittal; Answer: The applicant has completed all milestones associated with its participation in the Connect America Fund Phase II Auction (CAF II). The FCC considers each CAF II state as a separate project and Nextlink has already completed the FCC early 20% completion milestone in five of the six states. In addition to completion of the CAF II project milestones in five states, Nextlink has also successfully completed all project requirements to participate in the Texas Education Agency Connect Texas Program with the program officially launching in May 2021. Whether the applicant has ever participated in an internet service infrastructure project funded, in part, through federal or state grant programs, and if so, for each project, the nature and impact of the project, the role of the applicant, the total cost of the project, and the dollar amount of federal or state grant funding; Answer: The applicant participated in the Connect America Fund II Auction (CAF II) and was awarded over \$281 million to provide internet services to over 100,000 aggregate covered locations (households and small businesses) in Texas, Oklahoma, Kansas, Nebraska, Iowa, and Illinois. While the related infrastructure project is to be completed within six years, the applicant has made significant progress in all states, clearing an early 20% milestone in five of the six states. Taken together, the applicant is at approximately 40% complete on its CAF II obligation, significantly in advance of the FCC completion milestone of 40% by December 31, 2022. The number of penalties paid by the applicant, a subsidiary or affiliate of the applicant, or the holding company of the applicant, relative to internet service infrastructure projects funded, in part, through federal or state grant programs, prior to the date of application submittal; and Answer: The applicant has never paid a penalty relative to any internet service infrastructure projects. The number of times the applicant, a subsidiary or affiliate of the applicant, or the holding company of the applicant has ever been a defendant in any federal or state criminal proceeding or civil litigation as a result of its participation in an internet service infrastructure project funded, in part, through federal or state grant programs, prior to the date of application submittal Answer: The applicant has never been a defendant in any federal or state criminal proceeding or civil litigation because of its participation in an internet service infrastructure project.

### Financial Background:

- Provide five years of financial statements, pro forma statements, or financial audits to ensure financial and organizational strength regarding the ability of the applicant to successfully meet the terms of the grant requirements and the ability to meet the potential repayment of grant funds. If the applicant has been in business for less than five years, provide documentation for the number of years in business
- Indicate whether the applicant, a subsidiary or affiliate of the applicant, or the holding company of the applicant has ever filed for bankruptcy

Provide five years of financial statements, pro forma statements, or financial audits to ensure financial and organizational strength regarding the ability of the applicant to successfully meet the terms of the grant requirements and the ability to meet the potential repayment of grant funds. If the applicant has been in business for less than five years, provide documentation for the number of years in business. The applicant has provided attachments to the application including financial statements as of and for the years ended 12/31/2016 (reviewed) and 12/31/2017 through 12/31/2020 (audited). Indicate whether the applicant, a subsidiary or affiliate of the applicant, or the holding company of the applicant has ever filed for bankruptcy. The applicant has never filed for bankruptcy.

### Partnerships:

Provide the identity of any partners or affiliates if the applicant is proposing a project for which the applicant affirms that a formalized agreement or letter of support exists between the provider and one or more unaffiliated partners where the partner is one of the following:

- a separate private provider of broadband service, requiring a formalized agreement; or
- a nonprofit or not-for-profit, or a for-profit subsidiary of either, and the applicant is:
  - being allowed access and use of the partner's infrastructure, on special terms and conditions designed to facilitate the provision of broadband services in unserved areas, requiring a formalized agreement;
  - utilizing a matching financial and/or in-kind contribution provided by one or more partners,

- requiring a formalized agreement; or
- a parish, municipality, or school board, or any instrumentality thereof, may qualify as a nonprofit for the purposes of the GUMBO grant program. Letters of support by a parish, municipality, or school board, or any instrumentality thereof, supporting an application may be submitted as part of an application. A letter of support does not require a formalized agreement.
- Provide a brief narrative explaining how the partnership or affiliation will facilitate deployment and reduce cost per prospective broadband recipient. For applications or project areas where the nonprofit or not-for-profit partner provides only matching financial support, that information can be documented in the budget section within the relevant application or project area.

