RADIUS

DECLARATION NETWORKS

Kerr-Tar Council of Government
Franklin, Granville and Vance County Broadband RFPs
Vance County Contact

October 17, 2018

Dear Kerr-Tar Council of Government Vance County Contact,

The North Carolina Broadband Partners (NCBP) are pleased to submit this proposal to design, build and operate an innovative network to meet the current and future broadband needs of the Vance County businesses, public institutions, educational institutions, and local residents. The NCBP team combines deep expertise and experience in developing, financing, operating, and managing broadband networks, together with in-depth knowledge of North Carolina, its resources, and its operating environment. NCBP will provide necessary funding to design, construct and operate the network, and apply its proven expertise in creating successful public / private partnerships. NCBP leverages a cooperative business model, and includes deploying and operating a broadband network providing comprehensive service coverage for Vance County, as well as Granville and Franklin Counties.

The Vance County proposal includes designing, deploying and operating a broadband network providing comprehensive service coverage for Vance County. The initial infrastructure capital budget is $6.16M, and NCBP is asking for funding from Vance County for startup cost of the network including Wireless Infrastructure, Network Infrastructure, UPS Installation Tower Lease, and Internet Bandwidth. NCBP will provide private capital to augment funding contributions from the County to construct and procure the network, including a commitment to operate and maintain the network at NCBP's cost and risk. NCBP additionally proposes coordinating County funding to develop adoption programs to accelerate customer acquisition and address specific community needs, including low-income programs to offset the up-front costs of adoption.

NCBP shares Vance County's commitment to close the digital divide, and we look forward to developing a long-term relationship that will drive sustainable broadband networks that deliver reliable high-speed services and that will create enhanced opportunities for the citizens and businesses in your communities.

Thank you for your consideration,

Gopi Sundaram, Managing Partner
Radius Capital Partners

Bob Nichols, CEO
Declaration Networks Group, Inc

Cover Sheet
as per Section 11 of RFP

VCI Broadband RFP

GENERAL INFORMATION

Legal name of Vendor Unit:	**Radius Capital Partners, LLC**
Name and Title of Manager or CEO:	**Gopi Sundaram, Managing Partner**
Mailing Address:	**1460 Broadway**
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City:	**New York** **State:** **NY** **Zip:** **10036**
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Name and Title of Project Contact:	**Keith Montgomery**
Address:	**Declaration Networks Group, Inc., Chief Financial Officer** **8245 Boone Boulevard, Suite 230** **Vienna, VA 22182**
Telephone:	**703-304-5199**
Email:	**keith@declarationnetworks.com**
Federal Tax ID Number:	**46-5229482** **Fiscal Yearend Date:** **December 31**

PROJECT INFORMATION

Project Start Date:	**January 15, 2019**
Project Completion Date:	**Ongoing**
Service Areas:	[X] **Unserved Areas** [X] **Vance County High Density Townships & Other Areas** [X] **Government Facilities**

Certification by Vendor
as per Section 13 of RFP

The attached statements and exhibits are hereby made part of this application and the undersigned representative of the vendor certifies that the information in this application and the attached statements and exhibits is true, correct and complete to the best of his/her knowledge and belief. He/She further certifies that:

1. As authorized representative, he/she has been authorized to file this application by formal action of the governing body;

2. That the governing body agrees that if a grant or award of contract from the VCBI is awarded, the vendor will provide proper and timely submittals of all documentation requested by the County;

3. That the governing body agrees to provide for proper operation and maintenance of the project after its completion;

4. That the vendor has substantially complied with or will comply with all federal state and local laws, rules and ordinances as applicable to the project.

Robert Nichols
_____
Signature of Grantee/Authorized Representative

Bob Nichols, CEO, Declaration Networks Group, Inc.
Typed Name and Title

Date – October 18, 2018


_____
Signature of Grantee/Authorized Representative

Gopi Sundaram, Managing Partner, Radius Capital Partners, LLC
Typed Name and Title

Date – October 18, 2018

Vance County Broadband Initiative (VCBI)

The Project Proposal
As per Section 12 of RFP

Proposal to Design, Build and Operate An Innovative Network
To Prepare Vance County for the Future
While Serving the Needs of Today

Submitted by
Radius Capital Partners, LLC

RADIUS

In partnership with

Declaration Network Groups, Inc.

DECLARATION NETWORKS

The Conti Group LLC

THE CONTI GROUP LLC
RALEIGH, NORTH CAROLINA

October 17, 2018

EXCECUTIVE SUMMARY

We are pleased to submit this proposal to design, build and operate an innovative network to meet the current and future needs of Vance County North Carolina businesses, public institutions, educational institutions, and local residents. This proposal responds specifically to the Broadband Enhancement RFP posted at www.kerrtarcog.org.

To meet the needs of Vance County fully, we have assembled a team that combines deep expertise and experience in developing, financing, operating, and managing broadband networks, together with in-depth knowledge of North Carolina, its resources, and its operating environment. The team which we have named North Carolina Broadband Partners includes:

- **Radius Capital Partners**, **LLC ("Radius"),** a private equity firm focused on broadband infrastructure whose partners brings a long, successful track record of designing, developing, and operating broadband networks to address the needs of underserved markets, both rural and urban. The most recent project is the creation and operation of Enet. Radius has partners in New York City and Cary, North Carolina.

- **Declaration Networks Group, Inc. ("DNG"),** a broadband provider that currently designs, deploys and operates broadband networks that serve markets in Virginia, West Virginia and Maryland and specifically combines optical fiber with its NeuBeam state-of-the-art wireless networks to offer residential and business customers super-fast download and upload broadband speeds. Based in Vienna, Virginia, the DNG management team and advisory board bring senior management experience building and leading world class telecom and broadband providers, including Sprint, Neustar, MCI, Concert Communications, GTT, and CLEAR Communications in New Zealand. Management team members have also completed feasibility and broadband network/operations designs for fixed and wireless networks in over 14 states and evaluated more than 2,200 applications for the Broadband Infrastructure Program (BIP) of the Rural Utilities Services.

- **Conti Group LLC ("Conti"),** a consultancy led by Dr. Eugene Conti that advises on infrastructure planning and policy in the areas of transportation and broadband communications. Past leadership positions held by Dr. Conti include Secretary of Transportation for NCDOT (North Carolina Department of Transportation) and Assistant Secretary for Transportation Policy at the U.S. Department of Transportation under the George W. Bush administration.

This team (“NC Broadband Partners”) differentiates itself from other potential bidders in its ability to bring necessary funding to construct and operate the network, and in its particular expertise in private and public partnerships. We look forward to developing a friendly and productive working relationship with Vance County to achieve the goals the County has set.

Specifically, NC Broadband Partners proposes to develop, finance, operate and manage a network that serves all areas specified in the RFP, including rural, high density, and government institutions. The specific network plan is outlined in detail in the remainder of this proposal.

Based on our current understanding of network requirements, NC Broadband Partners projects the cost of the network at $6.2 million. Through its financial resources and the financial parties that back NC Broadband Partners, NC Broadband Partners is prepared to provide funding of this amount if it comes to agreement with the County on a

cooperative business model. NC Broadband Partners also may draw on capital contributions of parties within Vance County to meet user-specific requirement.

Substantial bodies of research cement the ties between improving broadband infrastructure and enhancing economic growth. By launching its Vance County Broadband Initiative, the leadership of Vance County North Carolina has exercised considerable foresight in laying a foundation for the future prosperity of Vance County's businesses, institutions and residents. We are grateful for the opportunity to bring to Vance County state-of-the-art networks and operations that we have delivered to other communities in the Mid-Atlantic States and around the world.

Sincerely,

RADIUS CAPITAL PARTNERS, LLC DECLARATION NETWORKS GROUP, INC CONTI GROUP, LLC

EXECUTIVE SUMMARY

1. **Project Goals**
2. **Proposed Technical Plan**
3. **Capital Requirements**
4. **Financial Resources**
5. **Capabilities of North Carolina Broadband Partners**

Attachment A: North Carolina Business License

Attachment B: Audited DNG Financial Statements and 5 Year Pro Forma Financial Statements

Attachment C: Garrett County Project References

1. Project Goals

The RFP outlines a number of specific goals for the proposed Vance County broadband network. NC Broadband Partners has specific plans and brings specific capabilities to meet each of these goals, as outlined below.

Goal 1. Create a scalable network solution to foster innovation, drive job creation, stimulate economic growth, and serve new areas of development in the community; by providing service for a minimum of twenty (20) years from the date of first operation.

NC Broadband Partners has a varied and longstanding history of rolling out next generation networks in underserved areas both in the United States and overseas. In numerous situations we have done this in close partnership with national and/or local governments and bodies, to ensure that the policy delivery goals are factored into both infrastructure deployment as well as into the design of the commercialization model. For instance, NC Broadband Partners has an excellent understanding of deploying an open-access business model, which is increasingly a policy objective of local governments. We have been successful in building and delivering on contractual relationships in a Public Private Partnership (PPP) format that far exceed the 20-year time frame.

Goal 2. The VCBI prefers that the aggregation network proposed by the provider/vendor network be fiber based; in the last mile, all technologies will be considered, especially in unserved/underserved areas.

Networks that NC Broadband Partners has deployed typically have utilized fiber for middle-mile and backhaul, which could be built, acquired or taken control of through long-term agreements. In select situations NC Broadband Partners has utilized high availability (symmetric) licensed microwave-based links for middle-mile and/or backhaul. The Partnership has also developed last mile connections in a technology neutral manner, ensuring the deployment of solutions that best suit the service level requirements of the target individual subscriber. We have deployed last mile solutions in fiber as well as wireless (using both licensed and unlicensed spectrum), depending on what best suited the commercial requirement of the subscriber.

Goal 3. Provide a flexible menu of retail services, that improve service to the following eligible service areas:

a. Unserved/Underserved areas - Offer new or enhanced service in underserved and unserved areas of the county (Section 1.2.1)

NC Broadband Partners has extensive experience in building and operating next generation networks in underserved areas. The partnership has a strong track record of being a reliable provider of services, for several years post-build in prior projects that our principals have been involved in. Declaration Networks Group has an existing back office operation for provisioning, network management, customer service, billing and collections that is scalable to support expansion into the North Carolina service markets initially and into the future depending on the number of customers using the network.

b. High Density Economic Corridors - Offer enhanced service along key business and high density residential corridors in Vance County's higher residential population areas (Bunn, Franklinton, Louisburg, Youngsville) and connects broadband assets that serve remote areas of the county (Section 1.2.2)

NC Broadband Partners is aware that the infrastructure being deployed will need to have the flexibility to offer various products and levels of service as required by the mix of premises that will be passed/connected in any market. We have worked with various local bodies in evaluating some of the varying requirements in order to ensure that the infrastructure is built to accommodate/scale to meet varying service requirements. NC Broadband Partners network design envisions using fiber and wireless technologies to provide an initial coverage with a strategy to deploy higher density networks, capacity and new products after the local networks are deployed and customer demand for products is better understood.

c. Government Facilities – Offer lit or dark fiber services to meet the administrative and public safety needs of Vance County Government and municipal governments. The county will consider new build lit and dark fiber services. The county will also consider owning its own fiber infrastructure along the route displayed in, Appendix B, Google Map Link.

While the services being contemplated here, and the predominant services that we have historically deployed have predominantly been lit services, NC Broadband Partners has worked with local authorities in planning and deploying specific capacity that needs to be delivered on a dark fiber basis.

d. ***Local Infrastructure – The RFP proposal will establish new infrastructure and hire a local sales and service team for this market.***

The centralized service, network and back office operations are in place today and scalable with customer adoption of services.

2. **Proposed Technical Plan**

NCBP has completed an initial network design which meets or exceeds the RFP requirements for coverage and service as described in the technical plan provided by Declaration in the rest of this document.

3. Capital Requirements

Summary financial projections are provided with a build out timeframe in the response. In addition to the capital network budget, NCBP will be investing in the operational expenses to establish a local office and service team. NCBP is interested in discussing a cooperative business agreement with the County to facilitate the success of the project and create a sustainable and viable broadband ecosystem in the County. Refer to Attachment B for financials information.

4. Financial Resources

Radius and the team have access to considerable financial resources and deep connections with investors actively seeking to fund broadband projects. Declaration Networks Group has existing operations, management and operational funding for current operations. The company capabilities are scalable to addition growth in new markets.

5. Capabilities of North Carolina Broadband Partners

NC Broadband Partners members Radius, Declaration, and Conti bring substantial experience in building, managing, and operating networks focused on meeting unmet demand for broadband services. Together, we have partnered to develop broadband opportunities in the U.S. and Europe. NC Broadband Partners is joining forces to develop broadband opportunities specifically in North Carolina. In parallel with the submission of this proposal to Vance County, NC Broadband Partners is also submitting proposals to other the other adjacent communities in North Carolina.

Contents

North Carolina Broadband Partners Proposal for Vance County, North Carolina

12.0 The Project Proposal

North Carolina Broadband Partners (NCBP) is pleased to have the opportunity to respond to Vance County to develop Vance County's next-generation broadband infrastructure. Radius, Declaration Networks Group, Inc. (DNG) and Conti are joining forces as North Carolina Broadband Partners to develop broadband opportunities in the State of North Carolina. The partnership was specifically organized to respond to North Carolina RFPs and to subsequently design, build, and operate community broadband networks that meet or exceed network requirements and establish sustainable broadband ecosystems. Individual network designs have been developed for Franklin, Granville and Vance Counties, but coordinated network and operational service designs with efficiencies of scale have also been considered and would enhance the sustainability of the individual projects and network designs.

The NCBP has selected the Declaration Networks Group cooperative business model which has been successfully implemented in Garrett County, Maryland and recognized nationally for its innovative partnership approach in creating a sustainable broadband ecosystem in rural America for this Broadband Network RFP response.

This project will be referred to as the Vance County Broadband Initiative (VCBI). The focus will be to seek and implement solutions needed to meet the technological needs of current and future businesses, public institutions, educational institutions, and residents. The VCBI seeks network solutions and business models that are innovative, preparing our region for the future while serving the needs of today. Vance County seeks opportunities to best use existing public investments in currently underutilized or planned government fiber and broadband assets to provide the maximum benefit to the public.

DNG's proposal includes deploying and operating a broadband network providing comprehensive service coverage for Vance County, including unserved areas, through our cooperative model that leverages relationships in the local markets that we serve, including creating access to local infrastructure through local county and municipal governments, electric utility coops, and open access middle mile backbone providers. DNG's approach is based upon the successful experience with our current markets, including our public /private partnership with Garrett County, MD, and our network implementation on the Eastern Shore of Virginia.

DNG has developed a model that is solving the very large problem faced by rural Americans of obtaining local broadband access that will allow them to participate in the digital age. This project will address the broadband infrastructure by funding a sustainable approach to provide affordable broadband solutions where traditional solutions and incumbent providers have been unable and /or unwilling to serve.

DNG has core competencies in the design, deployment and operation of high capacity wireless and fiber access solutions that provide private, residential and enterprise broadband services. DNG is led by a management team that has many decades of experience developing, deploying and operating telecom infrastructure, including delivery of end-user services over FTTH access infrastructure and advanced wireless access infrastructure. Additionally, DNG's team experience includes leading industry-wide eco-system development for TV White Spaces, as well as, public-private partnership development supporting federal programs such as the Rural Utilities Service BIP loan and grant program. DNG provides:

- ✓ Proven experience in designing, deploying, and operating sustainable broadband services in rural un-served regions
- ✓ Award winning cooperative operating model for innovative public / private broadband partnerships
- ✓ Existing centralized service infrastructure including 7 x 24 Customer Service, Network Operations Center, Provisioning, Customer Relationship Management and Billing Platform
- ✓ Established Federal funding (USDA, FCC CAF II) management and reporting process
- ✓ Industry leaders in the deployment and operation of next gen broadband networks strategic partnership with Microsoft to close the US digital divide

12.1 Technical Plan for the Proposed Project

The technical plan must describe in detail how the proposed project will bring high-speed Internet services to the Eligible Service Area(s). Where relevant, provide accompanying documentation.

Broadband Network Design

DNG has designed a wireless broadband network to provide the initial service availability coverage for the County RFP designated service areas. The network infrastructure design has strategically selected 5 tower locations and 3 community masts as the initial network distribution and aggregation points. The network design will leverage both fiber and microwave point to point radios as middle mile transport facilities. The microwave point to point radios will have licensed dedicated spectrum for each pair of radios to provide high capacity commercial quality connectivity to and between towers and community masts.

The towers and community masts will also have Cambium 5Ghz commercial sectors to provide point to multi-point connections to relay hubs and customer premise locations. The Network infrastructure will be supported by a series of relay hubs to work around local terrain and buildings to provide line of site for customer installations and service. DNG anticipates about 20 Relay Hubs per tower and community masts to be used to extend service in surrounding service areas.

