

Project Information

Company: Vexus Fiber

Project Description

General Info

Project #:	5
Project Name:	VEXUS-TANGI-GUMBO-2021
Total Project Cost:	5,112,924.00
Total project cost per prospective broadband recipient:	3,045.00
Infrastructure cost per prospective broadband recipient:	3,045.00
Number of households to be served:	1353
Number of businesses to be served:	326
GUMBO cost per prospective broadband recipient:	1,292.09
Number of GUMBO households to be served:	1353
Number of GUMBO businesses to be served:	326
General Location/Parishes:	Tangipahoa
Base Speed (Minimum Download/Upload):	150/150
Supported Scalability Speeds (Minimum Download/Upload):	1Gig/1Gig

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

Attached is a brief history along with list of completed government projects. Vexus has not paid any penalties etc nor has it been a defendant in any federal or state proceedings.

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

See attached financials and financial cover letter as well. No bankruptcies for applicant, subsidiary or affiliate of the applicant or the holding company.

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.

The partnership between Vexus, Tangipahoa Parish and GUMBO offers a fantastic opportunity to not only bring state-of-the-art broadband services to the unserved communities in the Parish, but to provide those services at a reasonable price point in communities with persistent poverty. As demonstrated by the enthusiastic letters of support, the partnership extends broadly to the cities and towns affected, the healthcare system, University and Community College Systems, Parish Economic Development, the Parish School Board and Parish real estate developers, who all agree that the infusion of these services will positively affect the standard of living, delivery of telemedicine and workforce training, as well as access to a resilient underground network that will attract businesses to the area, and the jobs that they will bring. The Parish has seen catastrophic damage from Hurricane Ida, and the toll of the COVID Pandemic, both of which revealed the glaring need for reliable access to high-speed fiber networks. In the communities where Vexus currently serves, customers were able to get access to internet the day after the storm, as the network is almost entirely underground. The new build will also be underground, assuring that same network strength and accessibility in the areas planned to be served. With such a strong and comprehensive team, representing all facets of Parish government, businesses, Healthcare and Education, deployment of the network will be extremely efficient. Everyone is on the same page, sharing the same goals, understanding the positive impacts and the growth minded, community-centric

focus required for ubiquitous buy-in and streamlining of operations. It takes a team, and ours is tough to beat.

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

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.

Using the middle mile transport provided by Tangipahoa Parish, Vexus will provide services to the unserved areas of Fluker, Tangipahoa and Kentwood. Using ConnectLA's reference sites, we chose Broadband USA and NTIA input data to validate unserved markets within the shown polygons and census blocks. These markets highlighted do not meet or exceed the minimum 25:3Mbps service requirements categorizing them as unserved. Attached is the raw data supporting these findings.

Services

Provide a description of service options to be provided:

Service Name	Upload/download speed	Date of 1st Availability	Data Cap	# of recipients	Price
150/150	150Mbps/150Mbps	12/31/21	None	1379	39.99
400/400	400Mbps/400Mbps	12/31/21	None	1379	39.99
1Gig/1Gig	1000Mbps/1000Mbps	12/31/21	None	1379	69.99

Marketing

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

See 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.

See Attached

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

See Attached

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.

Throughout the 25 years that Vexus has been in the Louisiana market, we have always hired locally and promoted from within. The increased footprint that the GUMBO program will add will only enhance that practice. We are working closely with all of the entities listed below to strengthen the training programs offered and provide actionable career opportunities for Louisiana workers now and into the future. Vexus estimates the creation of over 100 jobs to construct and operate the Vexus-Tangipahoa-Gumbo project. This estimate is based on studies finding that 20 jobs are created for each \$1million in investment in the construction of a fiber to the premises network (Jeffrey Eisenach, Hal Singer, and Jeffrey West, Empiris, LLC, Economic Effects of Tax Incentives for Broadband Infrastructure Deployment, pp. 8-9 (January, 2009)) In addition, by accelerating affordable Advanced Broadband deployment to communities without access to such state of the art technology today, the Vexus network will attract new businesses to these communities, which will generate economic activity and create approximately an additional 40 jobs. These projections are based on studies showing the indirect creation of one job for every 10 subscribers to an Advanced Broadband network. (Jeffrey Eisenach, Hal Singer, and Jeffrey West, Empiris, LLC, Economic Effects of Tax Incentives for Broadband Infrastructure Deployment, pp. 17-18 (January, 2009); see also, Robert Crandall, William Lehr, and Robert Litan; The Effects of Broadband Deployment on Output & Employment: A Cross Sectional Analysis of U.S. Data, 6 Issues in Economic Policy 12-14 (July 2007).