a separate private provider of broadband service, requiring a formalized agreement; or a nonprofit or not-for-profit, or a for-profit subsidiary of either, and the applicant is: being allowed access and use of the partner's infrastructure, on special terms and conditions designed to facilitate the provision of broadband services in unserved areas, requiring a formalized agreement; utilizing a matching financial and/or in-kind contribution provided by one or more partners, requiring a formalized agreement; or a parish, municipality, or school board, or any instrumentality thereof, may qualify as a nonprofit for the purposes of the GUMBO grant program. Letters of support by a parish, municipality, or school board, or any instrumentality thereof, supporting an application may be submitted as part of an application. A letter of support does not require a formalized agreement. Answer: Nextlink Internet has reached out to and has had discussions with several leaders in each of the 8 parishes included in our application. A listing of these contacts is attached to this application. Nextlink has found that many parish leaders have waited on the GUMBO program before making commitments with service providers. Provide a brief narrative explaining how the partnership or affiliation will facilitate deployment and reduce cost per prospective broadband recipient. For applications or project areas where the nonprofit or not-for-profit partner provides only matching financial support, that information can be documented in the budget section within the relevant application or project area. Answer: Local partnerships have not been determined at this time. Nextlink has many public/private partnerships in states currently served and would expect to develop mutual support with schools, libraries, health care, working with electric cooperatives, farm bureaus, and similar non-profit groups. Nextlink Internet has partnered with the Microsoft Airband Initiative since 2019. Microsoft has provided the attached letter of support while offering detail on our joint efforts to help close the digital divide by continuing to expand internet service to previously underserved or unserved rural households. An excerpt from Microsoft's letter: "As part of its relationship with Airband, Nextlink benefits from access to technical expertise, preferential pricing on innovative technological solutions, as well as digital skills training and a free technical hotline for its customers through PCs for People, another Airband partner. Nextlink also collaborates with National 4-H, another Airband partner, to deliver a digital skills education program entitled Tech Changemakers, which empowers youth to train other community members on digital literacy. In alignment with our vision of digital transformation for communities, Microsoft Airband also applauds Nextlink's efforts to drive business impact in broadband-enabled verticals, including small business, education, telemedicine, and precision agriculture. We know that these projects deliver new efficiencies and innovation, enable greater economic activity, improve quality of life and opportunity for local communities." Additionally, Nextlink has received letters of support from LABI, the Louisiana Association of Business and Industry, and the LSU Ag Center, with whom we hope to foster growth and employment opportunities for local communities.

For work being performed by Hudson Initiative or Veterans Initiative qualified applicants or contractors, provide documentation and/or a formalized agreement.

Nextlink Internet does not anticipate any work being performed by Hudson Initiative or Veterans Initiative qualified applicants or contractors.

## Project Area

### Assessment of the Current Level of Broadband Access in the Proposed Deployment Area

Describe the current level of service within the area and provide the data source or methodology used to capture this information. Raw data may be submitted as part of the assessment. If data is available to support differences between advertised and transmission speeds, applicants may also submit applications

for areas where transmission speeds are less than 25:3 Mbps.

The criteria set forth as the base of the grant included any census block where internet service speeds did not meet 25 Mbps download and 3 Mbps upload. Also, these census blocks could not be a part of another federal grant program, including CAF, RDOF, etc. To capture the eligible areas for the grant, the latest full FCC 477 dataset (December 31, 2020) was used in correlation with analysis done in ESRI ArcGIS Pro to determine which census blocks met the criteria. The analysis was performed in multiple steps: Step 1 – the table was processed under an advance filter to select data by census block ID and maximum download speed and maximum upload speed. This provided a table sorted by census block with highest speeds being the first entry per census block in the table. Step 2 - deletion of any identical census block that had a lower speed, leaving only the maximum speed per block. Any census block that met the criteria of 25 Mbps/3 Mbps or higher was removed from the table leaving only eligible blocks. These blocks were then joined to the census block spatial dataset using the census block ID as the common field. This gave a spatial dataset of the eligible blocks available, which was used in conjunction with the wireless propagation data to finalize the census blocks included in application. These census blocks are in the shapefile deliverables and contain the FCC 477 information.

## Services

Provide a description of service options to be provided:

Service Name	Upload/download speed	Date of 1st Availability	Data Cap	# of recipients	Price
NEXT50x10 GUMBO	50 Mbps / 10 Mbps	9 months	None	393	69.95
NEXT100x20	100 Mbps / 20 Mbps	9 months	None	393	89.95
NEXT100x100	100 Mbps / 100 Mbps	9 months	2 TB	393	99.95
NEXT300x300	300 Mbps / 300 Mbps	June 2023	2 TB	390	149.95
NEXT500x500	500 Mbps / 500 Mbps	June 2024	2 TB	367	169.95

## Marketing

Provide documentation for applicant engagement to connect consumers with community education forums, multimedia advertising, and marketing programs.