DNG utilizes unlicensed frequencies in the 5 Ghz spectrum band the following shows the available spectrum bands and associated bandwidth:

Spectrum Access Description- Declaration Networks Group, Inc

Spectrum Bands	*Network Component*	*Uplink/ Downlink Bandwidth (Mghz)*	*Authorizations*	*Required Applications*
5 Ghz	Last Mile and Backhaul	●UNII 1 (5.150-5.250 GHz; Bandwidth = 100 MHz) ●UNII 2 (5.470-5.725 GHz; Bandwidth = 255 MHz) ●UNII 3 (5.750-5.850 GHz; Bandwidth = 125 MHz)	Unlicensed	N/A

Network Overview

The DNG wireless access network will provide dedicated access to the customer's home, business premise or other service locations in the service area. DNG will deploy Towers and Community Masts to be a local distribution site to connect customer premises. The DNG network is wireless-based and utilizes commercial grade radios from Cambium Networks to provide high capacity broadband service to most access locations. The wireless network uses available unlicensed spectrum in the ISM radio bands of 5GHz spectrum. DNG may augment the initial network design with 900MHz or TV White Space radios in some specialized service areas if needed.

DNG's broadband access consists of the following key components that together provide a path for the end user to reach the Internet:

- Network Operations Center
- Core Backbone sites
- Community Masts for connections to businesses and residences
- Relay hubs to extend Internet access into remote and hard to reach county areas
- Subscriber (residential or business) Service Module (SM)
- Fiber and Point to Point (PTP) wireless connections

Network Operations Center
DNG's Network Operations Center (NOC) is used to condition, optimize and monitor the services flowing within the broadband access network and ensure a high level of service is delivered to the end user.

Core Backbone Sites
Core Backbone Sites are typically hosted on local infrastructure such as buildings and towers and are supported by a combination of wired and wireless broadband technologies. These facilities are designed to be resilient and highly available and connect using either a direct fiber connection or point to point (PTP) wireless connections to the Internet Service provider (ISP). Towers can also be used for PTP distribution to relay hubs and customer premise sites.

Community Masts
A community mast (CM) is in many cases the network access location for a business or residence. These CM's are typically placed on a 70 or 80-foot wooden Class 3 utility pole and connect to a Core Backbone site using fiber or a PTP link. Each CM is capable of supporting hundreds of connections. CM's are located in areas to best support connectivity to as many end users as possible, and often this means they are placed along county right of ways or in the center of small communities. In some cases, a core backbone site will host a CM, and in those cases, a fiber or PTP link will not be required.

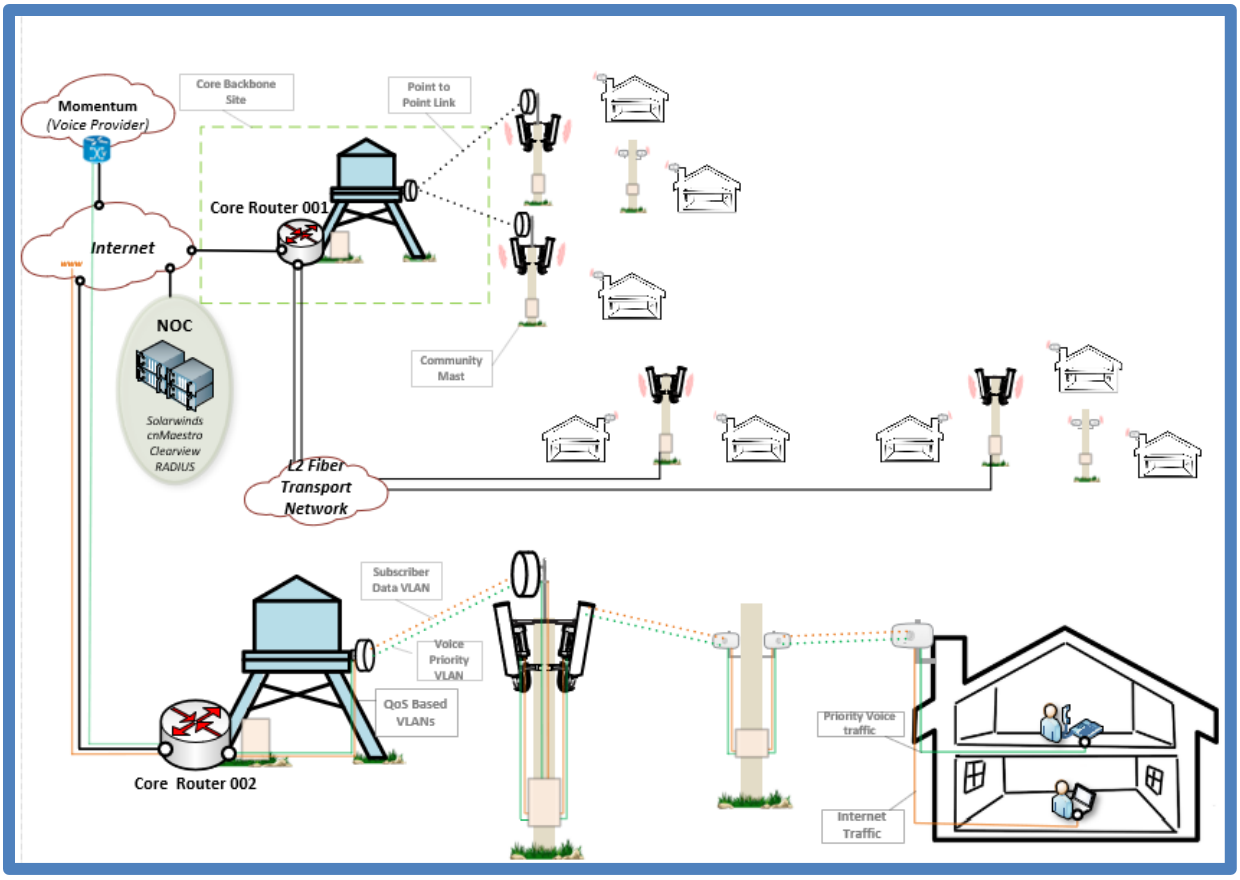
Relay Hubs
Relay Hubs are designed to propagate services into hard to reach rural areas where there is no Line of Sight (LOS) to the nearest CM. The relay hubs are used to redirect signal around buildings, terrain and dense trees that are obstructing.

Subscriber Service Module (SM)
A SM is a small inconspicuous radio and antenna system that enables a business or residence to access the DNG network. This equipment is lightweight, durable and mounts to the outside of a building. Once connected to the DNG network, the SM will deliver DNG's broadband service to the location, giving the resident access to Internet, streaming video content (Netflix, Hulu, etc.) and VoIP services.

Point to Point (PTP) Wireless Connections
Commercial grade wireless radios in the 5GHz ISM band are used to provide high speed connections in Line of Sight (LOS) or near LOS (nLOS) conditions between Core Backbone Sites and Community Masts. Typical link capacities exceed 100MBs and are capable of supporting hundreds of users.

Network Architecture

DNG's wireless access network is supported by existing fiber backhaul, towers, community masts and relay hubs. The diagram below depicts the relationship between the key network components and how services will be delivered to the end user:



Towers

The towers are defined as code components, typically ranging from 110ft to 300ft in height, and are connected by fiber or wireless to DNG's Network Operations Center (NOC). The tower structure can be an existing telecommunications or broadcast tower, newly constructed telecommunications tower, or public infrastructure such as a water tower. The towers are used to:

1. Provide wireless backhaul capacity to community masts that have no access to a fiber connection
2. Provide high capacity wireless access to customers with line of site or near line of site to the tower.

Figure 1 details a typical DNG core tower site.

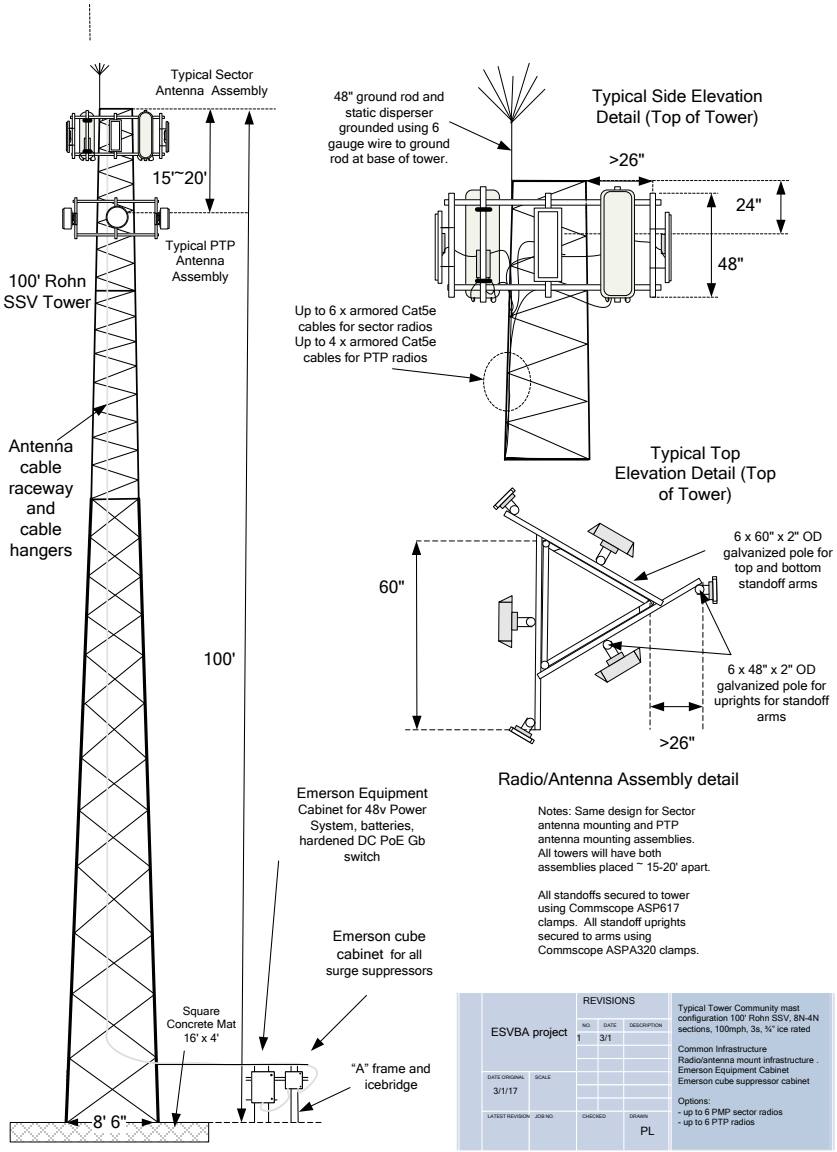


Figure 1 – Typical DNG Core Tower Site

Community Mast

A community mast is a 70- or 80-foot wooden pole, tower structure or high building depending on the site location and network coverage requirements. The pole will received backhaul service either from nearby fiber, or from the nearest core backbone site with a clear or near line of site. In the latter case, one (1) PTP radio will be located near the top of the pole to provide backhaul service from the core backbone site.

Community Masts are located on county Right of Way or on private property. Co-located on the pole will be Point to Multipoint (PMP) radios to distribute the internet backbone service to the end customer's dwelling or designated service location. The PMP radios will operate in the 5GHz or UHF unlicensed frequency band to service their designated sector service area. Each Community Mast serves an area that varies in size and shape based on local

radio frequency propagation characteristics and the local terrain. A diagram of a typical Community Mast Site is detailed in Figure 2.

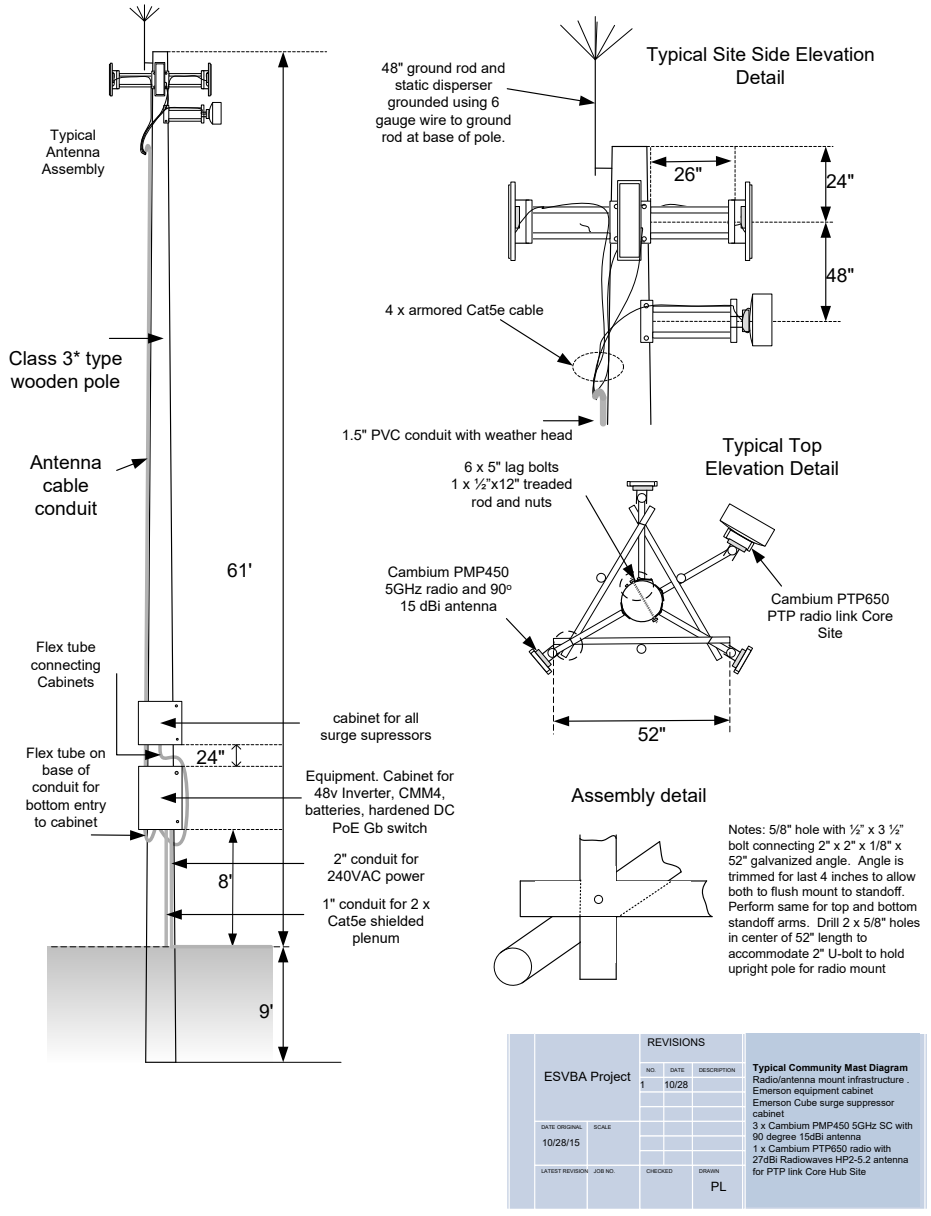


Figure 2 – typical DNG Community Mast

Relay Hubs

A Relay Hub is used to provide fill-in coverage and customer site connectivity near the community mast where service is blocked by terrain, dense trees or buildings. The Relay Hub is fed by a Cambium PMP450 Subscriber Module running at uncapped license capacity. These Relay Hub sites will utilize Cambium's ePMP 802.11ac based radios transmitting in the 5GHz unlicensed bands to create RF extensions to individual subscribers. Relay Hubs are placed on local community structures such as firehouses, and friendly customer dwellings to extend the network from Community masts into these underserved areas. A diagram of a typical local Relay Hub is detailed in Figure 6.