Technical Report

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.

Speed- Minimum Speed of 150Mbps X 150Mbps up to 1Gbps X 1 Gbps No data cps are used Last Mile: Hub and spoke style topology for last mile to customer premises. Adtran GPON shelf technology providing shared fiber access to multiple customer nodes via G.984 protocol compliant GPON groups. Voice service provided via SIP protocol on ONT. Middle-Mile/Backhaul: Hardened fiber ring via Cisco M6 Dense Wavelength Division Multiplexing platform, easily scalable to provide additional bandwidth as needed. Physical transport is fully redundant to routed core. Internet Access: This is the connection to major IXPs, transit providers, etc. Edge network reaches the internet via multiple geographically diverse peering points to different data service transit providers. We utilize full BGP tables within our core & edge network that allows for industry standard best path selection and full redundancy should any one leg of the network go down. TDM and VoIP from various TDM switches as well as Broadsoft and Metaswitch platforms. The company uses a network-monitoring software from Momentum Telecom called BBX.

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

With the use of fiber optic plant the scalability is achieved through light source improvements. Vexus already has begun improvements by placing 10gig port cards in each of its new Adtran Chassis. This will provide for 10gig to the end user by the end of 2022. As equipment upgrades are made available, Vexus will continue to stay on the cutting edge of the technology providing the fastest speeds in the markets.

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).

Attached is the Gantt schedule of construction for the covered area. We plan to have the entire area engineered, permitted, built, spliced, tested, inspected and approved, and service ready within less than 1-year from the award notification.

Wired Infrastructure **Fixed Wireless**

Wired Infrastructure 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 point of presence or fiber hut (fiber), pedestal (cable), or a remote exchange/DSLAM (DSL), the applicant must include:
 - The number of prospective broadband recipients that will be served by that site infrastructure
 - The distance from the specific site infrastructure such as a POP, pedestal, or DSLAM 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, pole work, acquiring or updating easements, and/or property acquisition.

Existing to New- For census blocks located within the unserved areas of Tangipahoa Parish our plan is to build fiber to the end user to match our existing infrastructure(see below) for GUMBO eligible census blocks connecting to our existing Cisco 9000-based network architecture offering high quality FTTP (fiber-to-the-premise). A copy of our proposed fiber footprint map is attached. Voice services will be provided over the same network by VOIP. Internet will be provided over the same network. The build of 57 new miles of infrastructure will attach to Vexus's existing 17 miles of existing network to reach the unserved areas of Tangipahoa Parish. While an existing Cabinet and Chassis could be used from Vexus's Amite location, a new active cabinet(light source) will be placed to provide better light levels for the region and more stability. The distances from Amite to Kentwood are at the very edge of acceptable light levels and Vexus feels its important for future improvements in internet speeds that a new light source be installed. As new speeds(such as 10g) are made available, it will be important that the light source is closer to the end user. By installing the new light source(Adtran 5000 active cabinet) in Kentwood, it would reduce the furthest point from 25 kilometers to under 10 kilometers for the unserved areas. This would insure that all 1679 potential customer would not only have access to 1Gig/10Gig speeds now, but would be able to increase to maximum speeds as the technology improves. Engineering & Design Approach Regarding the required Engineering and Design of this project, it is of particular relevance that Vexus and its Engineering