Connect consumers with community education forums Technology can play a powerful role in helping people connect, learn, engage with their community, and create more promising futures. At Nextlink, we've partnered with Microsoft to bring broadband service to our communities via their Airband Initiative to provide access to curated learning resources. These resources can help you build the technology skills needed to participate in today's digital economy. We've also partnered with organizations like 4-H to empower young people to close the digital divide in their communities. See: <https://nextlinkinternet.com/about-us/partnerships-and-acquisitions/digital-literacy/DigitalLiteracy.pdf> attached Multimedia advertising Nextlink advertises on a variety of digital platforms including Facebook, Instagram, Nextdoor, LinkedIn, and Google. MultimediaAdvertising.pdf attached Marketing programs Nextlink markets to potential customers using a variety of methods including direct mail, door hangers, leave behinds, etc. DirectMail.pdf and LeaveBehind.pdf attached

## Adoption

Provide documentation that shows low-income household service offerings, digital equity or literacy support, or programs or partnerships to provide these services. The applicant should also indicate current participation in, or plans to, accept the federal Lifeline subsidy.

Nextlink actively offers financial assistance for qualifying households to make devices available and to reduce monthly service costs through its current participation in the Emergency Broadband Benefit Program, which will be transitioning to the Affordable Connectivity Program on March 1, 2022. (See attached or go to: <https://nextlinkinternet.com/top-rated-home-internet-service-provider/ebbp/>) Our partnership with Microsoft drives our work on digital equity and literacy programs. (See: Microsoft letter). Nextlink is also a meaningful Lifeline provider. (See attached or go to: <https://nextlinkinternet.com/home-phone-service/lifeline/>)

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## Community Support

Evidence of support for the project from citizens, local government, businesses, and institutions in the community, including letters of correspondence from citizens, local government, businesses, and institutions in the community that supports the project

Our talks with the eight targeted parishes give Nextlink reason to believe that our rapid deployment model to reach unserved households is of strong interest. To date, although interest has been expressed in each parish we intend to serve, our evidence is limited to our contact sheet, see attached contact list LA - Parrish contacts.pdf. Additionally, Nextlink believes in giving back to the community. We note the many examples of community support through the work of ISPs in Tier 1 & 2 cities. There are insufficient levels of support for rural communities. Nextlink proactively seeks out need in its rural markets to help fulfill frequent giving's throughout its service territory; as found attached or see: <https://nextlinkinternet.com/about-us/community/>

## Local Workforce

Documentation of a workforce plan prioritizing the hiring of local, Louisiana resident workers, to include a signed letter of intent with a post-secondary educational institution that is a member of the Louisiana Community and Technical College System, containing an obligation upon the applicant, and contractors or subcontractors of the applicant, to put forth a good-faith effort to hire, when possible, recent graduates of broadband-related programs.

Attached, please see a signed letter by William Epps regarding mutual collaboration with executive staff members of the Louisiana Community and Technical College System. In addition, the applicant has attached its own letter to Mr. Iyengar which offers additional detail on Nextlink's workforce plans.

## Technical Report

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### Reporting Requirements

Explain in technical detail the technologies to be used in the proposed project and the broadband transmission speeds offered to prospective broadband recipients as a result of the project. If it would be impracticable, because of geography, topography, or excessive cost to design a broadband infrastructure project that would deliver 100:100 Mbps, the applicant must provide an explanation. Transmission speeds of 100:20 Mbps are the minimum allowable under this grant program.