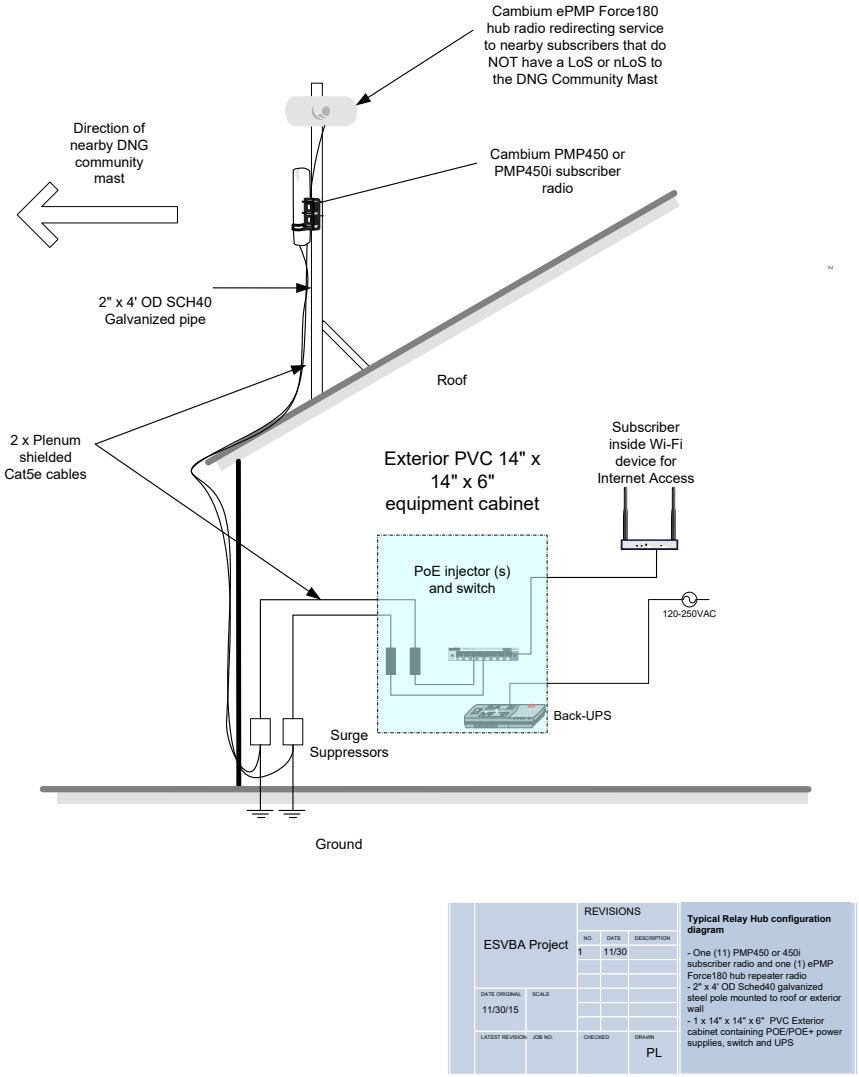


Figure 6 – Typical Relay Hub configuration

Subscriber or Customer Location

At each subscriber or customer location, DNG attaches a small radio to receive the wireless signal from the tower, community mast or Relay Hub. The radio will typically be located on the eave of the dwelling to achieve the best performance. The radio will be connected via an outdoor rated plenum Category 5e Ethernet cable to the inside of the dwelling that provides power to the unit and relays data signals. Each radio is protected from electrical surges with a DNG provided Surge Suppressor. Within the home, DNG provides the necessary equipment to route wired IP services, provide Wi-Fi capability, and facilitate voice services if subscribed to. DNG utilizes Cambium's cnPilot R190 and R201 WiFi routers to provide this capability. The cnPilot WiFi routers also allow DNG to remotely access and manage the customer's in-house ethernet and wireless connections. If requested, DNG works with the customer to configure

customer -provided networking equipment. A typical customer installation is illustrated in Figure 7.

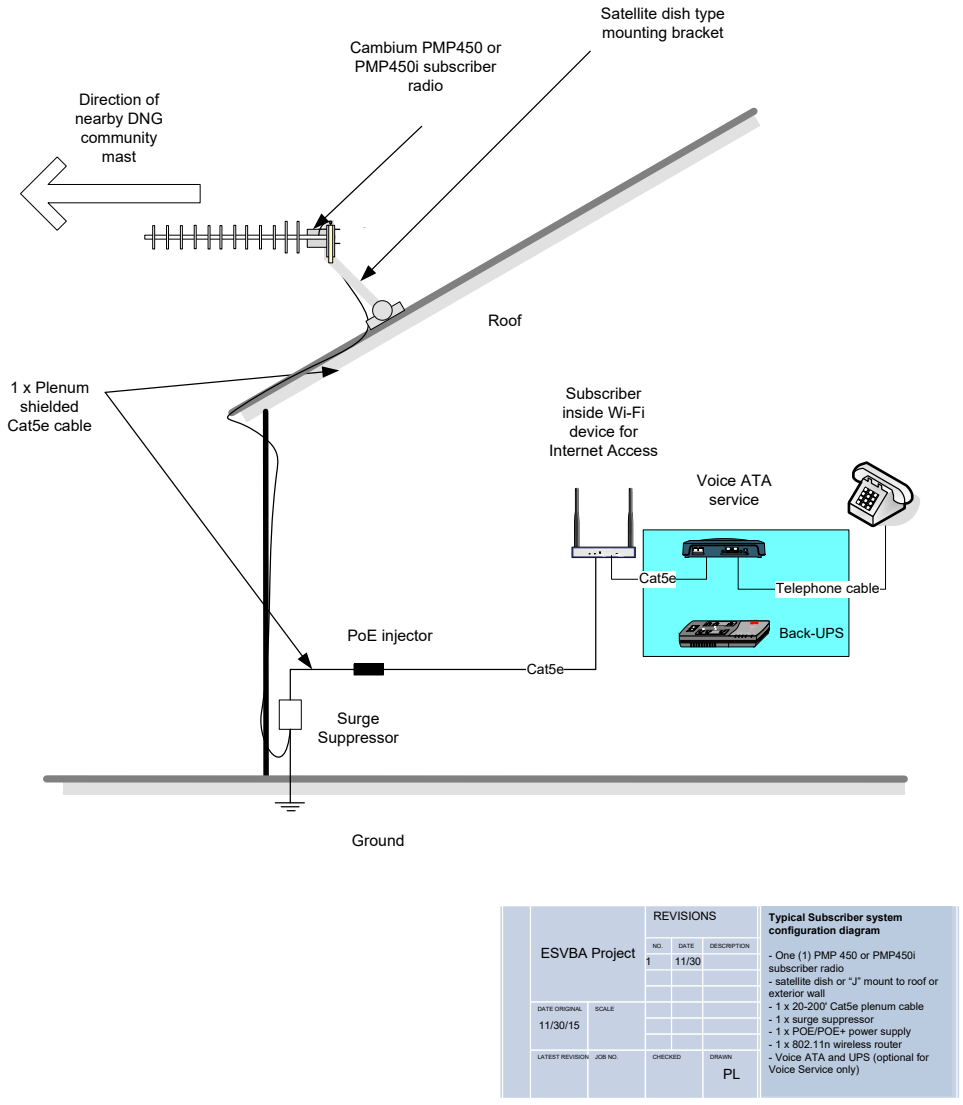


Figure 7 – Typical customer site configuration

12.1.1 Broadband Coverage Map

**** A map and build out schedule (GIS shape file). If less than the entire Service Area is being proposed on, Vendor's portion of the Network(s) must provide for interconnection at no cost with other portions of the Network(s). An explanation as the Vendor(s) expects to accomplish al interconnections should be included in the Vendors' response.***

**** An explanation as to how Vendor(s) expects to accomplish interconnection.***

**** Detailed design for at least one multi-family dwelling (MDU), a Township business, and/or a residential neighborhood, if such feature is included in the proposal.***

**** A discussion of the anticipated strategy, scope, and timing of the proposed rollout, including if there would be multiple phases of the deployment and availability of services and, if so, what services would be made available during each phase. The discussion should identify the levels of committed demand necessary to trigger rollout obligations and any factors likely to influence the scope or timing of the rollout and explain how those factors impact the strategy.***

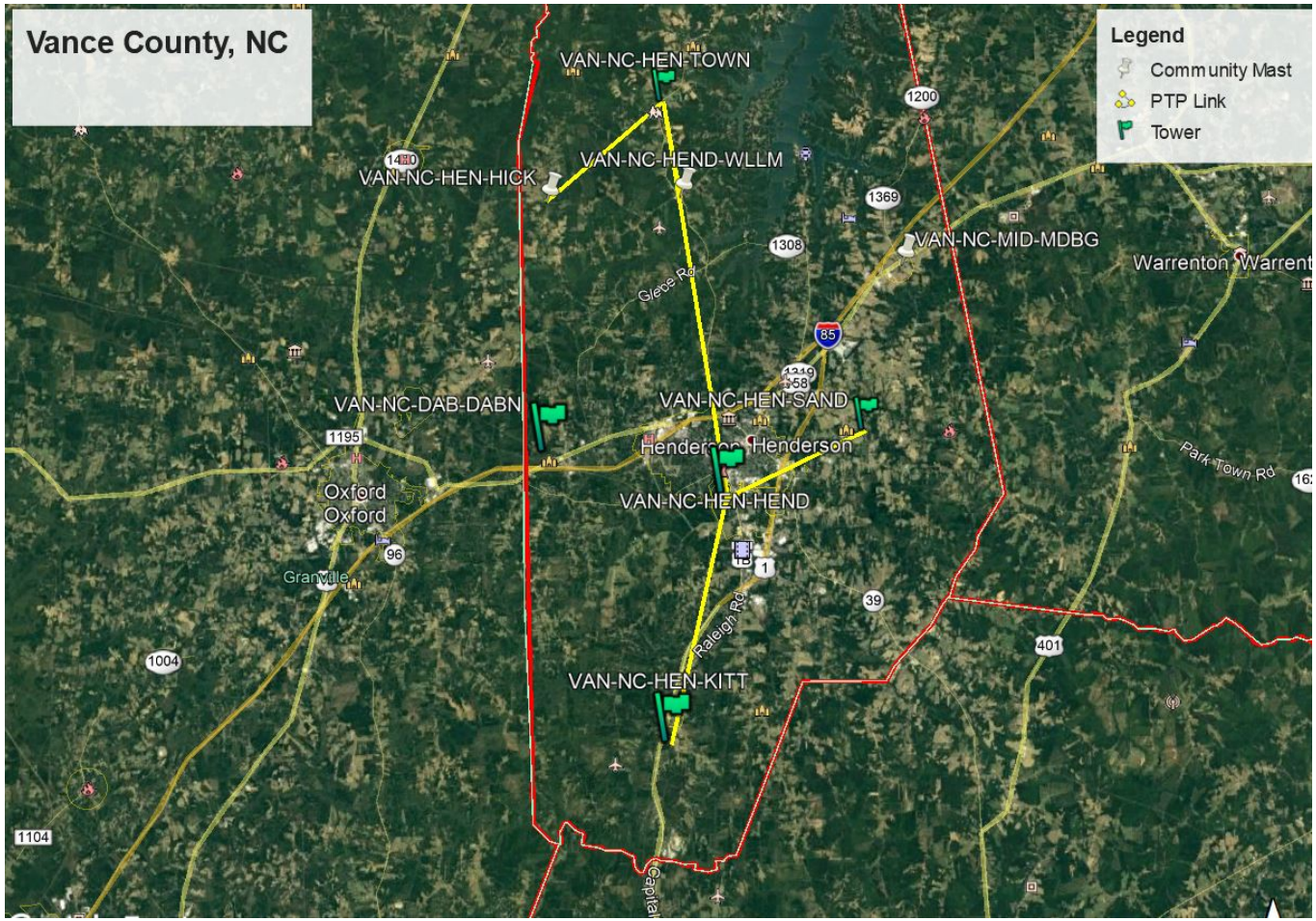
The broadband network design covers the entire county and can provide service to the adjacent county and communities. DNG's deployment approach is to strategically deploy towers and community masts in each service area to provide a wireless distribution service point to the surrounding community. The connection to the customer premises is accomplished with local radios and customer premise equipment that work with their community mast. Most customers will be connected using unlicensed spectrum technology in the 5GHz, 900MHz and UHF (known as TV White Space) spectrum. The unlicensed frequencies have no fees for use and are allocated by the FCC for rural areas. Community mast service relies on line of site or near line of site to reach customer premises with good signal strength. DNG uses repeater hubs to work around trees, buildings, and other terrain. The initial network buildout will be completed to provide initial service availability for the county over a 24-month period.

DNG has experience serving Multi Dwelling Units (MDUs) in our existing markets. Our strategy consists of delivering broadband service to an anchor location on the MDU campus and then extending the service within the location via wired or wireless infrastructure depending upon site conditions. Whenever possible, DNG makes use of existing infrastructure and cabling systems to extend the service to each tenant location. The engineering team will also start reviewing opportunities and options for building out fiber networks in the denser service areas and the proposal includes $1.5M in funding for fiber extensions and local networks that require more capacity than provided with the wireless broadband service.

The following pages include a service area map with approximate locations of the towers and community masts in the county. The second map is a heat map reflecting the service coverage provided by the 5Ghz radios. The project budget and targeted timeline is provided on page 23.

The technical descriptions of the network design and operations are provided in a separate section of the RFP proposal.

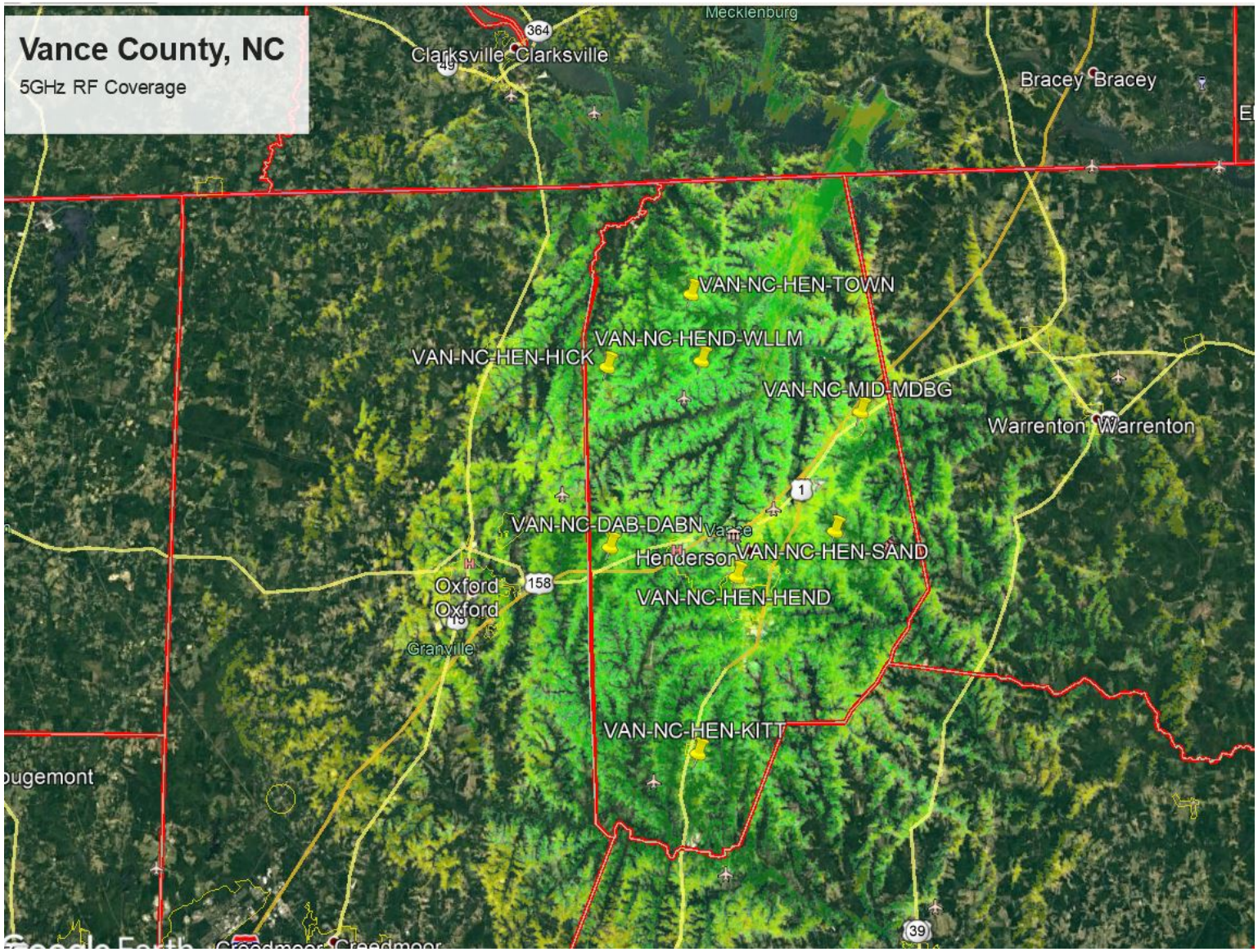
County Broadband Network Site Map



Vance County Site Listing

Site Class	Site Name	Site ID
Tower	**Henderson**	**VAN-NC-HEN-HEND**
Tower	**Dabney**	**VAN-NC-DAB-DABN**
Tower	**Kittrell**	**VAN-NC-HEN-KITT**
Community Mast	**Middleburg**	**VAN-NC-MID-MDBG**
Tower	**Sandy Creek**	**VAN-NC-HEN-SAND**
Tower	**Townsville**	**VAN-NC-HEN-TOWN**
Community Mast	**Hicksboro Rd**	**VAN-NC-HEN-HICK**
Community Mast	**Williamsboro**	**VAN-NC-HEND-WLLM**

County Broadband Network Coverage Heat Map



12.1.2 Project Implementation Timeline and Performance Milestones

**** The proposal must develop a detailed project schedule that indicates key events that are tied to the need for the release of funds of funds and grants or incentives by the VCBI.***

**** The proposal must specify the projected date by which the project will be completed and the date the service delivery will commence over the proposed infrastructure.***

DNG currently operates as the Network Manager under the grant and loan agreements, which would provide a common funding model for consideration of this proposal. DNG will be designated as the Network Manager for the project, complete the work orders requirements and contracts with selected vendors as needed for supplies, equipment and services. A quarterly project plan is established and any VCBI county funding would be made available for a working capital construction draw to pay vendors. The Network Manager will provide copies of the paid vendor invoices to close out the construction draws, and the county would retain a lien or ownership interest in the funded assets for a period of time. The Network Manager will be granted exclusive use of the funded assets and be able to repair, replace, operate, maintain and use the network assets to provide service to customers.