Consultant, TDC2, LLC (TDC2), have been performing Design, Engineering, Permitting, and OSP Construction services together, in the North Shore area of Louisiana, since 2009. These efforts have resulted in the design and OSP Construction of over 518 miles of fiber optic broadband networks in the North Shore area. As a result of this, and of their previous and ongoing work throughout Louisiana markets, TDC2 and Vexus are very familiar with the local terrain, right of way jurisdictions, and other conditions that impact OSP Fiber Optic Network Construction in the Tangipahoa Parish project area. In fact, on Vexus' behalf, TDC2 has successfully performed permitting with most every City in the Parish, along with local Department of Transportation, Army Corps of Engineers, and various local railroads and other utilities. This local experience positions TDC2 well to provide an excellent value and efficiency to Vexus further expansion into unserved areas of Tangipahoa Parish for Vexus. TDC2's staff has also been involved in the emergency restoration of Louisiana fiber networks in the aftermath of Hurricanes Ivan, Katrina, Rita, Ike, Ida and Harvey, and as a result, can apply the lessons learned during that time to benefit the Tangipahoa Parish fiber build-out for Vexus. TDC2's management team and project managers bring an average of 20+ years of Fiber Optic Broadband Network Engineering & OSP Network Construction experience and brings a great depth of experience with every type, scope and size of fiber and wireless Broadband project. Including multi-state long-haul fiber builds, large scale Fiber to the Home projects, Municipal Broadband Networks, Small Cell Networks, and countless other urban, suburban, and rural Fiber Optic Broadband Network expansions. TDC2's staff has a long history and extensive experience designing and building modern fiber networks, having worked with numerous clients on broadband planning, feasibility studies, network implementations and operations. The information below provides a description of the Engineering and Design work needed for deployment of this Broadband Project. Project Management Vexus and its Engineering consultant, TDC2 will each assign dedicated project managers for the proposed fiber optic broadband network expansion described in this application. These two individuals will work collaboratively to coordinate the Engineering and Design elements necessary to implement the project. They will each have the full support of their respective company's resources but will function as the primary point of contact for each. TDC2 will also provide licensed Professional Engineering resources to assist as required. TDC2's assigned Project Manager, Bill Rose, is a long-term resident of Hammond, Louisiana and has been responsible for oversight of Engineering and OSP Construction services for Vexus in the Northshore area for over a decade. He will oversee and coordinate all of the day-to-day Engineering and Design aspects of this Broadband project. He will be responsible for overall project management duties and coordinate specific field activities throughout the project. He will serve as Engineering Manager until Design, Permitting and CADD OSP Construction Drawings are completed, then he will assume the role of Construction Manager until completion of the project. Throughout the Engineering and OSP Construction phases of the project, he will be supported by the full TDC2 staff of experienced telecommunications professionals who have previously performed multiple broadband projects and bring with them a variety of skills and experience associated with the design, staking, CADD, permitting, cost estimation and OSP construction of fiber optic broadband networks. He will provide weekly reporting and updates on project phases and progress from Notice to Proceed through final completion. He will also act as liaison with third party contractors, vendors and local jurisdictional authorities, on Vexus behalf, and will act within established guidelines of a responsibility matrix, where escalation to the Vexus under certain circumstances is pre-defined. Most importantly he will be specifically focused on bringing the project to successful completion within budgetary and timeline constraints. High Level Design In association with this application, TDC2 has consulted with Vexus and the Tangipahoa Parish Government to prepare the High-Level Design (HLD) that has been included herein. The preparation of this HLD included the review of Vexus existing plant, Tangipahoa Parish Government network contributions, proposed new fiber routes, locations of local Critical Care Facilities, and other requirements. During this process, TDC2 reviewed the desired service area boundaries, along with all existing roadways, utility, highway and railroad crossings, anticipated network access points, potential locations for placement of active and passive node, and identified priority service locations. TDC2 then rode out the routes and met with local public works and permitting jurisdictions to enable the suggestion of adjustments to allow the avoidance of obstacles, or delays, to the OSP construction timeline (i.e., wetlands, national forests, railroad crossings, areas with high rock content, etc.) and, to reduce or eliminate unnecessary, or excessive cost, related to permitting and/or OSP construction. The critical