Nextlink utilizes a variety of technologies and network architectures for the delivery of voice and high-speed internet services to customers in rural communities. The services are delivered through both fiber and wireless technologies which are interconnected into multiple data centers across multiple states to provide customers with an exceptionally reliable and resilient customer experience. The technologies and architecture used within each of the transport segments of the networks are further elaborated below. Last Mile For its over 80,000 subscribers across the seven states in which it currently serves, Nextlink utilizes last mile technologies using both fiber and fixed-wireless technologies. Internet speeds as high as 10Gbps are provided to subscribers. As previously reported on Nextlink's Form 477 filings during 2019 and 2020, Nextlink is actively providing gigabit services to subscribers using both fiber and wireless technology methods. Note: As one of the largest internet providers for rural school districts across its multi-state service area, Nextlink has numerous gig and multi-gig school districts it serves in both fiber as well as fixed wireless delivery technologies. Wireless: Nextlink's last-mile wireless connections to the premise today utilizes a combination of point-to-point and point-to-multipoint wireless connections utilizing (CBRS) 3.5 GHz, 5 GHz, and 80 GHz spectrum bands. (Note: To further enhance the 100Mbps symmetrical and Gigabit service tiers, 6 GHz will transition from testing to full production for areas in 2022 using the Cambium ePMP6K product solution and Tarana G1 and G2 platform to provide wireless speed performance at the gigabit level.) See attached Table 1 - Nextlink's Last Mile Wireless Technology Currently In Use We highlight that network buildout decisions around the technologies mentioned vary by census block due to factors such as topology, clutter, and covered location density. Nextlink's operational model provides the flexibility and capability to address and build-out any needed necessary network components in a specific geography such as middle mile fiber transport/wireless backhaul and tower sites. Nextlink proposes to use its current last mile topologies, technologies,

and protocols in both wireless and fiber-based deliveries to interconnect end users to the Nextlink network as well as 6 GHz wireless point to multi-point technology. The table below summarizes the last mile technologies. See attached Table 2 – Nextlink’s Proposed Last Mile Technologies All network designs and topologies used to deploy the multi-faceted last mile approach adhere to industry standards and are proven technologies in use by Nextlink today. Nextlink has invested in multiple facilities for validating products and network designs prior to deployment. These facilities allow Nextlink to build standardized hardware deployments by better understanding the true real-world capacities and required signal to noise ratios to maximize the quality of service for the subscriber regardless of whether the technology is fiber or wireless based and achieve Nextlink’s targeted latency level of sub-30ms. round trip time. Nextlink will primarily utilize point-to-multipoint wireless connections for last mile wireless connections including 5 GHz, and 6 GHz will be added to the utilized spectrum portfolio using the Cambium ePMP6000 product line and Tarana G1 and G2 platforms. In a limited number of situations, Nextlink anticipates using point to point solutions for last miles connections.

Explain the scalability of the broadband infrastructure to be deployed to meet future bandwidth needs.