The schedule below reflects the budget installation and equipment cost for the towers, community masts and initial customer premise and network operations equipment. A budget is also provided for anticipated fiber extensions or local network after the initial network is deployed.

Capital Budget Vance County NC Service Areas

Vance County NC Construction Build-out and Project Milestones

Project Objectives and Activities	Year 1				Year 2				Year 3	Total
	Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr.1&2	
Project Management, Engineering, testing and	$25,000	$257,500	$337,500	$417,500	$380,000	$380,000	$380,000	$380,000	$575,000	$3,132,500
Field Construction Travel Expenditures		$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$120,000
Install Eight (8) towers and Five (5) Community Masts (70 ft wooden poles)										
1) Henderson Tower; Site Id: VAN-NC-HEN-HEND		$75,000								$75,000
2) Dabney Tower; Site Id: VAN-NC-DAB-DABN			$75,000							$75,000
3) Kittrell Tower; Site Id: VAN-NC-HEN-KITT			$75,000							$75,000
4) Middleburg Community Mast; Site Id: VAN-NC-MID-				$45,000						$45,000
5) Sandy Creek Tower; Site Id: VAN-NC-HEN-SAND				$75,000						$75,000
6) Townsville Tower; Site Id: VAN-NC-HEN-TOWN					$75,000					$75,000
7) Hicksboro Rd Community Mast; Site Id: VAN-NC-HEN-					$45,000					$45,000
8) Williamsboro Com. Mast; Site Id: VAN-NC-HEND-WLLM						$45,000				$45,000
Fiber Networks/Extensions						$250,000		$250,000		$500,000
Purchase relay hubs equipment and support installations			$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$175,000
Purchase CPE inventory and customer installations	$0	$43,750	$105,000	$168,000	$175,000	$262,500	$262,500	$262,500	$420,000	$1,699,250
Purchase NOC and Back Office Equipment	$0	$10,000				$10,000				$20,000
Network Construction Budget Subtotal	$25,000	$401,250	$632,500	$745,500	$715,000	$987,500	$682,500	$932,500	$1,035,000	$6,156,750

12.1.3 Service Offerings

**** A description of proposed wholesale or retail service offerings that the Vendor(s) anticipates offering to institutional, business, government, residential and other potential customers. Responses should address 1) pricing strategy, include anticipated rates for services and minimum period those rates would remain in place without escalation, and limitations on increases in rates over time, and 2) an explanation of the Vendor's willingness to work with the VCBI to develop unique pricing or packages for key community stakeholders and populations (e.g., government, K-12 facilities and economically distressed areas), and 3) customer support model for each service. Proposal must include a reduced rate option for qualifying economically distressed residents. Explanation of the qualifying standard, if available, should be included. The county can provide qualification requirements and determine eligibility, if desired.***

Internet Services

- ***Residential***
- ***Bulk Internet to multi-dwelling units (MDUs)***
- ***Dedicated business/institutional***
- ***Wholesale internet access***

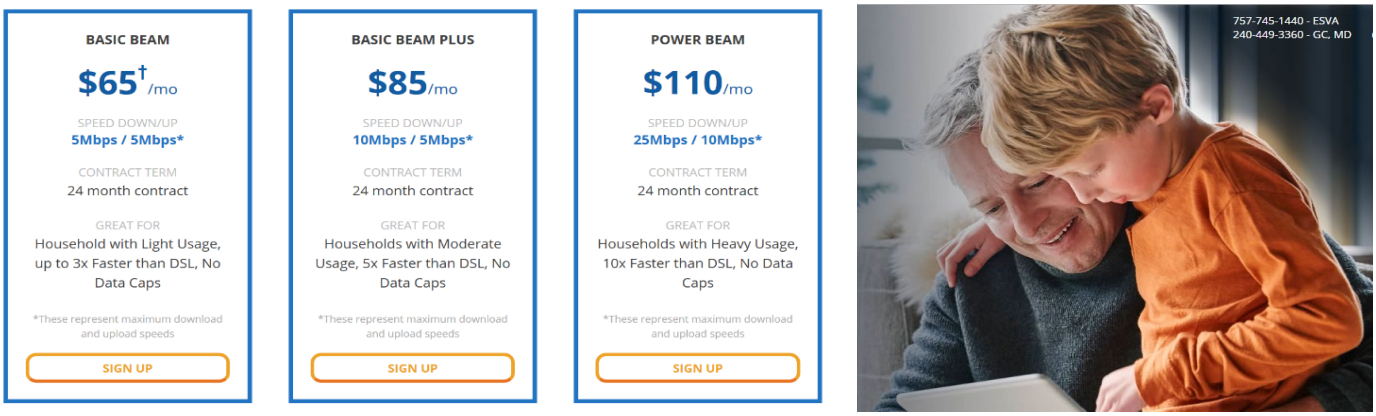
Service Circuits

- ***Point to Point***
- ***Multipoint Optional Services***
- ***VoIP services***
- ***Wi-fi***
- ***Video Services***

Vendors' response should include any other services that it will provide with its standard service as an optional service.

Residential and business services. NeuBeam offers a full complement of high-speed internet and voice services for residential and business customers. Residential users can surf the web, stream movies and videos, play games, share photos and shop online. Our services are also targeted to home businesses and telecommuters. Users can be reliably connected to their customers, co-workers, or cloud-based business services. NeuBeam offers business class service for small and medium enterprises that business needs to grow with our fast speeds, no data caps, high uptime and reliability and bandwidth management capabilities.

The chart and info below list the product packages we are recommending for this proposal:



★Always On High Speed Internet ★Super-Fast Download & Upload ★No Data Caps
★Goes Where Cable & DSL Can't ★Multiple Users Without Waiting
★Fast and Easy Installation ★Local Sales & Support

Our standard one-time installation charge for any of the above service packages is $99 and the one-time standard equipment charge is $199. From time to time, sales promotions may lower these fees. DNG additionally offers residential and small business voice services for an additional $30.00 per month by reselling a white label wholesale voice service provided by Momentum Telecom. Momentum Telecom has more than 25 years of collective experience and supports approximately 400 cable operators, broadband providers and reseller partners, manages more than one million high-speed data modems and powers over 130,000 voice lines. Momentum has an established track record of success in telephony and provides a complete 24 × 7 Tier 1 support program.

Business services are offered with similar speeds to our residential packages and, in certain instances, can be much faster (50 Mbps and higher). Business services are typically sold at a 25% premium over residential rates to allow for more monitoring and maintenance of the network and 99.99% uptime and availability.

DNG has no data caps and does not limit, quota, throttle or otherwise ration a user's total and upload and download capacity in relation to our pricing plans. All our pricing plans for residential and business customers have a 24-month price guarantee, which coincides with the contract length. Within 30 days of the end of a contract term, customers will be contacted by our sales team to discuss extending contract, available service packages and changes in prices if any.

Tailored Adoption Programs

Declaration Networks Group, Inc has implemented several programs that are aimed at broadening the community that is able to access to our services, including low-income populations, families with school age children, citizens with chronic healthcare needs, homebound patients, seniors, as well as first responders and public safety personnel. These programs vary based upon the available funding and specific needs of the communities, and DNG has offered tailored programs that provide discounts on the on the service installation cost and the monthly recurring fees for our services. DNG proposes developing adoption programs that identify specific needs and challenges of the Delaware target

communities and create tailored incentives that will increase the ability to access internet services. Specific examples of the programs that DNG has offered, and would consider for the Delaware target areas are described below:

Garrett County Community Action Committee (GCCAC) and Rural Maryland Council provide Declaration Networks Group (DNG) with Grant for Internet Adoption

Garrett County Community Action Committee (GCCAC), through a grant provided from the Rural Council, has teamed with Declaration Networks Group (DNG) to increase Internet adoption in Garrett County. The intent of this program is to enable lower income families and individuals with limited and or no access to broadband Internet to receive a service that will improve their quality of life and use of the Internet.

GCCAC is a non-profit organization serving the residents Garrett County, MD with the mission to 'improve the quality of life for people in need by empowering them to become more self-sufficient and by providing essential services in collaboration and cooperation with partners.'

More than 30% of the Garrett County population receive some GCCAC services, and families can take advantage of the DNG GCCAC Internet Access program if an individual or family is currently enrolled to receive programs or services offered by GCCAC.

DNG will work to introduce a similar program in Vance County that will include a rate option for qualifying economically distressed residents. In addition, DNG will have a willingness to work with the VCBI in developing unique pricing and packages for key community stakeholders and populations.

USDA Community Connect Grant- DNG Special Programs for Garrett County, MD

In Spring 2018 DNG was awarded a $2.3M+ grant to deploy a broadband network and offer high speed services (≥25 Mbps Down/ 3 Mbps Up) to a specific grant area in Garrett County with 1,300+ unserved homes. As part of the grant, DNG has included special programs developed to increase access and adoption by addressing specific community needs and specific challenges of individual residents. DNG is offering the following programs to the communities provided access through the USDA grant program:

- **Educational Program-** In coordination with the public-school systems for Garrett County and the local community, DNG has developed a program to address the home-based educational needs of K-12 age school children, as well as higher and continuing education students. DNG has created a special discounted service package available to all households within the USDA grant area that have students (K-12, College or Continuing Ed) to receive our higher speed Power Beam package (25 Mbps Down/ 10Mbps Up) at our lowest monthly rate (33% discount).
- **Healthcare Program-** In support of the citizens with chronic healthcare needs, homebound patients, and for the senior population within the grant area for Garrett County, DNG has developed a program to address their access to high speed internet to support tele-medicine connections to enable access to their doctors, healthcare providers, emergency response, and public safety. DNG has created a special discounted service package available to all households within the USDA grant area that have individuals who are home-bound, have chronic healthcare needs, or with senior citizens, to receive 50% discount on installation of any of our service packages.
- **Public Safety Program-** In support of the Garrett County public safety professionals and volunteer organization in support of their ability to respond to the public safety needs for citizens, DNG has developed a program to

address their access to high speed internet to increase accessibility to first responders that reside in the USDA grant area. DNG has created a special discounted service package available to all households within the grant area that have a first responder, will be eligible to receive a 50% discount on installation of any of our service packages.

12.1.4 Technical System Explanation

**** A description of the Network(s) technologies underlying the proposed Network(s) solution included in the response. Each description should include the following information:***

- ***Service Availability***
  - ***Targets for uptime***

  - Redundancy

- ***Design points for capacity***
  - ***Capacity per customer***
  - ***Number of fibers***
  - ***Licensed spectrum used***
  - ***Unlicensed spectrum used***
    - ***Mitigation plan for interference for unlicensed spectrum***

- ***Maximum number of end point customers***
- ***Verification of adherence to Service Level Agreement and Outage Reimbursement standards***

Network Management capabilities

DNG has developed a Network Operations Center (NOC) capable of monitoring the entire access network. The servers and routers supporting the NOC are housed in a secure data center environment in Oakland, Maryland. The NOC servers are protected from external access via VPN software. This NOC has technology installed to provide secured, encrypted connections to all network elements.

DNG uses SolarWinds Network Performance Monitoring (NPM) software to poll all network elements, gather and manage alarms via SNMP, and record performance measurements. DNG has also installed Netflow Traffic Analyzer (NTA) which allows for visibility of end-user traffic flows and end-point traffic visibility for policy enforcement.

DNG has deployed Cambium Networks cnMaestro network management software to centrally monitor and control all Cambium equipment. This software provides the ability to remotely manage and update software in our Cambium network and subscriber equipment. This system provides inventory management, radio spectrum analysis, and the storage of usage statistics.

DNG follows Cambium's best practice recommendation and uses FreeRadius software for Authentication, Authorization and Accounting (AAA) services. running on a Cisco 1121 Security appliance for AAA services on this network. The FreeRadius software provides a rules-based policy model and supports the application of different authorization rules under different conditions; thus, policy is contextual and not limited to authorization determined

by a single group membership. New integration capabilities allow information in external databases to be directly referenced in access policy rules, and attributes can be used both in policy conditions and authorization rules. FreeRadius features centralized collection and reporting of activity and system health information for full manageability of distributed deployments. It supports proactive operations such as monitoring and diagnostics, and reactive operations such as reporting and troubleshooting. Advanced features include a deployment-wide session monitor, threshold-based notifications, entitlement reports, and diagnostic tools.

DNG has deployed SONAR as our back-office provisioning and customer management platform. SONAR will integrate with DNG's network elements and the FreeRadius platform to bond the customer's service packages with the network components ensuring accurate provision and revenue protection. SONAR will also support our customer service with on-line ticketing, technician dispatch, customer correspondence archival, and end-user on-line support.

Categorical network statistic and specific systematic network elements that are actively managed include:

- Network management traffic is prioritized to avoid interruptions in statistical monitoring.
- SolarWinds NPM tracks the up/down status of nodes and sends email/SMS notifications for down nodes as well as proprietary manufacturer alerts.
- Syslog is used to capture and archive all device logs.
- SolarWinds NPM statistical history is archived for a minimum of 3 months
- SolarWinds NetFlow Monitor is utilized to analyze network traffic statistics.
- cnMaestro is utilized to manage Cambium proprietary nodes.
- Clearview is utilized to manage Redline proprietary nodes.
- Sonar OSS is utilized to integrate network monitoring systems with CRM and provisioning functionality.

Network Resiliency

The DNG network uses redundant network paths and routes wherever economically feasible. We rely on the underlying network of our backbone providers and Internet suppliers to provide failover and rerouting capabilities during times of fiber cuts and other outage events.

Hardware Resiliency

The Cambium and Redline radios are installed on towers, Class 3 type 70' wood poles and buildings using industry standard equipment mounts and installation practices. All equipment installations meet the ANSI/TIA-222-G-2005 structural standard for wind loading. Each installed core network site, community mast and Relay Hub location will include at minimum a NEMA 3R environmentally protected equipment cabinet which houses the ruggedized power, Ethernet switch, heating and cooling system to support the radio equipment. Each network location is provisioned with a minimum of 24 hours of reserve battery backup power. In addition, each location is equipped with portable emergency generator connections for extended outages.

Service Specifications

The DNG current and planned Vance County network will have low latency, and the Cambium network component latency is as follows:

PTP 670:	1-3 ms	PMP 450 AP	3-5 ms
PMP 450 SM	3-5 ms		
PMP 450i AP (900 Mhz)	3-5 ms		
PMP 450i SM (900 Mhz)	3-5 ms		
Cambium ePMP	3-5 ms		

Typical on-network latency is below 30 ms.

DNG constantly monitors packet loss across the network and to our external network connections. Any packet loss exceeding established thresholds are immediately alarmed by the SolarWinds reporting system. Typical packet loss for a 30-day period is reported to be less than the .50% level required by this RFP. "Network Jitter" is less than 10ms due to the design of the network and our commitment to non-blocking within the network. The DNG network supports video and voice services with no performance issues.

DNG utilizes the SolarWinds Network Monitoring Performance system to monitor and analyze all our network infrastructure. In addition to network alarm monitoring and reporting, the system provides real-time availability measurements of the network and subsystems. For example, a recent snapshot of the SolarWinds availability report for the last 30-day period revealed actual performance of our three core network routers:

Core Router #1: 99.95%
Core Router #2: 99.997%
Core Router #3 100.00%

The network is designed with resiliency and diversity to maximize availability and maintain the 99.9% objective.

Each of DNG's base station sites are equipped with battery back-up provisioned with a minimum of 24 hours of reserve battery backup power. In addition, each location is equipped with portable emergency generator connections for extended outages. Each installed core network site, community mast and relay hub location will include at minimum a NEMA 3R environmentally protected equipment cabinet which houses the ruggedized power, Ethernet switch, heating and cooling system to support the radio equipment.

The DNG wireless access network uses a variety of technologies to provide reliable, consistent broadband access services to residences and businesses. The wireless equipment deployed will be capable of exceeding 50 Mbps download throughput and >5 Mbps to service locations in the access network using unlicensed spectrum in the ISM and UNII 5GHz bands, and UHF TV White Spaces bands. The predominant service area coverage is provided by 5GHz commercial grade radios that deliver high capacity access in point to point (PTP) and point to multi point (PMP) configurations. The UHF TV White Space is used more selectively to facilitate access to targeted service locations with low density and limited line of sight to nearby community masts.

DNG uses radios from Cambium Networks for point-to-point (PTP) and point-to-multipoint (PMP) wireless connections. The Cambium radios used include the newest Cambium PMP450b, PMP450i 900Mhz, PTP670, ePMP F180, ePMP 1000 and ePMP 2000 models. DNG also utilizes radios from Redline for 5GHz and TV White Space PTP and PMP connections, including Redline RDL 3000 Ellipse, RDL 3000 Elte MT 1A, and RDL 3000 Enterprise SU 1A models.

DNG has designed the network to support the RFP requirement of broadband speeds of 25 Mbps down and 3 Mbps up with our wireless service.), DNG establishes Community Mast (CM) distribution sites throughout the targeted service area to provide sufficient service coverage to meet this requirement. The network is designed to allow for the introduction of lit fiber services to increase our offering to 100 Mbps symmetrical service in the future.