project elements of the HLD were placed on a KMZ map from which an initial high-level fiber route was developed. The initial high-level fiber route plan includes recommended fiber sizes for each route segment based upon the quantity of households and businesses along each particular route segment plus a recommended overage to allow for maintenance and future growth. Field Staking, Jurisdictional ROW Permitting, and Private ROW Services ****Please Note**** - The permitting process will, by necessity, be performed simultaneously with the field staking process. The two tasks are co-dependent in that the permitting requirements of the various agencies and authorities will dictate the level of detail to be gathered during the field staking process. In addition, the CADD drawings and profiles created from the field staking process must be submitted with the permit applications as a typical pre-requisite for approval. Upon approval of this GUMBO application, field survey crews will be dispatched to the Service area to perform field staking and GIS data gathering for the proposed fiber routes. The following

steps will be performed.

- Private Right-of-Way/ Private Easement/ Private Site Acquisition Upon analysis of the proposed fiber route and desired service area, any necessary private Right-of-Way, private easements, or private site acquisitions will be determined as necessary for cable placement, cabinet placement, lay-down yards or other essential network purposes. Consultation will be held with the Vexus to obtain existing language and pricing schedules for easement agreements with relevant landowners. TDC2 will then contact landowners for negotiation. Once language and fees have been agreed by all parties, the relevant documents will be executed and recorded with the local city hall or equivalent body.
- Jurisdictional Right of Way Permitting Further analysis of the proposed fiber route and desired service area will allow the determination of jurisdictions for permitting of public Right of Way. Contact will be made with the appropriate jurisdiction for each route segment, as well as identification of any highway, railroad, pipeline, waterway, or other utility crossings. At present, permits required will be for the Cities of Amite, Roseland, Fluker, Tangipahoa and Kentwood, as well as CN Railroad, LA DOTD and Tangipahoa Parish. Once a final list of required permits is compiled, a Permit Tracking spreadsheet will be developed to monitor the status, timing, and cost of the Right-of-Way effort. At that point, specific permitting requirements and application processes and forms will be obtained from each permitting authority along with collection of existing Rights-of-Way map data. Permit applications and drawings will be completed, and coordination will begin with each jurisdictional permitting authority and continue until final approved permits are obtained. The following steps are commonly performed during the permitting process:
 - o Determine Department of Transportation & Development (DOTD) and other Jurisdictional Requirements In order to properly determine all DOTD requirements, contact will be made with the relevant DOTD to identify any and all requirements pertinent to the fiber route design and project construction parameters. Examples to include required minimum depth of placement of infrastructure; approved facilities to be placed within the Right-of- Way, as well as approved access. A similar process will be utilized to obtain special use permits for necessary jurisdictions including City, Parish, highway, utility, railroad, and waterway crossings.
 - o Determine Vexus Requirements After the minimum content level required to obtain permits is determined, it will be important to discuss any additional level of detail that the Vexus desires to have collected in the field and noted on the staking sheets. Also, default parameters will need to be discussed and finalized so that the staking crews can be instructed as to how to conduct their assigned activity. Items such as the average number of feet between hand holes, minimum fiber sizes, size and type of hand holes, special instructions for when aerial inserts may be warranted, how far apart to place warning signs, and other related items will need to be understood before the staking activity can commence.
 - o Determine Level of GIS Vexus and TDC2 will define the level of GIS accuracy that is required for the construction and as-built drawings in order to comply with the level of detail in existing network mapping software and/or comply with the FCC or other governing authorities for various reporting requirements.
 - o Determine software and version for mapping Similarly, the proper type (AutoCAD, ESRI, MicroStation, etc.) and version of software for mapping purposes will be defined prior to the commencement of field engineering. At this time, it is expected that permit and OSP Construction drawings will be produced utilizing AutoCAD Map 3D.
 - o Determine Base Maps TDC2 currently works with ARC GIS, Auto CAD 3D, and MicroStation software platforms for CADD drawings. TDC2 also utilizes the Trimble Geo7 survey grade GIS field recording units. TDC2 can supply engineering routes and other mapping data as correctly geo-referenced CADD drawings, and as Shapefiles with features drawn. The availability of existing CADD maps of the area and the scheme of the Shapefiles and drawings for the new