The network’s scalability to support customer growth and network data usage growth to account for ever-increasing application requirements Nextlink has engineered its network to be extremely dynamic, with a datacenter in 6 states and multiple 100G Transport connections in both Layer 1 and Layer 2 currently connecting them all. Currently Nextlink operates six (6) transit datacenters across its footprint. Nextlink is directly peered or connected with the top content providers in the nation such as Microsoft, Google, Netflix, Hulu and many more. At the physical layer, Nextlink collocates at Tier 3 data centers, constructs, and maintains its own tower infrastructure, co-locates pre-built vertical assets typically from Tier 1 vendors, and constructs and maintains fiber optic plant. The Nokia FX series is used for Nextlink’s FTTx distribution network. Nextlink maintains a centralized warehouse along with numerous small warehouses in the field in which spares for all types of network and transmission gear is maintained. This allows Nextlink to operate a vibrant and secure network environment with high uptime and provide quick response to outages. In conjunction with its physical plant, Nextlink also incorporates multiple NNI’s with facilities-based transport providers to interconnect towers and markets to the collocation facilities. These interconnections are supported with Layer 2 circuits that provide the “backbone” needed to maintain low latency, resilient connections throughout the WAN. Nextlink maintains NNIs with national telecommunication carriers such as AT&T, Zayo, Century Link, Windstream, Mediacom, Cable One, and more regional operators such as Fiber Light, Dobson, Great Plains Internet giving Nextlink diverse options to expand across the US. Across its data centers, Nextlink maintains multiple 100Gbps connections with Tier 1 IP transit providers such as Zayo, Cogent and Hurricane Electric. These IP transit providers peer with full BGP routes to promote maximum uptime for Nextlink’s customers. This also includes a dedicated peering connection to the voice services provider. Nextlink aggregates voice traffic and routes these data packets through redundant hardware devices to the upstream carriers. Multiple product sets for the various market segments Nextlink supports residential, enterprise, government and SLED are maintained by this architecture. These physical and logical components makeup the framework of Nextlink’s product set. At an elevated level, Nextlink’s architecture consists of multiple core routers. WAN transport elements are comprised of multiple fiber rings and Layer 2 circuits and interconnect to the core routing infrastructure. This transport network allows Nextlink to operate routing protocols from the core routers to fiber-based transport POPs located throughout the Nextlink service footprint. Each level of the Nextlink network has the resiliency and redundancy needed to set the foundation for scalability built in. Here are just a few of the ways scalability is accomplished: At the Core - Core Routers - Each core site has redundant core routers provided by the Nokia 7750 routing platform. These routers perform several functions including border routing for the upstream peers as well as BNG functions such as DHCP and customer traffic shaping. Each one of these routers can scale at least 19.2Tbps of throughput capacity. If that capacity is reached, the customer traffic can be routed to their alternate sites using SRRP Subscriber Router Redundancy Protocol. Then the under-capacity router can be replaced with a high-capacity model with zero impact to the subscriber. Deep Packet Inspection (DPI) – Nextlink has deployed redundant DPI and QoE devices provided by Procera iQ42300 platform. These devices provide CGNAT, Access Point level shaping, customer level shaping, application prioritization, DSCP traffic marking as well as customer and application performance reporting. Each one of these devices has a throughput capacity of 160Gbps. If an IQ starts to reach its capacity, another can be placed in parallel adding an additional 160Gbps of throughput capacity. Aggregation Routers – These Nokia 7250 IXRs routers provide a point to aggregate the transport network connections to terminate at the datacenter. They also provide a place to tunnel traffic to the 7750s various internal VPRNs in the case of smaller 10G upstream peers. These can be scaled by adding more additional units and directly connecting them to 7750 SRs. Server clusters – All of the network services such as DNS, RADIUS and monitoring are deployed on clusters of 3 VM hosts running VMware ESXi. As demand and new functions are required, new VMs and VM

hosts can be deployed and added to the cluster increasing Nextlink's data processing and service capacity. Fiber Pop/Site – A fiber pop or fiber site in the Nextlink network is defined as any site that terminates an upstream transport fiber circuit. Due to the expected high-capacity requirements, these sites will have a Nokia 7250-IXRe router or better. The primary function of these sites is to distribute the fiber network connectivity out to the other sites via other fiber connections or microwave backhaul. The electronics are powered from DC power control systems which will afford them 8+ hours of uptime. In the event of the loss of communication or degeneration of service, with the electronics, the NOC will receive a notification to alert on-call field technicians to bring temporary power solutions to the site. Tower Site– A tower site is any large vertical asset whose primary purpose is to provide wireless PtMP and wireless backhaul transport to other tower sites. It can also provide PtP wireless coverage for high demand subscribers. At the tower level, each site has at least 2 connections to other towers for redundancy. In addition to 8+ hours of backup power, Nextlink has a strict 4- hour SLA in the event of a complete site outage. When the microwave backhaul links trend toward benchmark capacity limits, Nextlink will add additional parallel links between the sites in either new channels or using cross-polarization interference cancelling technology (XPIC). Fixed Wireless Access– In the fixed wireless access network tower sites host wireless access points. The 802.11 wireless access points are powered from the access switch. The wireless access switch is powered from the power control systems which will afford them 8 hours of uptime for the switch and access points. In the event of the loss of communication or degeneration of service, with the wireless access point, the NOC will receive a notification and they will proceed to move the subscribers affected to other access points. Before an access point hits its capacity limit, Nextlink can address the issue in a multitude of ways including but not limited to, adding additional access points in the same direction, adding access points using different spectrum assets, as well as adding smaller towers in the area to offload the oversubscribed tower. Fixed Wireless Subscriber - The subscriber receives Internet and voice access to the Nextlink network through a Subscriber Module (SM) mounted at the premise. Each Nextlink Fixed Wireless Subscriber receives an SM, UPS, and router. The UPS is sized to provide two hours of backup time to the router and SM. Subscribers can elect to add VOIP services to their existing 4 wire hardware via an ATA (analog telephone adapter.) The ATA's power is backed up using the same battery backup system. Nextlink offers a 24-hour battery back-up solution. Increasing quality demands- As part of Nextlink's growth, quality has always been at the forefront. Nextlink has Nokia core and transport routers and Procera for QoS that are dynamic, scalable, and interactive with our users demands and built with a foundation for growth. Nextlink currently has a core capacity of nearly 3.6Tbps which can be easily upgraded with additional cards in the 7750 chassis. The interstate transport network is currently capable of 200Gbps with scale to 800Gbps with circuit upgrades and additional 800Gbps with card updates with the Nokia 7750 and 7250 route/switch platforms. Further to quality, Nextlink actively manages its fiber and fixed wireless networks in terms of distance from the furthest subscriber in an area to middle mile transport locations and works to ensure as the network grows that latency remains low by identifying where additional middle mile transport locations should be inserted into the network to ensure that hops whether over fiber or fixed wireless do not negatively impact quality and latency. Lower response/latency demands for ever increasing usage of highly interactive applications - As mentioned above when additional capacity is needed and latency needs to be reduced due to circuit loading, we will introduce/convert our aggregation datacenters into IP transit facilities with local caching, peering and additional connections as demand dictates. The route/switch architecture is built in such a way that we are expecting to add additional Nokia 7750 core routers as the network demand suggests a call for action.