The DNG engineering team has identified potential sites for community masts which can be connected to the middle mile fiber or served from centralized backbone sites with a point to point backhaul radio link. The project team used the Cambium **LINK Planner** software tool to conduct radio frequency analysis for Vance County. This tool utilizes the ITU-R P530-12 model for availability analysis. P530 is an international standard from the ITU and is continuously being reviewed and updated. Version 12 was last updated in 2007 and is the method currently used in **LINK Planner**. The ITU model is fully defined and has no ambiguity in its implementation; hence all implementations should return the same results for a given configuration of a link. **Link Planner** has proven very reliable in engineering Point- To- Point (PTP) radio links in the DNG network. Signal Levels and Throughput capacity predictions using **Link Planner** have been engineered into this design.

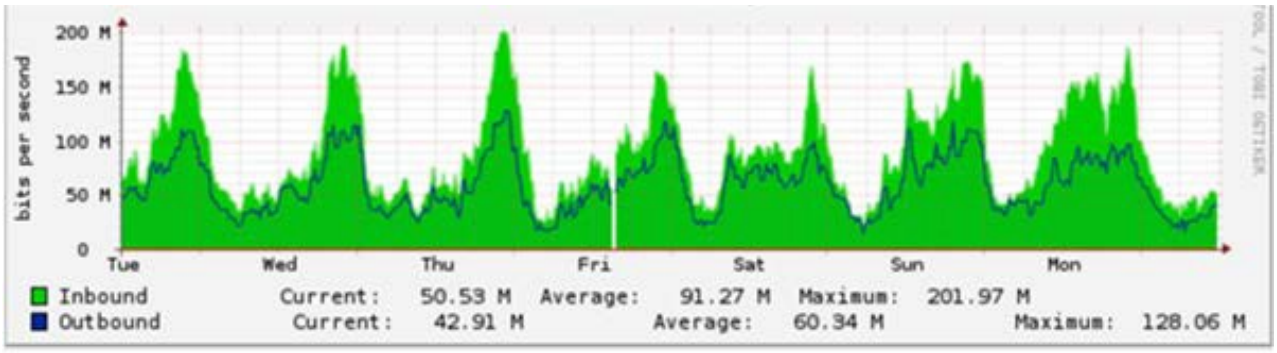
Another RF Analysis software package that was consulted in this design was the **Radio Mobile** RF Propagation Software tool. This software is widely recognized among RF professionals as a cost-effective tool to analyze potential transmitter locations and determine RF propagation patterns from those locations using a wide variety of RF, location, equipment, and environmental parameters that can be selected by the user base d on their unique network requirements. We are currently using the latest software version 11.6.0 of the **Radio Mobile** program.

Oversubscription Ratio Calculations

DNG has designed our network around an oversubscription rate of 10 to 1. For every 10 Mbps of download speed sold, we provision 1 Mbps of internet capacity. Our experience has shown that this design will allow us to meet the peak demands of our customers without creating service issues or undue blockage on the network. DNG utilizes the 10 to 1 design criteria on all links in the network in addition to the internet handoff.

Our network exhibits the typical usage patterns of an ISP that predominantly serves residential customers. Weekly traffic patterns are consistent week over week, with busy hours consistently between 8pm to 10 pm local time. Download traffic typically exceeds upload traffic by 5 to 1 in the DNG network. Therefore, our design is geared toward meeting the peak download demand.

Figure 10 details the traffic statistics for one of DNG's current ISP connections.



Sample traffic statistics from a DNG ISP connection

Figure 10 Traffic Statistics

RF Link Performance

The Redline charts below detail the link budget used to calculate the throughput of a Redline Enterprise Subscriber Module (SM) operating in the 5GHz band and a Redline eLTE-MT Subscriber Module (SM) operating in the TVWS 470-698MHz band. Maximum sensitivity on all Redline equipment is -110 db, with typical minimum service connection levels of -90db. Minimum modulation used for 5GHz is QPSK 3/4 and for TVWS is 16QAM 3/4. Field testing has shown that minimum service levels can be achieved with SNR levels of -88db and an SNR of 11dbm.

5MHz channel maximum throughput (Mbs)

256-QAM 7/8	30
256-QAM 5/6	28
256-QAM 3/4	25
256-QAM 2/3	23
64-QAM 5/6	22
64-QAM 3/4	20
64-QAM 2/3	18
16-QAM 3/4	14
16-QAM 1/2	9
QPSK 3/4	3
QPSK 1/2	2
BPSK 1/2	1

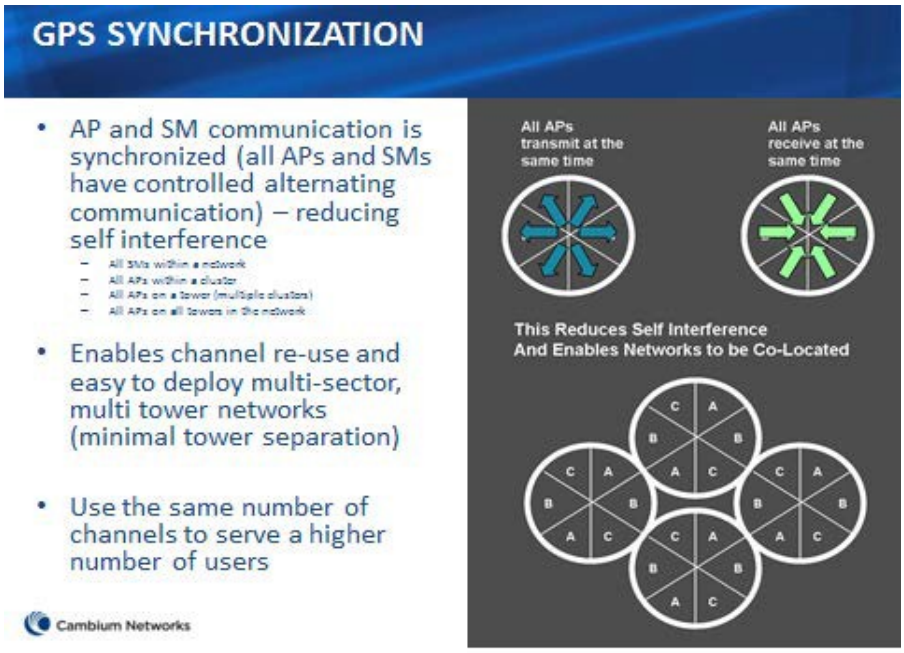
20MHz Channel maximum Throughput (Mbs)

256-QAM 7/8	118
256-QAM 5/6	112
256-QAM 3/4	101
256-QAM 2/3	90
64-QAM 5/6	92
64-QAM 3/4	82
64-QAM 2/3	73
16-QAM 3/4	40
16-QAM 1/2	36
QPSK 3/4	13
QPSK 1/2	9
BPSK 1/2	4

The RF analysis and coverage maps provided show the signal strength will exceed the minimum provision of 25Mbps Download and 3 Mbps upload on a 20 MHz channel (5Ghz) at QPSK 3/4 and 6 MHz channel (TVWS) at 16QAM 3/4 respectively. Redline's eLTE-MT Radios will support channel bonding allowing for the increase of channel sizes available to 12 Mhz and 18 Mhz. This increases the throughput capacity 2x and 3x respectively. The TVWS database shows available contiguous channels in the markets that DNG plans to utilize for this capability.

Mitigation of Interference

All DNG network locations use Redline's GPS synchronization technology to mitigate self- interference. Redline uses GPS Synchronization to coordinate transmit and receive activity between all radios on the network. A description of this technology is shown below:



DNG has direct experience with deployment and performance reporting with our current networks, including reporting for the DNG/ Garrett County, MD public/ private partnership, USDA RUS Farm Bill Broadband Loan Program, and the USDA RUS Community Connect Broadband Grant program, as well as the FCC Connect America Fund program. DNG has a Network Operations Center (NOC) that provides comprehensive monitoring the entire access network that can produce reports that reflect the performance of the network elements from interconnection core sites to individual customer installations. DNG utilizes system management platforms and monitoring tools, including SolarWinds Network Performance Monitoring (NPM) software to poll all network elements, gather and manage alarms via SNMP, and record performance measurements. DNG has also installed Netflow Traffic Analyzer (NTA) which allows for visibility of end-user traffic flows and end-point traffic visibility for policy enforcement. Additionally, DNG has integrated SONAR back-office provisioning and customer management with DNG's network elements bond customer's service packages with the network components ensuring accurate provision and revenue protection.

A number of network design tools, including RF propagation and analysis programs, were used to create DNG's Delaware wireless access network. The DNG engineering team has been working over the last twelve months to identify potential sites for community masts which can be connected to the middle mile fiber or served from centralized backbone sites with a point to point backhaul radio link. The project team used the Cambium **LINK Planner** software tool to conduct radio frequency analysis for the proposed Delaware networks. This tool utilizes the ITU-R P530-12 model for availability analysis. P530 is an international standard from the ITU and is continuously being reviewed and updated. Version 12 was last updated in 2007 and is the method currently used in **LINK Planner**. The ITU model is fully defined and has no ambiguity in its **i**mplementation; hence all implementations should return the same results for a given configuration of a link. **Link Planner** has proven very reliable in engineering Point- To- Point (PTP) radio links in the DNG network. Signal Levels and Throughput capacity predictions using **Link Planner** have been engineered into this design.

Another RF Analysis software package that was consulted in this design was the **Radio Mobile** RF Propagation Software

tool. This software is widely recognized among RF professionals as a cost-effective tool to analyze potential transmitter locations and determine RF propagation patterns from those locations using a wide variety of RF, location, equipment, and environmental parameters that can be selected by the user base d on their unique network requirements. We are currently using the latest software version 11.6.0 of the **Radio Mobile** program.

The project team identified sites for consideration and has selected tower and community mast sites using the Cambium **LINK Planner** software tool and **Radio Mobile** to conduct radio frequency analysis. DNG held several workshops to review the network specifications, site locations, and multiple frequency propagations from these locations to the targeted service areas. 5GHz and UHF coverage was calculated from each community mast site to evaluate coverage and spectrum interference issues. The technical team evaluated the coverage options for each community mast to select the best use of the community mast for coverage with the appropriate wireless technology.

Capacity Planning and Scaling

DNG plans and maintains the network using the following planning and input assumptions that are utilized for network design, service coverage, and capacity planning, and are continuously monitored and adjusted against actual performance, subscriber growth and frequency availability to maintain the required service levels. The following table includes network capacity planning, design, sizing and scaling assumptions:

	Internet Connectivity	Fiber & PTP Link Capacity	RF Frequency Allocation	Access Point Capacity
Network Capabilities	Each Core Site is capable of 1 Gbps scaling to 10 Gbps of Internet Connectivity	EVPL Fiber Link and PTPs are capable of up to 1 Gbps	Assumed to be twenty one (21) 20 MHz channeles in 5 GHz, and TVWS channels are 6MHz and existing and planned markets have multiple available contiguous channels (varies by market).	Typical 5 GHz Sector AP supports up to 50 Subscribers, and TVWS Sector Aps can support up to 20 Subscribers.
Network Size & Scope	Number of Core Backbone Sites determined by size of market and fiber connectivity	Link Speed is calculated by number of subscribers, typically 1.5 to 2 Mbps per customer	Frequency plan takes into consideration adjacent sectors and provides for sector count increases on a Community Mast (CM)	Each CM can serve up to 4 or more sectors per frequency band. If the number of potential subscribers in a CM exceed the design criteria, additional CMs must be incorporated.
Bandwidth Sizing	Bandwidth at each Core Backbone Site is sized at 1.5 to 2 Mbps per subscriber. DNG's typical contention ratio is 10 to 1.	Adjustments are made to link bandwidth based on a mix of subscriber service packages	Channel re-use plan is designed to avoid self-interference. Channels showing high utilization by other entities are precluded from use.	Subscriber count may need to be adjusted based on variability of subscriber packages
Scaling & Growth	Adjustments to bandwidth needed as actual mix of subscriber packages may vary between Core Backbone Sites	Priority given to Voice traffic bandwidth needs to achieve 100% non-blocking of traffic	Continuous monitoring of active channels for acceptable SNR, utilization rates, and interference, and channels are adjusted as required.	Geographic coverage of sectors will be adjusted or additional sectors added to handle subscriber growth with a CM.

Backhaul Planning

DNG plans and maintains the network using the following planning and input assumptions that are utilized for network design, service coverage, and capacity planning, and are continuously monitored and adjusted against actual performance, subscriber growth and frequency availability to maintain the required service levels. The following table includes network capacity planning, design, sizing and scaling assumptions:

	Internet Connectivity	Fiber & PTP Link Capacity
Network Capabilities	Each Core Site is capable of 1 Gbps scaling to 10 Gbps of Internet Connectivity	EVPL Fiber Link and PTPs are capable of up to 1 Gbps
Network Size & Scope	Number of Core Backbone Sites determined by size of market and fiber connectivity	Link Speed is calculated by number of subscribers, typically 1.5 to 2 Mbps per customer
Bandwidth Sizing	Bandwidth at each Core Backbone Site is sized at 1.5 to 2 Mbps per subscriber. DNG's typical contention ratio is 10 to 1.	Adjustments are made to link bandwidth based on a mix of subscriber service packages
Scaling & Growth	Adjustments to bandwidth needed as actual mix of subscriber packages may vary between Core Backbone Sites	Priority given to Voice traffic bandwidth needs to achieve 100% non-blocking of traffic

12.2 Roles and Responsibilities

**** A description of the roles and responsibilities envisioned for Vendor, Vendor team members, VCBI and its affiliates, and subtractors or third parties (if applicable) for each of the following:***

- ***Network(s) Design***
- ***Network(s) construction***
- ***Network(s) operations and management***
- ***Customer Support***
- ***Publicly available information***
- ***Marketing***

<u>Material Tasks/Components</u>: Vendor shall provide a breakdown or outline of the material tasks or components of the design, construction, operation and management of the Network(s) and its rollout.

Declaration Networks Group Inc. designs, builds and operates broadband networks in rural markets leveraging a cooperative business model with local companies, governments and utilities that are interested in providing broadband access to their local community. DNG has been in operations since 2015 and has existing in-services networks supporting customers, local sales and service staff in Accomack County, VA; Northampton County, VA; and Garrett County, MD.

DNG has core competencies in the design, deployment and operation of high capacity wireless access solutions that provide private, residential and enterprise broadband services. DNG is led by a management team that has many decades of experience developing, deploying and operating telecom infrastructure, including delivery of end-user services over FTTH access infrastructure and advanced wireless access infrastructure. Additionally, DNG's team experience includes leading industry-wide eco-system development for TV White Spaces, as well as, public-private partnership development supporting federal programs such as the Rural Utilities Service BIP loan and grant program. DNG provides:

- ✓ Proven experience in designing, deploying, and operating sustainable broadband services in rural un-served regions
- ✓ Award winning cooperative operating model for innovative public/ private broadband partnerships
- ✓ Existing centralized service infrastructure including 7 x 24 Customer Service, Network Operations Center, Provisioning, Customer Relationship Management and Billing Platform
- ✓ Established Federal funding (USDA, FCC CAF II) management and reporting process
- ✓ Industry leaders in the deployment and operation of next gen broadband networks through a strategic partnership with Microsoft to close the U.S. digital divide

Network Infrastructure and Operations – DNG's deployment approach is to strategically deploy towers and community masts in each service area to provide a wireless distribution service point to the surrounding community. The connection to the customer premises is accomplished with local radios and customer premise equipment that work with their community mast. Most customers will be connected using unlicensed spectrum technology in the 5GHz, 900MHz and UHF (known as TV White Space) spectrum. The unlicensed frequencies have no fees for use and are allocated by the FCC for rural areas. Community mast service relies on line of site or near line of site to reach customer premises with good signal strength. DNG uses repeater hubs to work around trees, building, and other terrains.

The company has established a 7/24/365 customer service center and implemented a white label voice service with two leading service providers. This provides a lower support cost as service is provided on a per customer charge per month. The company established a Network Operation Center (NOC) in Garrett County, Maryland to monitor and manage the network.

DNG has 30 employees supporting network design, operations and back office support. Each service market will be supported by a local sales, service and installation team. Currently the company has local sales, install and support employees in the markets we serve, including 2 sales managers, six sales representatives, four full time network specialists, two full-time service managers, and eight customer premise installers and service techs. The company has separate resources in each market to focus on customer premise turn up and infrastructure construction activities. This work force is supported by various installation contractors for our network and customer activities.

Order Input and Processing

DNG has 2 primary mechanisms for placing and processing orders, including 1) customer-initiated order placement through our 7 x 24 on-line retail website and 2) with our direct sales team through our automated Sales Entry System (SES) that is integrated with our Sonar billing and Order management software platform. Once an order has been entered, the company can view the information and make any necessary changes on the order as needed.

Customer and Technical Support

Customer and technical support inquiries regarding service issues are handled through a multi-tiered process. The division of technical support into tiers allows the company to better serve our residential and business customers.