routes will be established in agreement with the Vexus prior to the beginning of staking. The final documentation will be provided in printed and softcopy versions. The drawings will include all construction unit calls, offsets, linear distance calls, method of placement and permitting/Right-of-Way data. In addition, any and all available plat/parcel maps, E911 data, existing utility location data and/or other data that can be procured from the Parish, Cities and Utility Providers within the Service Area will be included.

o Pre-Staking Notes (i.e., Staking Sheet Format & Level of Detail) The last step before the deployment of field survey crews will be a Pre-Staking meeting that will be held with the Vexus to finalize the data points that will be collected and/or confirmed through the field staking process. All staking sheets will include quantities of specified Units & Descriptions necessary for cost estimation and construction of the fiber route. Rural Utilities Service (RUS) units will be the default standard unless otherwise instructed by the Vexus. The following data provides examples of the type of data that may be captured in the field, relevant to Underground and Aerial Applications:

? Underground Application:

- Verify road Right-of-Way width
- Identify location of center line of road with dimensions to ROW
- Identify location of new running line ("R/L") with dimensions to center line
- Identify length of R/L between transition points
- Identify R/L change at beginning and end
- Identify handhole locations
- Identify method of placement
- Identify type of restoration
- Identify all visible existing underground facilities (water, sewer, gas etc.)
- Identify bore locations, bore pits, and required depths
- Identify sidewalk locations and widths
- Identify driveways and building entrances (indicate type concrete, asphalt, etc.)
- Identify rivers, creeks, canals, and ditches (width, depth and if concrete lined)

? Aerial Application:

- Verify road Right-of-Way with distances from center line
- Pole to pole span distance
- Identify pole location - distance from center line(s)
- Identify attachment position (roadside "RS" or field side "FS")
- Fill out Pole Survey data for each pole (as projected to be required by relevant Pole Attachment Agreements)

o Pole Number (if not available, assign a generic number on pole sheet and on field notes for future reference)

o Pole Ownership

o Pole size, class, type, and condition

o Identify Power Make-Ready if required

o Identify Communication Make-Ready if required

o Identify heights of existing facilities

Neutral

- o Electrical attachments (3 spool rack, transformers, etc.)
- o Top of risers
- o Streetlight signal wire
- o Secondary power
- o Fiber Optic cables
- o Cable TV
- o Telephone
- o Telephone drops
- o Others not included on this list

o Identify point of new attachment ("POA")

o Identify attachment method using unit spread sheet (FOS, DD-1, etc.)

o Identify (2) POA's at all Double Dead-End locations (as required for angle attachments)

o Identify anchoring requirements new or existing (lead, heights, etc.)

o Identify span guy locations with length

o Identify slack span locations where required

o Identify cable slack storage locations

o Identify tree trimming requirements

• Note: In addition to the pole survey data, items to include on the plan map shall include but not be limited to: ROW widths, center line location in relation to ROW, dimensions from center line(s) to pole, span distances, pole number relative to pole sheet, attachment method, attachment position, and anchoring, span guys with lengths, slack spans, slack storage locations and riser locations.