Provide a proposed construction timeline and duration of the deployment project period. The deployment project period is the time from award of the grant agreement to the time that service is available to the targeted prospective broadband recipients under the grant. Describe estimated timeline, deployment roll-out and number of end-users to be served in each phase (10 percent, 35 percent, 60 percent, 85 percent, 100 percent).

Upon grant award, Nextlink will enter a 60-day Operational Planning and Permitting period to review and finalize engineering designs and logistical support. Permits and utility coordination will begin during this time. Initial supporting fiber circuits and tower leases will begin at the completion of this phase. Estimated construction start time will be 60 days from time of award notification and construction is projected to be 10% complete within six months of award notification. Table 3 attached describes milestones and Gumbo Households Passed (GHHP) representing the eligible residences and businesses available for grant support by parish. Project overviews can be found in the Table 3 - Gumbo Project Plan attachment.

   Wired Infrastructure

  X   Fixed Wireless

## Fixed Wireless Deployment Reporting Requirements

Describe the general design of the project and deployment plan and include the following:

- Explanation of the existing networks and equipment to be used for the project. If assets are owned by another entity, explain how they will be used for this project and, if applicable, provide a copy of the agreement between the applicant and the owner.
- Total number of miles of project infrastructure deployment, and the number of miles of project infrastructure deployment accounted for by preexisting infrastructure
- Detailed explanation of how the new or upgraded infrastructure will serve the prospective broadband recipients. In the case of the installation or upgrade of a specific site infrastructure, such as a vertical asset, the applicant must include:
  - Description and specific location of the vertical asset;
  - Owner of the vertical asset;
  - Number of prospective broadband recipients that will be served by that site infrastructure
  - The distance from the vertical asset to the end user(s) and the expected broadband speed that will be effectively delivered;
- Detailed description of the design work needed for deployment, such as, but not limited to, acquiring access to existing vertical assets, acquiring or updating easements, and/or property acquisition;
- Description and specific type of the equipment used for deployment and the capable speed of the equipment;
- Explanation of the frequency/frequencies to be utilized for the deployment, whether the deployment will use licensed or unlicensed technologies, as well as mitigation of line-of-sight challenges (which should correspond to the number of recipients to be served).