Tier I support is the initial support level responsible for basic customer issues and can be accessed by customers 24x7 through a toll-free number. Tier I inquiries are handled on 24/7 basis and Tier I specialists are able to identify and troubleshoot first level troubles, as well as address frequently asked problems, outage notifications, open trouble tickets and perform escalation to Tier 2 support.

If Tier I is not able to resolve customer issues, the trouble ticket is escalated to Tier II where more in-depth technical support can be applied. Our Tier II technicians are responsible for further resolution of Tier I issues that have been transferred to them. As part of this process, the Tier II representative will investigate elevated issues by confirming the validity of the problem and seeking solutions that relate to these more complex issues. Tier II representatives have a high level of customer service and technical skill which is needed to navigate and troubleshoot issues. This knowledge encompasses operating systems, hardware and software and allows the Tier II technician to resolve many issues. If a problem and trouble ticket remain open, the concern will be escalated to Tier III which will dispatch field technicians to the customer location, and/or other network sites to remedy outstanding troubles.

Tier III is the highest level of support in our three-tiered technical support model. Tier III technicians are highly trained field service representatives and they are responsible for handling the most difficult issues and advanced problems. Our field technicians troubleshoot and repair various data and voice issues for both residential and commercial environments through testing and support protocols with via our networking and communication tools. Upon diagnosing the problem, the technician will apply the appropriate repairs and close out the ticket.

As mentioned above, many service issues are immediately resolved at the Tier I level. Tier II problems are typically resolved within a matter of hours and if a Tier III customer visit is required, this will typically occur within 24 hours.

Billing Procedures

Invoices for installation and service fees are sent to customer e-mail address on file within 24 hours of installation from "NeuBeam." The subject line will read "NeuBeam Service Invoice XXXX" and a customer's installation invoice is due upon receipt. Services are billed in advance 2 weeks after installation, and a user will receive their invoice for their second month of service and this invoice will be due in 15 days, or 30 days after installation. Invoices can be paid with a credit card, debit card, or EFT from a checking account and customers can also choose to mail us a check. If interested, customers can contact us to automatically charge their credit or debit card every month.

DNG prides itself with our strong customer relationship approach. The pillars of our sales support/account representation and customer relationship include the following: 1) providing effective and strong communication, 2) exceeding customer expectations, 3) asking for feedback, 4) showing appreciation through our referral program, and 5) helping our customers to "Connect to what matters."

Through this process we engage with our customers and build excellent relationships. Each of our residential and business customers has an assigned sales representative within their sales market who works with their individual accounts to meet and exceed their needs. In fact, previous survey data shows that 88% of our customers rate our local sales and installation teams as "great or exceptional."

Marketing

In launching each of our service areas, DNG executes a comprehensive marketing plan including support from community leaders, organizations, businesses and residents. This strategy has included actions that have facilitated our planning, development and implementation activities. Some of the campaigns that we have completed to-date in existing markets are listed below.

Community Meetings. DNG has consistently held community and meet-and-greet gatherings, in reaching out to local citizens and businesses, allowing people to learn more about DNG and our plans. Meetings are held at common locations such as a local firehouse or community meeting room and at a time that is convenient for attendees. These meetings are a key tactic in our grassroots organizing and engagement model. They allow for direct participation, face-to-face interactions and often provide a vehicle for addressing important issues head-on. Getting good attendance at these meetings is critical to our success and we work hard to ensure a strong turnout.

Organizational Affiliations and Advocates. We are very involved in each of our communities. DNG is a member and active in the local Chambers of Commerce, the Moose and Elks Lodges and the Rotary Clubs. Our involvement at various Chambers of Commerce has included presentations to the Chambers' Board of Directors and we have participated in several lunch-and-learn programs. This strategy has led to the acquisition of many business customers.

Community Advocates. DNG has also created a community advocate program. Many of our buyers will base their buying decisions on peer recommendations. We engage our happy customers and work with them to bring us referrals. In these smaller communities, advocate referrals go a long way toward building a strong brand and loyal customers. Advocates are rewarded for their efforts through receipt of credits on their bills when they bring us new customers. Over 20% of our current installed customer base in our existing service market has been acquired as a direct result of customer referrals. These memberships have allowed us to attain exposure and visibility and they have created many networking opportunities for us. We have also received access to the Chamber mailing list to directly market our services to other residential and business owners. In addition, we actively participate in local homeowners' association functions and attend many local town meetings.

Direct Mail. DNG has had much success with direct mail campaigns to residential and business prospects that generate brand awareness and build a pipeline of firm orders in advance of opening a market. To-date, we have distributed thousands of direct mail pieces in our existing markets. We have received a 1.00 - 1.25% conversion rate from these campaigns.

Mailings have been sent as new service areas are turned up and are repeated in selected areas to increase awareness of our NeuBeam product line in the market. Direct mail provides us with an effective way to promote our products and services.

Incentives and promotions. Our incentives and promotions have been extremely well received by customers. At various times, we have discounted our equipment and/or installation charges in conjunction with direct mail campaign and this has delivered an excellent return. These promotions have enabled us to win new customers and to take away business from the competition.

Door-to-door canvassing. NeuBeam's local sales team is active in the community every day, going door-to-door to meet with prospective residential and commercial customers. While in neighborhoods, we identify competitive obstacles and then develop the appropriate programs (marketing promotions, discounts, use of strategic selling techniques/sales training, etc.) to overcome and stay ahead of the competition.

Branding. We have built a strong brand through being active and aggressive in the market, excelling at relationship building, providing great service through the sales and installation process, and by delivering outstanding post-sale follow-up and service. All these ingredients are creating a happy and loyal customer base.

DNG provides retail broadband services under the NeuBeam brand, which features competitively priced always-on services that are designed to exceed customer expectations with respect to service quality, support and availability. All our plans are designed to encourage more Internet usage and there are multiple offer types to meet the needs of all prospective users.

Internet Personas. DNG previously retained Ceres Insights, a highly respected marketing agency, to conduct direct market research which indicated that within a typical NeuBeam market, there are four residential Internet service types of personas, or personality types, to consider for our services:

- Internet Reliants
- Internet Enthusiasts
- Internet Casual Users
- Internet Adverse

DNG's marketing team has further performed research within the target area to determine the relative mix of personas. Our sales and marketing efforts are focused on addressing the pain points typically experienced with competitors' offerings (i.e., low speeds, high monthly fees, data caps, and spotty service availability) through key messages that highlight our superior service quality, value and support.

Pricing Plans. The research and diligence effort that we have undertaken has led to the development of diverse pricing plans that are designed to meet the needs of these personas, plus for those of small and medium-sized businesses. In addition, a thorough review of existing competitor pricing is also undertaken, and this data is considered to create our pricing strategy. These strategies have resulted in a product mix in our existing markets where over 70% of our customers have chosen our two packages either at 10 Mbps or 25 Mbps.

DNG's Marketing and Sales Channel Planning. DNG pre-launch market evaluation and community development establishes aligned service packages that have driven pre-order percentages and post launch penetration rates and

service package mix. DNG customer acquisition and revenue plan for the Funded Loan application business plan is supported by actual historical performance in existing markets, and supplemented by the improved household densities, and increased sales and marketing activities. Specifically, DNG's historical markets have experienced the following customer adoption phases that have resulted in predictable penetration rates from repeatable sales and marketing activities:

1. Pre-Launch (2%) customers that reflect pent-up customer demand identified through firm orders submitted on-line during DNG's pre-launch market activities, including market outreach through assessment, local community organization, network and service evaluation, marketing and brand awareness.
2. Early Adopter (18%) customers ordering service at launch through Q6 responding to direct sales, advertising, social media, and direct mail.
3. Value Buyer (10%) customers ordering service from Q5 through Q12 as they hear about positive early adopter experiences highlighted through direct sales, word of mouth, advertising, social media, and direct mail.

The following chart illustrates the marketing and customer acquisition plan that depicts expected cumulative penetration rates driven by specific sales and marketing activities throughout the customer adoption phases:

MARKETING AND CUSTOMER ACQUISITION PLAN

Customer Adoption Phases	Pre-Launch	Early Adopters				Value Buyers							
	Launch minus 30 days	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Pre-Launch Requirements:													
Established Brand	√												
Competitive Assessment Completed	√												
Market Activated on Website	√												
Network Coverage Established & Tested	√												
Sales & Marketing Plan:													
Direct Sales	◆	—	—	—	—	—	—	—	—	—	—	—	—
Direct Mail		√		√		√		√	√				
Advertising & Social Media	◆	—	—	—	—	—	—	—	—	—	—	—	—
PENETRATION RATES													
Value Buyers						2%	2%	1%	1%	1%	1%	1%	1%
Early Adopters		5%	5%	3%	2%	2%	1%						
Pre-Launch	2%												
Cumulative	2%	7%	12%	15%	17%	21%	24%	25%	26%	27%	28%	29%	30%

Customer Adoption and Education: DNG conducts a series of enrichment courses that focus on bolstering computer and internet skills in our markets. The sessions are aimed at residents who may be reluctant to use a computer, need some help getting started, or would like to learn about topics such as social media, effective internet searches, computer security, and more. Each class lasts 90 minutes and is offered at a convenient location to our customers. Providing enhanced digital literacy skills to the public is a key differentiator in our approach within the community.

12.3 Management and Staffing

The proposal must describe the role of key project personnel (including job descriptions) and provide documentation of the ability of current management and staff to fulfill those responsibilities. Please attach resumes of key project personnel and a list of anticipated subcontractors.

Vendor's proposal shall include organizational documents filed with the applicable governmental agency (i.e., Articles of Incorporation or Articles of Organization) as well as a Certificate of Good Standing (or equivalent) from the applicable agency and any licenses to provide communications services that may be required by the North Carolina Public Utilities Communication, Federal Communications Commission, or any other applicable governmental agency. Additionally, Vendor shall provide a certificate that is in good standing to do business in the State of North Carolina and that all of its business and regulatory registrations/filings/taxes are current and all internal documents, are up to date.

The proposal must disclose the relationships, if any, which exist between key personnel and investors in this project.

The construction project team will include the following two key executives:

Program Manager, Keith Montgomery CFO and COO and Network Sr. Project Engineer, Warren Brasselle, Vice President Network Operations and Engineering. The project scope estimate is that 25% of Mr. Montgomery's time and 50% of Mr. Brasselle's time will be required during the engineering, contracting and deployment phases of the network deployment. Individual project sites will be managed by an assigned project manager based on the skills needed for the project.

Project Managers - DNG will assign a dedicated project manager for the network tower and community mast construction activity and hire three to four local installation technicians to support customer and relay hub installations for the project. Networks, Inc will be project managers providing engineering, project management and installation support.

The tower installations will be supported by one of the qualified tower installation companies that DNG uses on the east coast projects. Stellar Tower Communications and Pillar Innovations LLC currently do tower installation work for DNG. DNG will complete individual tower work orders and offer them out to bid as a standard business practice.

Community Mast installation work will be supported by a qualified construction company that specializes in utility pole installation and radio system installations. Pillar Innovations currently do the pole installation work for DNG.

DNG will hire local electricians, trenching company and installation support vendors to supplement direct hire employees for the installation and maintenance work required for infrastructure, relay hub and customer premise installations and repairs.

DNG will hire a local service manager to lead the installation and service team in Delaware. DNG will hire a local sales manager to lead the sales team in Delaware, after the first phase of the network construction is completed.

DNG's management team comprises experienced telecommunication and high-tech industry executives that have worked in Fortune 50 to startup companies in US and international assignments over the past 35 years. DNG's leadership has a commitment to providing next generation technology solutions that support the needs of the digital generation. Our management team will be the direct contributors responsible for driving the successful long-term partnership with our communities and partners, and will leverage the following highlighted relevant experience:

- **Bob Nichols, CEO**, is an experienced business development executive with over 25 years of experience in high tech, telecommunications and startup ventures. Prior to founding DNG, he led the business development efforts at Neustar developing new lines of business, strategic telecommunications, media and technology initiatives. Bob co-founded the FCC recognized AIR.U initiative along with Google, Microsoft, New America Foundation, Appalachian Regional Commission, and Higher Ed Groups representing over 500 Colleges and Universities. AIR.U includes the Gig.U (Led by Blair Levin, Author of the FCC Broadband Plan) as a founding sponsor and shares the mission of accelerating the deployment of next-generation networks. Bob is a proud graduate of the University of Delaware, receiving a Bachelor of Science in Business Administration, Concentration in Marketing & Minor in Philosophy, and additionally received an MBA from the University of Colorado.

- **Keith Montgomery, CFO**, is an experienced COO, CFO, & CIO with over 33 years of experience in telecommunications, high tech and broadband consulting for domestic and international companies. He was senior manager for MCI during their high growth years supporting financial reporting, business planning, network construction, revenue reporting, financial operations, treasury, and tax operations. He was one of the founding executives for CLEAR Communications, a company that deployed telecommunication, Internet, and TV network for New Zealand. He has completed feasibility and broadband network/operations designs for fixed and wireless network in over 14 states and supported the evaluation program for 2,200 BIP broadband applications for the Rural Utilities Service (RUS). Keith is also the Vice President of the Rural Telcom Congress which promotes broadband adoption for rural communities.

- **Barry Toser, EVP Sales and Marketing** is a seasoned telecom executive with over 30 years proven experience creating and executing successful sales and marketing campaigns that drive the adoption of telecommunications, internet and broadband services. He has managed sales and product support teams for large telecommunications companies and helped establish innovative startup organizations drive new revenue streams and markets while leveraging core telecommunication and new technologies. He has developed these programs for companies such as Sprint, Cable & Wireless, TNS and Neustar. Barry also founded and led one of the U.S.' leading telecom and technology networking organizations for 17 years, which provided members and participants with pertinent industry content and education.

- **Kathy Paver, VP Customer Operations,** is a finance professional with over 30 years' experience in Financial Planning & Analysis, Financial Operations, Sales Support, and Customer Operations in the telecommunications industry working for MCI, British Telecom, and XO Communications. She has significant experience partnering with sales executives to forecast sales and revenue while controlling expenses. Kathy is effective in re-engineering, streamlining, and strengthening financial operation to maximize performance and profitability.

- **Warren Brasselle, VP Network Engineering and Operations** is a seasoned and well-regarded telecom executive with deep experience in designing, deploying and operating telecommunications and broadband networks, leveraging fiber to the home and wireless technologies for national, middle mile and last mile networks for urban and rural service areas. He has spent 32 years working for Fortune 500 companies like Cavalier Telephone, Cable & Wireless, Williams Telecommunications, and MCI, in addition to several early stage innovative telecom companies. Warren is an expert broadband technology and design consultant providing engineering and operation services for wireless

and broadband projects. His projects have included design and deployment of a 10 state/44 site wireless network, optimizing wireless and paging networks, and operating and managing national and regional networks.

12.3.1 Contractors – Procurement/Deployment

- ***The proposal must explain what process will be followed in obtaining services required in the development of this project.***
- ***The proposal must explain if small and historically underutilized firms will be given special consideration in the bid process.***
- ***The proposal must explain if there is a performance bond executed with contractors and subcontractors.***

DNG is the prime contractor and will utilize a construction work force of internal labor and strategic contractors to complete the network design, project manage the construction activity and complete the project within a two-year window upon approval and signing of the contract. The technical design proposed in this document will leverage contractors as reflected in the work force plan with separate construction project managers, technicians and installers to complete the project work while leveraging our current strategic vendors for the specialized construction activities. DNG will utilize certain existing contractor agreements for community mast, tower, relay hub and CPE installations in the target service areas. Sub-contractors that are anticipated to be utilized for the proposed networks include:

1) Stellar Towers Communications Inc
2) Pillar Innovations LLC
3) Networks, Inc

DNG proposes a construction work force of internal labor and strategic contractors to complete the network design, project manage the construction activity and complete the project within a two-year window upon contract award. The technical design highlighted in this document will leverage contractors as reflected in the work force scope of work for the different project tasks listed in the project schedule. DNG's work force plan is to provide separate construction project managers, technicians and installers to complete the project work while leveraging our current strategic vendors for the specialized construction activities. DNG has existing working agreements for community mast, tower, relay hub and CPE installations in both service markets. The following schedule reflects the construction labor force planned for the proposed construction activity over the next two years. The timelines, costs and network planning are based on our historical experience in deploying DNG's existing network.

The major construction activities associated with this project include:

- Ordering, tracking, staging, and pre-assembly of equipment.
- Installation of radio and internet transport equipment on Class 3 wood utility poles, referred to as "Community Masts."
- Installation of radio and internet transport equipment on existing or new transmission towers or water storage towers, referred to as "Towers."
- Evaluate RF Coverage of new Community Masts and Towers with drive signal testing. Design and Deploy relay

hubs as required to fill in needed coverage areas.
- Install customer premise equipment, provision and activate customer's service.

12.4 Project Budget

- ***Provide a copy of the proposed project budget by line item, along with a budget narrative. Sources of other grant or loan funds in the project should be clearly identified.***

- ***The project budget should include a pro forms financial statement, identifying projected capital outlays, ongoing operational costs, and expected revenues from wholesale and retail services for at least the first five years of construction and operation. The plan should identify and quantify all key assumptions underlying the calculations.***

- ***The financial projections should specify the matching fund support from the VCBI that is assumed and the VCBI asset access that is assumed.***

For a complete review of the proposed project budget, please see page 23.