Field Staking Prior to the commencement of field staking activities, all high-level design routes will be placed on maps and provided to Vexus during the Pre-Staking Meeting, as described above, which will be used to identify all of the individual points of data to be collected and/or confirmed during the field staking process. During the field staking phase, multiple crews will be deployed, as required by project timelines, for the project with a mix of engineering experience. The Project Manager will organize the field teams and manage their schedules, as well as provide progress reporting to Vexus on a weekly basis. The reporting will address any questions, or issues throughout the course of the work. All field notes will be collected daily and uploaded to an ftp, or cloud storage site, nightly. The CADD team will use the field data to produce CADD Permit and OSP Construction drawings. The drawings will include all construction unit call outs, offsets, linear distance calls, method of placement and permitting data. Also, during the staking process, a contact matrix will be maintained to identify every relevant permit agency and a permit tracker will be maintained as an aid to production and reporting. Upon completion of the field staking process, TDC2 will supply CADD Permit & OSP Construction drawings ready to be submitted for permitting as required by jurisdictional requirements. This may require flagging or marking of routes, bore pits, hand-holes, manholes, and other depending on permitting requirements. CADD OSP Construction Drawings After permitting has been completed, TDC2 will finalize OSP Construction drawings, and a tally of units needed for construction. An estimated unit price will be created for each unit and a total project cost estimate will be created and reviewed. Finally, the projected

route will again be reviewed and compared to the design drawings, for accuracy and other modifications needed or requested and the Vexus will be asked for any desired priority order of construction and approval to proceed with material procurement and OSP Construction. OSP Construction •

Pre-Construction Meeting Upon the purchase and delivery of materials a mandatory Pre-Construction meeting will be held at the job site, which will include Vexus personnel, TDC2's Project Manager. Any utility company along with county and city representatives that could be affected by construction will also be invited. The Pre-Construction meeting will be an in-depth meeting discussing items related to the construction phase of the Vexus project which will include but not limited to.

- o Introduction of Vexus Project Manager and submission of contact information.
- o Introduction of TDC2's Project Manager and provide contact information.
- o OSP Construction Contract review to include discussion of contract number, contract amount, mileage, aerial and buried distances, start date, time frame, approved number of construction days, approved number of construction crews, any liquidated damages and established completion date.
- o Determine and approve chain of command for any communications for Vexus, TDC2, Tangipahoa Government and all jurisdictional authorities.
- o Discuss the responsibilities of TDC2 as the OSP Construction Contractor
- o Discuss restoration and inspection protocols
- o Discuss Rights-of-Way and Easements
- o Discuss Permits and Locates
- o Discuss Safety
- o Discuss clean-up
- o Discuss Contractor Units Placed (CUP) sheets
- o Discuss OSP Construction schedule by Phase or priority
- o Review format and content for Weekly CUP Sheets, Weekly Progress Reports, Weekly Status Conference Calls, etc.

TDC2 will work diligently to maintain a close relationship with Vexus and all relevant local authorities, which will provide Vexus with pertinent information related to the construction of the fiber project and will help avoid potential problems. As a proven method to keep all parties involved in the project fully informed, TDC2 will hold scheduled conference calls weekly, bi-weekly or monthly at Vexus' discretion. During the conference calls, any issues of potential issues will be discussed and methods to resolve or avoid the issue will be suggested and implemented. Along with the scheduled conference calls, a copy of the weekly CUP sheets will be provided to Vexus which will list any units installed within the specified week of construction. Progress reports will also be provided as required to Vexus, within the progress reports the following information may be acquired; construction mileage for the specified period, construction mileage completed to date, modifications to the mileage, rain/snow days, starting and completion dates, test results, and any pertinent remarks.