Describe the general design of the project and deployment plan and include the following: Tower location, type, and number of Gumbo recipients served can be found in the Gumbo Grant Tower Information attachment. Tower partner locations to be utilized, Nextlink's long standing relationship with national and regional fiber providers will provide the back bone for the project networks, while microwave back hauls between sites will ensure a robust and redundant network. Explanation of the existing networks and equipment to be used for the project. If assets are owned by another entity, explain how they will be used for this project and, if applicable, provide a copy of the agreement between the applicant and the owner. Nextlink's project designs utilize our existing relationships with national tower companies and fiber providers to rapidly deploy broadband speeds to underserved areas. Nextlink has hundreds of existing leases with ATC(InSite), Harmoni, Uniti, and Tillman Infrastructure. In the single case where Nextlink will construct a new tower, our site acquisition, permitting, and construction teams have years of experience negotiating with land owners, local, state, and federal regulations over hundreds of new constructions projects over six states Total number of miles of project infrastructure deployment, and the number of miles of project infrastructure deployment accounted for by preexisting infrastructure Nextlink's designs will utilize 31 tower partner locations. Detailed explanation of how the new or upgraded infrastructure will serve the prospective broadband recipients. In the case of the installation or upgrade of a specific site infrastructure, such as a vertical asset, the applicant must include: Description and specific location of the vertical asset; Owner of the vertical asset; Number of prospective broadband recipients that will be served by that site infrastructure The distance from the vertical asset to the end user(s) and the expected broadband speed that will be effectively delivered; Tower location, type, and number of Gumbo recipients served can be found in the Gumbo Grant Tower Information attachment. Detailed description of the design work needed for deployment, such as, but not limited to, acquiring access to existing vertical assets, acquiring or updating easements, and/or property acquisition; Nextlink has hundreds of existing leases with ATC(InSite), Harmoni, Uniti, and Tillman Infrastructure. In the single case where Nextlink will construct a new tower, our site acquisition, permitting, and construction teams have years of experience negotiating with land owners, and local, state, and federal regulations during hundreds of new construction projects over six states. Description and specific type of the equipment used for deployment and the capable speed of the equipment; Explanation of the frequency/frequencies to be utilized for the deployment, whether the deployment will use licensed or unlicensed technologies, as well as mitigation of line-of-sight challenges (which should correspond to the number of recipients to served). Nextlink will be performing this project using Tarana Networks G1 and G2 equipment platforms. This will utilize approved FCC UNII bands 1, 3, 5 & 7 in 5GHz and 6GHz spectrum. Distributed Massive MIMO - Large numbers of radios increase precision of all algorithms; an even balance between base and remote nodes makes more complex and accurate techniques (  $O(n^3)$  ) rather



than just O(n) ) feasible Precise digital beam and null forming on both TX and RX - The foundation of all that follows: extremely well-controlled distribution and reception of radio energy only where productive Closed-loop beamforming adaptation - Collaboration between base and remote nodes further improves digital beamforming accuracy 3D equalization - Applying signal processing across time, frequency, and spatial domains yields a perfect channel even with the most complex diffraction, reflection, and motion effects Autonomous, adaptive co-channel interference cancellation - Huge spectral efficiency gains through dense co-channel link operation Our fixed wireless asset GUMBO tower information spreadsheet has more information than the chart below allows. It is attached here for reference. Tower sites will have leased fiber to one of the 3 locations.

**Fixed Wireless Assets**

Existing Network	Existing Equipment	New/Upgraded Infrastructure	Installation Type	Num of Recipients	Avg Distance in Miles Between Prospective Recipients	Expected Speed
Harmoni-LAMON2034 -		Harmoni-LAMON2034	Fixed Wireless	238	0.260	100MB/100MB or Greater
Harmoni-LAMON2037 -		Harmoni-LAMON2037	Fixed Wireless	89	1.480	100MB/100MB or Greater
Harmoni-LAMON2054 -		Harmoni-LAMON2054	Fixed Wireless	71	1.050	100MB/100MB or Greater

**Budget**

**Budget**

The project budget should reflect all eligible project costs to be funded through the GUMBO Grant Program. Additionally, the project budget should include the minimum provider funding match of at least 20%, any local government funding match from a parish, municipality, and/or school board, or any instrumentality thereof, and the requested GUMBO Grant Program funding.

Budget has a Nextlink Cost Match of 30% for each project. The take rate for covered eligible locations is estimated to be 70%, to be reached over a five-year period. All towers are comprised of existing infrastructure to be leased from tower partners with whom we have long-established relationships. No administrative, recurring, or maintenance costs have been included. Budgeted costs are direct infrastructure build-related costs, primarily for equipping leased towers, and for CPE installation at the assumed take rate for eligible locations.

**Proof of Funding Availability**

Provide a signed letter of funding availability from each source of funds committed for the project. If loan or other grant funds are pledged, a loan/grant commitment letter from each source of funds must be included. Should an applicant be an awardee of Universal Service, Connect American Phase II, Rural Digital Opportunity Fund, or other federal or non-federal funds for the deployment of broadband service, the applicant shall attest as to whether or not the applicant's GUMBO application and associated project's buildout is dependent upon such awarded funds.

Please see attached attestation letter for this section.