DNG has completed the initial network design and if approved for the RFP would start working on the site-specific design work and required lease agreements. DNG's construction timeline is dependent upon the approvals for tower leases, fiber connections and availability of tower crews for installation of DNG broadband systems on the towers. The project plan targets three tower construction projects per quarter. Community Mast site leases are dependent upon the tower lease confirmations and negotiation with private property or government entities. The target construction plan is to complete construction of the major infrastructure over an 18 to 24-month period starting with the hub locations of Henderson and Louisburg DNG retains the option to select different tower or community mast sites if needed due to contract conditions or better suitability of other sites. Service from a community mast or tower can begin within 30 days of construction completion, testing and provisioning of the network. DNG typically plans 20 Relay Hubs per Community Mast or tower.

DNG's proposal includes deploying and operating a broadband network providing comprehensive service coverage for Vance County, including unserved areas, and will provide:

1) Network coverage with service availability for the targeted areas that includes approximately 20,000 homes and businesses
2) Service availability exceeding the coverage requirements (25Mbps Down/3Mbps Up)
3) 2-year network build and service turn-up of Tower and Community Mast (CM) distribution sites throughout the targeted service area to provide sufficient service coverage

12.5 Organizational Information

12.5.1 Organizational Structure

**** The vendor must be a Private For-Profit business licensed to operate in NC and must furnish proof of this designation.***

• Briefly describe the ownership structure of your organization. Vendors must identify what type of business they are, where they are organized (what state) and where their principal office is located.

• Vendor should provide a statement of experience highlighting similar Network(s) systems that it has designed, constructed, and operated, including project name, location, size, technology used, and names and phone numbers for reference contacts. Also, the proposal should indicate whether each system is owned by the Vendor(s) or another entity.

Statement of Experience in Building, Managing, and Operating Similar Networks

NC Broadband Partners members Radius, Declaration, and Conti bring substantial experience in building, managing, and operating networks focused on meeting unmet demand for broadband services. Together, they have partnered to develop broadband opportunities in the U.S. and Europe. NC Broadband Partners is their association to develop broadband opportunities specifically in North Carolina. In parallel with the submission of this proposal to Vance County, NC Broadband Partners is also submitting proposals to other North Carolina communities, including the two adjacent counties. The remainder of this section outlines the specific experience of each of the partners in building, managing and operating projects similar to this broadband network.

a. Radius

Radius and the Radius Fund were formed and funded earlier in 2018 to continue the broadband infrastructure investing led by Radius Managing Partner Gopi Sundaram on behalf of a family office whose wealth originated from the telecom industry. Radius Managing Partner Thomas Watts provided investment banking services to the family office between 2013 and 2018. Specifically, the family office led the creation of a nation-wide network in Ireland initially through a public private partnership (PPP) to create Enet, which operates fiber optic rings that had been constructed around the 95 largest cities in Ireland outside Dublin. To link the rings, Enet negotiated capacity agreements on the fiber optic networks of major utilities and transportation companies. To achieve coverage in Dublin, Enet acquired a carrier there. To extend coverage to the remainder of the country, Enet acquired and integrated into Enet a Wireless Internet Service Provider ("WISP"). The following exhibit highlights this experience.

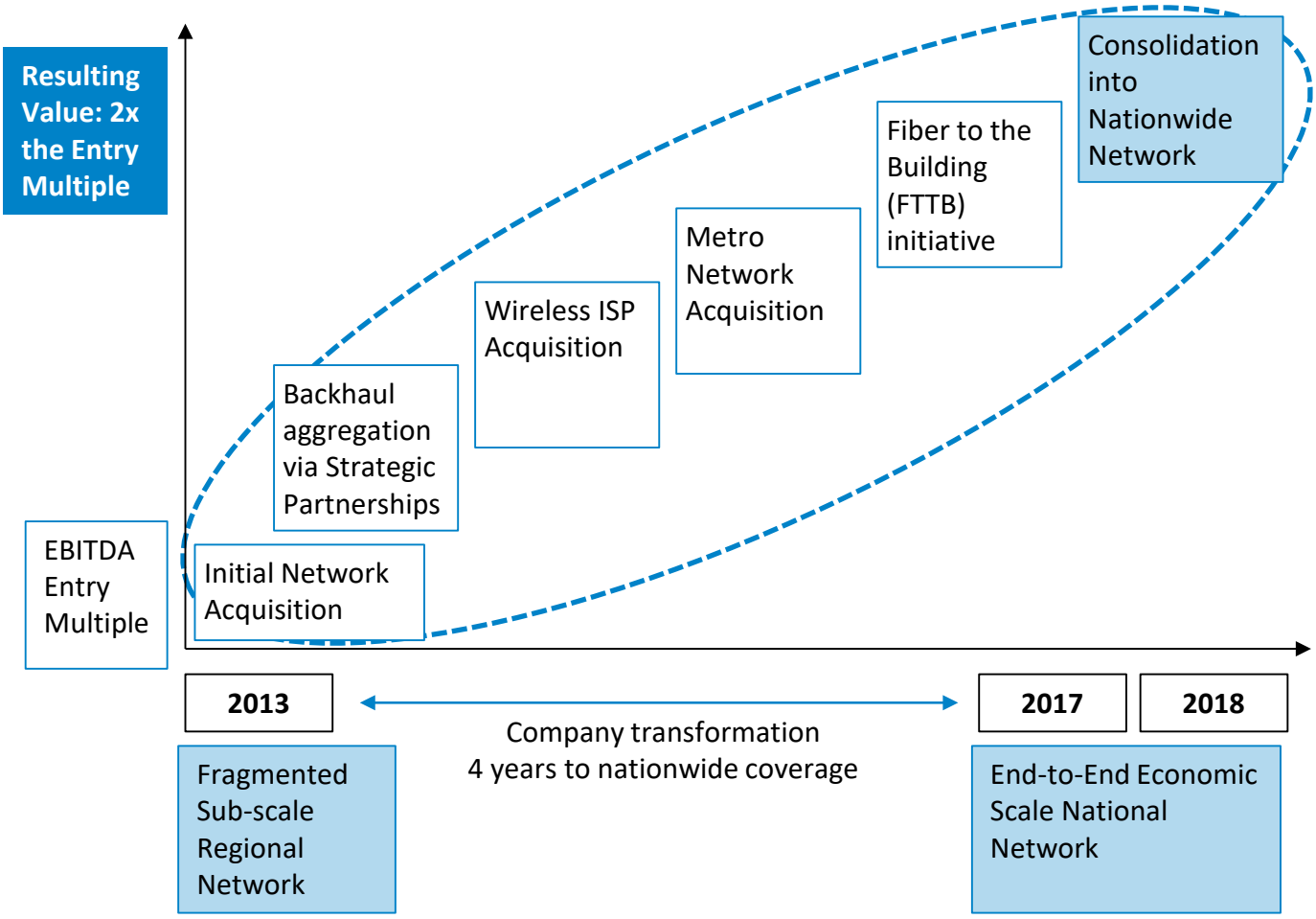
Radius Team Member	Background	Areas of Expertise
Thomas Watts Managing Partner	• Founder, Chairman of SEC-registered investment advisor Watts Capital with >$100 MM assets under management (AUM). • Led a multidisciplinary team for 3 years to create one of the most successful competitive telecom carriers in the world. Scope included regulatory framework development, network design, procurement and construction, business plan development, and negotiation of operating agreements. • Built and exited three companies previously. • Previously headed specialized investment bank focused on the TMT, Cleantech, Renewable Energy and Real Estate sectors. Clients included case study on page 9. • Co-head of the Satellite and Space Finance investment banking group at Bear Stearns, as well as being responsible for serving the telecom long distance industry. • Highly ranked equities analyst and member of the Institutional Investor All-Star Team covering tech, telecom, and space companies at Bear Stearns, Merrill Lynch, and Cowen. • Began career at McKinsey & Company. • MBA. Harvard Business School. • BA. Stanford University.	**Telecom Private Equity:** - Mergers & Acquisitions - Equity Financing - Debt Financing – Bank/Project/Lease financing. **Telecom Securities Analysis and Investment Banking:** - Incumbent Carriers - Specialty fiber optic carriers - Wireless carriers - Rural broadband providers. **Broadband and Telecom Business Planning and Restructuring:** - New Service Providers addressing areas of unmet broadband demand - Competitive strategy development for incumbent carriers - Reorganization of incumbent carriers, particularly in the context of privatization
Gopi Sundaram Managing Partner	• Investment Principal of Telecom Infrastructure Investment Fund anchored by Tetrad Corp., the family office of a telecom pioneer and Berkshire Hathaway affiliate. • Lead investor in a European wholesale telecom carrier that served as a platform for subsequent acquisitions and was sold to an infrastructure private equity fund, generating 4x investment returns. Case study provided on page 9. • Lead investor and interim general manager for satellite equipment company serving the maritime, video and data markets. Re-designed the companies' manufacturing	**Telecom Private Equity:** - Mergers & Acquisitions - Equity Financing - Debt Financing - Bank/Project **Telecom & Media Investment Banking:** - Public Equity (IPO, Follow-on) - Bonds - Syndications **Operations:**

	process and distribution network to reduce costs and drive revenue. Substantially reduced working capital requirements. • Principal of publicly traded acquisition vehicle (AMEX: GHN) for rollup investments in the telecom sector. • Prior experience includes TMT investment banking at Citi, and corporate development at Fairchild Semiconductor. • MBA. Dartmouth (Tuck). • MS, Computer Science. Syracuse University.	-CxO/General Management - Project Management **Engineering:** - Enterprise Architecture & System Design - IT infrastructure deployment - Software Engineering
Liam O' Kelly Operating Partner	Liam O' Kelly was the founder and CEO of AirSpeed Telecom, the leading provider of enterprise-class next generation broadband services in Ireland. Building off its strength in wireless technologies, Airspeed evolved into a nationwide operator offering end-to-end wireless connectivity that could provide upto 1Gbps of symmetric, high-availability ("5 '9s") service across 99% of the population area of the country. Established in 2003, Airspeed evolved into nationwide operator offering integrated wireless and fiber managed services, as well as managed voice, data, UC, cloud and security services regardless of the location of the business. In 2014, after nearly a decade of over 40% annual growth, Airspeed was acquired by a consortium led by a US private equity group led by Tetrad Corp, Oak Hill Advisors and Granahan McCourt Capital. Liam continued as CEO of the company, and as a minority shareholder, until the end of 2016 when he decided to liquidate his shareholdings and exited the business. During his time as CEO of Airspeed the company has won a number of awards including the Deloitte Fast 50 Technology award (runner up in the European Fast 500) and the Project of the Year award at the 2014 Tech Excellence Awards in recognition of the establishment of Claremorris in Co. Mayo as Ireland's 'First Fibre Town'. Liam was awarded the 'Entrepreneur of the Year' title at the 2014 European Business Awards.	**Telecom infrastructure**: - Wireless and Fiber **Telecom Services**: - Voice, Cloud, Security Hosting **Public Private Partnerships (local authorities and government agencies)**: - Deployed "First Fiber Town" in partnership with Claremorris Chamber of Commerce (Co. Mayo, Ireland) - Longtime service provider to the Irish Higher Education Authority ('HEANet'), connecting schools nationwide with next generation broadband

Dr. Eugene Conti Radius Advisory Board Member	Dr. Conti served as Secretary of the North Carolina Department of Transportation from 2009- 2013. While Secretary, Dr. Conti directed a sweeping reform of the NCDOT, an agency of government with 13,000 employees and an annual budget of $5 billion. He focused on removing politics from decision-making processes so that projects are selected based on objective, data-driven analysis of their benefits and costs. Under his leadership, NCDOT was transformed into an organization that emphasizes performance management, transparency and accountability. He organized NC's statewide logistics initiative in 2009, chaired a national committee focused on developing intercity passenger and freight rail from 2009-13, chaired the I-95 Corridor Coalition in 2011 and 2012, and is recognized as a national authority on innovative transportation finance strategies. In his role as Secretary, and as Chair of NC's Global Transpark Authority from 2002-2012, Dr. Conti worked extensively with state and local leaders on economic development projects across the state, including the Spirit Aerosystems site in Kinston, the FedEx air and ground hubs in the Triad, 2 new national brand breweries (Sierra Nevada and New Belgium) near Asheville, and many others. He also chaired the NC Ports Authority Board and directed a major review of NC's maritime assets in 2011-2012. Gene Conti is a native of Pittsburgh, PA, and a long-time resident of Raleigh. He earned his Ph.D. in anthropology as well as his master's degree in policy sciences and public affairs from Duke University.	**Public Policy:** - Policy development - Implementation Delivery - Regulatory affairs and compliance - Strategic Leadership in Economic Development Priorities **Infrastructure Deployment:** - Mega-Project and Organizational Management - Feasibility assessment - Technology evaluation and future-proofing **Infrastructure Financing:** -Project Finance -Bond financing - Public Private Partnerships
Timothy J. Wyllie Radius Advisory Board Member	Tim Wyllie is a 30 year veteran in the design, build and operationalization of fiber networks. Most recently, Tim served as Senior Vice President of Operations at Granahan McCourt, and was one of the Principals of the firm's Irish Telecom Infrastructure Vehicle. In this capacity he was deputed to be Chief Operating Officer of Enet, an Ireland-based Open Access Fiber Network operator that the vehicle had invested in. At Enet, Tim as instrumental in leading the acquisition and upgrade of Enet's Dublin Metro Fiber ring as well as in launching a 10000+ premise FTTP rollout, done in partnership with the Irish Department of Communications ('DCCAE') and the Chambers of Commerce in the target towns.	**Fiber Networks:** **-** Build and Operate - Backhaul, local-loop and last-mile **Network Operations:** **-** Commercialization - Maintenance - NOC development and management **Public Private**

	Prior to Enet, Tim spent several years at various North American and European telcos including Comcast, Rogers Communications, Time Warner Cable, RCN and McCourt-Kiewit International (MKI). While at RCN Tim oversaw the construction of 14 simultaneous metropolitan network builds across the continental US. At Rogers, in his role as Vice President of Operations, Tim presided over the launch of their cable telephony platform where he achieved 25% penetration in 3 years in a 3.2m household market. Tim splits his time between New Hampshire and his home in the Outer Banks.	**Partnerships:** - Revenue share arrangements - Resource sharing and monetization - Licensing, Regulatory compliance

Metro Network Case Study



Each of the Radius team members participated in the creation and growth of Enet. Prior to Enet, each Radius team member developed deep expertise and experience in the build, management, and operation of fiber optic and wireless networks in the U.S. and around the world.

b. Declaration Networks Group

Declaration Networks Group, Inc.

Declaration Networks Group Inc. doing business as "DNG", "Declaration Networks" or "NeuBeam" is a Delaware corporation that is headquartered in Vienna, VA. The company designs, builds and operates broadband networks in rural markets leveraging a cooperative business model with local companies, governments and utilities that are interested in providing broadband access to their local community. DNG has been in operations since 2015 and has existing in-services networks supporting customers, local sales and service staff in Accomack County, VA; Northampton County, VA; and Garrett County, Maryland. DNG is currently expanding their existing networks on the eastern shore of Virginia and Garrett County, and is developing network designs and launch plans for operations in Washington State. DNG has established comprehensive network and operational support capabilities, including:

- Management and technical expertise to operate their business,
- A trained local service and maintenance workforce,
- Residential and commercial broadband high-speed internet, access and voice services,
- Operational back office provision/billing capabilities,
- 7/24/365 customer service center,
- Network management and operations center,
- Voice resale agreements,
- Interconnection and pole attachment agreements with key strategic vendors,
- An established brand recognition with NeuBeam broadband and voice services,
- Marketing and sales support through the NeuBeam website, and
- Established local construction vendors in existing markets on the eastern shore of Virginia and Garrett County, Maryland.

Creating a Sustainable Model for Affordable Internet Access in Under-Served Regions

- ✓ Deploying affordable broadband solutions where traditional solutions and Incumbent providers have been unable and/or unwilling to serve
- ✓ **Established Partnership with Microsoft to close US Digital Divide**
- ✓ **Awarded $8.7M USDA RUS Farm Bill Broadband Loan**
- ✓ **Awarded $2.3M USDA RUS Community Connect Broadband Grant**
- ✓ **Awarded $6.7M+ FCC Connect America Funding**
- ✓ **Awarded $1.3M Garrett County public/private partnership contract**
- ✓ Award winning cooperative model aligns key stakeholders, existing infrastructure, and advanced fiber and wireless technologies
- ✓ Proven team with successful network deployments, service delivery and happy customers
- ✓ Developed sustainable public/private broadband partnerships that leverage combined resources and common goals
- ✓ Industry leaders in deployment of next gen broadband networks and TV White Space technologies

Mission & Guiding Principles. Declaration Networks' was founded in 2012 with a mission to establish affordable and sustainable broadband ecosystems for local communities, leveraging a variety of technologies best suited for the local service area and its users. DNG successfully creates broadband local access solutions in rural markets where traditional solutions and Incumbent providers have been unable and/or unwilling to serve. DNG believes that a combination of fiber, wireless, and emerging TV White Space technologies will further enhance local broadband ecosystems, provide healthy competition, catalyze innovation, fill gaps from existing providers and extend Internet services in support of end-users at work, play and home environments. Investments in broadband infrastructure today should be focused on how users access data and utilize Internet services requiring both portability and reliability with standard cell phones and smart phone devices. Additionally, the emergence of M2M (machine-to-machine) services, expansion of education and job training, and the continuation of public safety and electronic commerce applications requires a more flexible broadband local infrastructure for sustainable operations.