- **Quality Control** During the construction phase of the project, TDC2 and Vexus will provide Inspection services to assure safety and quality control of every aspect of the project. The number of Inspectors utilized will be dependent on the size of the project under construction at any given time, as well as the number of construction crews on site simultaneously. The Inspection team will be comprised of individuals knowledgeable in standard construction specifications and requirements to ensure compliance throughout the construction phase through turn up of the completed project. Having been involved with many RUS and privately funded projects, TDC2 has exceptional knowledge and resources available to make sure that the Vexus project is constructed to meet all specified requirements.
- **Final Inspection** Upon completion of OSP Construction, fiber testing, and all clean-up activities, the TDC2 and Vexus Project Managers will jointly review the field work and final CUP sheets and perform a final inspection and inventory. In the event that the project requires the oversight and signature of a licensed Professional Engineer (PE), the TDC2 Project Manager will schedule a Final Ride-Out and Inspection to include TDC2's Project Manager, the Vexus Project Manager, and any appropriate staff from the funding organization. During the Final Inspection, the overall scope of OSP construction will be evaluated with spot checks on a pre-determined percentage of construction elements (i.e., hand holes, aerial splice cases, building entrances, route segment, etc.). Notes will be made as to the specific construction elements that were inspected and the results of the inspection. A punch list of any necessary corrective action will be created and included in the Final Inspection Report. TDC2 will perform the corrective action and provide evidence thereof, prior to contract closeout and final payment.
- **Contract Closeout & As Builts** During the process of OSP Construction, Contractors Units Placed (CUP) sheets will be completed and agreed upon by TDC2's and Vexus' Project Managers. An overall tally will be calculated from these CUP sheets and agreed to regarding exactly how many of each unit was actually placed. Once the units are agreed upon, the Final Inventory documents will be completed to reflect the number of units placed during construction and priced out based on the labor/material prices in the contract. During construction, the individual staking sheets/construction drawings and schematics will be

updated by the TDC2 Project Manager and the Inspection team, with “Red-lines” indicating any adjustments necessary to reflect the “as built” locations, or actual units placed during construction, as compared to the original pre-construction design documents. After construction, the “Red-lined” schematics and construction drawings will be updated to create a new digital record of the final constructed routes. The As-built sheets, drawings and final inventory will be compiled with forms from TDC2 (i.e., release of liens, certificate contractor, treated forestry inspection reports, etc.) to produce an As-Built Package which is copied to Vexus, and any others required to facilitate contract closeout. The format (i.e., Software Type, Version, and level of GIS data) will be as per the previously provided direction from Vexus discussed during the pre-staking meeting held prior to construc

Wired Assets

Existing Network	Existing Equipment	New/Upgraded Infrastructure	Installation Type	Num of Recipients	Avg Distance in Miles Between Prospective Recipients	Expected Speed
GPON-Fiber to the end User	ADTRAN 5000 with Brocade MLX Routers	Upgraded to new 10G port cards in Adtran 5000 Chassis	Underground	1679	0.034	1 to 10 Gig

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 Network Access Equipment \$112,500 Distribution Plant \$3,316,105 Transport Plant \$1,684,262 Total Cost \$5,112,924 Tangipahoa Parish In Kind Commit \$1,684,262 Vexus Commit \$1,259,250 GUMBO Requested Commit \$2,169,412 Tangipahoa Parish Commit per Passing \$1,003 Vexus Commit per Passing \$750 GUMBO Requested Commit per Passing \$1,292.09 Tangipahoa Parish Commit Percentage 33% Vexus Commit Percentage 25% GUMBO Requested Commit Percentage 42% Number of Unserved Businesses 326 Number of Unserved Residents 1353 Total Unserved 1679 Number of Transport Miles 15.19 Number of Distrobution Miles 41.87

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.

See attached funding commitments. Additionally, Vexus is funded via its private-equity holders, Pamlico and Oak Hill. Pamlico is a private equity firm based in Charlotte, NC that is focused on middle-market growth equity and buyout investments. With an over 25-year investment history, Pamlico has invested approximately \$2.5 billion in over 100 companies. Oak Hill is a private equity firm headquartered in New York. Oak Hill has over 30 years of experience with more than \$11.5 billion of committed capital from leading entrepreneurs, endowments, foundations, and global financial institutions. Both Pamlico and Oak Hill have ample capital to support Vexus’ future growth initiatives.