Industry Leadership. DNG has been an early advocate for the development of a robust set of unlicensed frequencies to establish low-cost, high capacity last mile access networks to establish viable broadband networks in secondary and rural markets.

In 2018, **DNG and Microsoft announced a partnership** (https://www.prnewswire.com/news-releases/declaration-group-and-microsoft-announce-agreement-to-deliver-internet-to-rural-communities-in-virginia-and-maryland-300635160.html) as part of the **Microsoft Airband Initiative** that has the ambitious goal to eliminate the rural broadband gap within the next five years. DNG and Microsoft's partnership creates a strategic approach that combines private sector capital investments in new technologies and public sector support to deploy and operate high speed networks that deliver quality broadband at affordable rates.

DNG's Innovative Partner Model Nationally Recognized

- DNG was awarded the **2017 Community Broadband Innovative Partnership of the Year by the National Association of Telecommunications Officers and Advisors (NATOA) Board of Directors**. The award recognized the cooperative model between DNG, Garrett County, MD and the Appalachian Regional Commission to deploy and operate a state-of-the art broadband network in Garrett County, the westernmost county in the state of Maryland.
- DNG through its partnership with Microsoft and Garrett County helped drive **Maryland's #2 ranking in the nation for 2018 Emerging Technologies and Innovation by the Center for Digital Government** (http://governor.maryland.gov/2018/10/04/maryland-ranked-2nd-in-nation-in-emerging-technologies-and-innovation/).

Excerpt from Governor Hogan's press release, Oct 4, 2018:

> "Our administration is committed to making state government services more accessible and efficient for Marylanders while saving millions of taxpayer dollars, and improving online services is an integral part of that effort," said Governor Larry Hogan. "This marked progress in our state's overall grade demonstrates our continued commitment to innovation and investment in our digital resources and assets.

"Recent achievements have included bridging the digital divide for citizens and businesses in rural regions of the state by delivering access to affordable internet service. This was achieved using innovative wired and wireless technologies and practices never before tried in the state, resulting in a 2018 public private partnership with **Microsoft and Declaration Networks Group** to bring access to approximately 30,000 Marylanders in underserved populations."

- **Connect Americans Now (https://connectamericansnow.com)** profiled DNG's Garrett County network in a video highlighting TV White Space as a valuable wireless technology to close the digital divide. Video illustrates the dramatic and positive impact broadband has on rural economies through agriculture, small business, educational and telemedicine applications. Video can be viewed at: https://connectamericansnow.com/bridging-the-digital-divide-in-garrett-county-md-2/

Declaration Networks Group Inc. designs, builds and operates broadband networks in rural markets leveraging a cooperative business model with local companies, governments and utilities that are interested in providing broadband access to their local community. DNG has been in operations since 2015 and has existing in-services networks supporting customers, local sales and service staff in Accomack County, VA; Northampton County, VA; and Garrett County, Maryland. DNG is currently expanding our existing networks on the Eastern Shore of Virginia and in Garrett County, and is developing network designs and launch plans for operations in Washington State. DNG has established comprehensive network and operational support capabilities, including:

- Management and technical expertise to operate our business,
- A trained local service and maintenance workforce,
- Residential and commercial broadband high-speed internet, access and voice services,
- Operational back office provision/billing capabilities,
- 7/24/365 customer service center,
- Network management and operations center,
- Voice resale agreements,
- Interconnection and pole attachment agreements with key strategic vendors,
- An established brand recognition with NeuBeam broadband and voice services,
- Marketing and sales support through the NeuBeam website, and
- Established construction vendors in both the Eastern Shore of Virginia and in Garrett County, Maryland.

DNG's Cooperative Model - The DNG cooperative business model and network coverage creates a sustainable broadband ecosystem for rural markets by leveraging local infrastructure, federal grants, private equity and deploying a commercial grade network to provide reliable high-speed broadband access for residential and small business in underserved markets. The scalable broadband access network design and wide area coverage facilitates multiple revenue streams with fixed and portable access. The federal grants facilitate a more rapid build out of the network and lowers the cost for these less dense but deserving communities. The network is supported by a local sales, service and maintenance workforce which leverages a central network operations and business support center serving multiple service areas. DNG's service business model creates a high-quality service at an affordable price enabling a sustainable local broadband ecosystem for these less dense service areas.

Network Infrastructure and Operations – DNG's deployment approach is to strategically deploy community masts in each service area to provide a wireless distribution service point to the surrounding community. The connection to the customer premises is accomplished with local radios and customer premise equipment that work with their community mast. Most customers will be connected using unlicensed spectrum technology in the 5GHz and UHF (known as TV White Space) spectrum. The unlicensed frequencies have no fees for use and are allocated by the FCC for rural areas. Community mast service relies on line of site or near line of site to reach customer premises with good signal strength. DNG uses repeater hubs to work around trees, building, and other terrains.

The company has established a 7/24/365 customer service center and implemented a white label voice service with two leading service providers. This provides a lower support cost as service is provided on a per customer charge per month. The company established a Network Operation Center (NOC) in Garrett County, Maryland to monitor and manage the network.

DNG has 30 employees supporting the network design, operations and back office support. Each service market will be supported by a local sales, service and installation team. Currently the company has local sales, install and support employees in the markets we serve, including six sales representatives, four full time network specialists, two full-time service managers, and 6 customer premise installers. This work force is supported by various installation contractors for our network and customer activities.

DNG won a $1.34M contract in our Garrett County market to design and build a wireless broadband network. The grant contract was completed in May 2018 with a larger service area and customer turn up than planned. DNG completed a network design using CelPlan a sophisticated wireless spectrum planning tool to determine the optimal place and coverage from local distribution points to area homes.

Garrett County, MD and DNG Public/ Private Partnership

The initiative was jointly developed by Garrett County and the Appalachian Regional Commission (ARC), who have both committed grant funding to work with a private industry partner to design, deploy and operate a broadband network offering affordable high-speed internet services to the un-served regions of Garrett County, MD. DNG was selected as the private industry partner by the County through a competitive bid process. This groundbreaking partnership provides an effective model to stimulate broadband investment for other communities to adopt across the country. DNG provided equity funding that in conjunction with the public funding from the County and ARC drove the deployment of network and local operations supporting remote areas of the County.

This past summer (2018) DNG successfully completed all the contractual deployment and operational commitments of the partnership with Garrett County. Building on the success of the initial partnership, DNG has expanded network and service availability in Garrett County through private funds and federal broadband programs.

DNG Federal Broadband Program Awards

DNG has pursued and was awarded additional public funding for Accomack County, VA, Garrett County, MD and Stevens County, Washington State broadband expansion, including:

- ✓ $8.7M USDA Farm Bill Broadband Loan,
- ✓ $2.3M USDA Community Connect Grant, and

- ✓ $6.7M from the FCC Connect America Fund

USDA RUS Broadband Access Loan Program

The Rural Broadband Access Loan Program furnishes loans and loan guarantees to provide funds for the costs of construction, improvement, or acquisition of facilities and equipment needed to provide service at the broadband lending speed of 25 Mbps Down/ 3 Mbps Up in eligible rural areas. DNG was awarded $8.7M in 2017 to build out and operate broadband networks in Accomack County, VA and Garrett County, MD covering approximately 15k rural unserved and underserved homes.

USDA RUS Community Connect Grant Program

The USDA Community Connect program provides grant funds to companies to help rural communities receive access where broadband service previously has not been available. The projects funded by these grants help rural residents tap into the enormous potential of the Internet for jobs, education, healthcare, public safety and community development. DNG was awarded $2.3M+ in 2018 to build a broadband network and offer access to high speed services that meet or exceed 25 Mbps Down/ 3 Mbps Up to 1,300+ unserved homes in Garrett County, MD.

FCC Connect America Fund Phase II

The Connect America Fund Phase II (Phase II) is part of the FCC's reform and modernization of its universal service support programs. In 2018, the Commission conducted an auction (Auction 903) to allocate Phase II support to certain eligible high-cost service areas the United States. DNG participated and was awarded $6.7M+ to build out and provide access to high speed services that meet or exceed 25 Mbps Down/ 3 Mbps Up for ~5,400 homes in awarded census blocks in Garrett County, MD and Stevens County, Washington State.

DNG-Microsoft Strategic Partnership

In 2018, **DNG and Microsoft announced a partnership** (https://www.prnewswire.com/news-releases/declaration-networks-group-and-microsoft-announce-agreement-to-deliver-broadband-internet-to-rural-communities-in-virginia-and-maryland-300635160.html) as part of the **Microsoft Airband Initiative** that has the ambitious goal to eliminate the rural broadband gap within the next five years. DNG and Microsoft's partnership creates a strategic approach that combines private sector capital investments in new technologies and public sector support to deploy and operate high speed networks that deliver quality broadband at affordable rates.

Microsoft's Rural Airband Initiative invests in partnerships with telecommunications companies with the goal of bringing broadband connectivity to 2 million people in rural America by 2022. DNG was Microsoft's 2nd announced commercial partnership in the Airband Initiative which is targeting 12 commercial partnership nationwide. Microsoft is not entering the telecommunications business directly, but is instead partner with companies like DNG to design, deploy and operate broadband networks aimed at providing unserved customers access to high speed internet services. Microsoft will invest in digital skills training for people of all ages in these newly connected communities. Working through Microsoft Philanthropies, the Rural Airband Initiative will help train people on the latest technology so they can use this new connectivity to improve education, health care and agriculture, as well as transform their businesses. The Airband Initiative announced a new and vital partnership with the National 4-H Council to do precisely this, building on the 4-H's capabilities and members across the country. Additionally, the Airband partnership will stimulate investment by others through technology licensing through royalty-free access to at least 39 Microsoft patents and sample source code

related to technology developed to better enable broadband connectivity through TV white spaces spectrum in rural areas.

The DNG Microsoft partnership aimed at closing the rural broadband gap is strongly supported by Virginia and Maryland leaders:

"This partnership with Declaration Networks will help close the rural broadband gap for 65,000 people living on the Eastern Shore of Virginia and in Garrett County, Maryland," **said Shelley McKinley, Microsoft's head of Technology and Corporate Responsibility.** "Broadband is essential for agriculture, education, business and healthcare. Microsoft's Airband initiative is focused on bringing this necessity to 2 million people in rural America by 2022 and accelerating the national priority of closing the broadband gap."

Virginia Gov. Ralph Northam said, "As a native of the Eastern Shore, I am thrilled that Microsoft is taking action to bring new broadband connectivity to communities that need it. This new effort, in addition to ongoing efforts in state government, will help bridge the digital divide. Connecting rural communities will help create jobs, grow our economy and improve our quality of life. I am happy to celebrate this positive step forward as we work to make our commonwealth work better for all Virginians, no matter who you are or where you live."

Maryland Gov. Larry Hogan said, "Reliable access to high-speed internet is critical for Maryland's small businesses, families and students to thrive in our 21st century economy. We are working diligently to eliminate the rural broadband gap and ensure that all Marylanders have the opportunity to access trusted, cost-effective broadband solutions."

U.S. Sen. Mark R. Warner said, "Millions of Americans, particularly in rural America, lack broadband access — a precondition to meaningful participation in the digital economy. That's millions of people unable to participate in e-commerce, enroll in online courses, receive tele-health services, and get on-demand services. It also means millions of people unable to hone programming skills, engage in telework, or modernize rural industries with broadband. Broadband access doesn't guarantee a community success, but not having it guarantees that companies aren't going to even consider you. I applaud efforts like these that seek to close the digital divide, including through innovative last-mile services."

U.S. Rep. John K. Delaney said, "As the only former CEO of a publicly traded company currently serving in Congress, I know how critical it is to position our businesses, workers and families to best compete in a global digital market. Closing the broadband gap is a critical piece of successful education, entrepreneurship and innovation, and I applaud DNG and Microsoft's investment in the communities of Garrett County."

U.S. Rep. Scott Taylor said, "We live in a digital age, where the internet is no longer considered a luxury but a necessary part of everyday life. The widespread lack of internet on the Eastern Shore and across rural Virginia makes these populations especially vulnerable by limiting their access to education, medicine and information services. Thanks to DNG and Microsoft, we can finally begin the process of expanding broadband networks throughout rural Virginia to equip residents, businesses and professionals with the tools needed to succeed in a 21st century economy."

12.5.2 Operating Finances

Vendor(s) shall submit 1) 2016/2017 Dun & Bradstreet information supplement and 2) the two most recent annual audited financial statements to permit analysis of financial resources. If Vendor is part of a project group, the audits and Dun & Bradstreet report for each principal group member should be submitted. If the Vendor(s)'s response includes

Vendor financing or committed bank or other financing, the audits and Dun & Bradstreet reports of such Vendors and financial institutions should be submitted. Security in the form of a letter of credit, bond or other security in the amount determined by the VCBI and Vendor(s) after negotiation will be required of the successful Vendor(s) to guarantee completion of the Network(s) and shall be held by the VCBI until completion of the Network(s).

Radius and the Radius Fund were formed and funded earlier in 2018 to continue the broadband infrastructure investing led by Radius Managing Partner Gopi Sundaram on behalf of a family office whose wealth originated from the telecom industry. Radius Managing Partner Thomas Watts provided investment banking services to the family office between 2013 and 2018. Audited financials and Dun & Bradstreet information on Radius are not available due to its recent formation.

12.5.3 Ownership and Equity Conversion Issues

- ***The proposal must describe the ownership structure of this project, detailing the nature of equity distribution and its basis.***
- ***The proposal must detail any non-financial investment for which equity has been given.***
- ***Vendors must include a proposal for the disposition of assets created or acquired through use of VCBI funds in the event that the project dissolves or terminates. VCBI requires that such dispositions, transfers or assignments preserve the goals of VCBI and the purposes of this RFP.***

Radius, Declaration and Conti have partnered as North Carolina Broadband Partners to develop broadband opportunities in the State of North Carolina. Summary financial projections are provided with a build out timeframe in the response. In addition to the capital network budget, NCBP will be investing in the operational expenses to establish a local office and service team. NCBP is interested in discussing a cooperative business agreement with the County to facilitate the success of the project and create a sustainable and viable broadband ecosystem in the County. Refer to Attachment B for financials information.

The proposal includes designing, deploying and operating a broadband network providing comprehensive service coverage for Vance County. The initial infrastructure capital budget is $6.2M, and NCBP is asking for funding from Vance County for startup cost of the network including Wireless Infrastructure, Network Infrastructure, UPS Installation Tower Lease, and Internet Bandwidth. NCBP will provide private capital to augment funding contributions from the County to construct and procure the network, including a commitment to operate and maintain the network at NCBP's cost and risk.

NCBP additionally proposes developing adoption programs to accelerate customer acquisition and address specific community needs, including low-income programs to offset the up-front costs of adoption (i.e. CPE and installation charges). NCBP proposes County funding for these programs to jump start customer acquisition and accelerate cash flow to fund startup operations and drive overall sustainability.

Attachments

- Attachment A – North Carolina Business License

NORTH CAROLINA
Department of the Secretary of State

CERTIFICATE OF AUTHORITY

I, Elaine F. Marshall, Secretary of State of the State of North Carolina, do hereby certify that

RADIUS CAPITAL PARTNERS, LLC

having filed on this date an application conforming to the requirements of the General Statutes of North Carolina, a copy of which is hereto attached, is hereby granted authority to transact business in the State ofNorth Carolina.

Scan to verify online.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at the City of Raleigh, this 18th day of October, 2018.

Elaine F. Marshall

Secretary of State

Document Id: C201829000957
Verify this certificate online at http://www.sosnc.gov/verification

NORTH CAROLINA
Department of the Secretary of State

To all whom these presents shall come, Greetings:

I, Elaine F. Marshall, Secretary of State of the State of North Carolina, do hereby certify the following and hereto attached to be a true copy of

APPLICATION FOR CERTIFICATE OF AUTHORITY

OF

RADIUS CAPITAL PARTNERS, LLC

the original of which was filed in this office on the 17th day of October, 2018.

Scan to verify online.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at the City of Raleigh, this 18th day of October, 2018.

Elaine F. Marshall

Secretary of State

SOSID: 1762366
Date Filed: 10/17/2018 8:03:00 AM
Elaine F. Marshall
North Carolina Secretary of State
C2018 290 00957

State of North Carolina
Department of the Secretary of State

APPLICATION FOR CERTIFICATE OF AUTHORITY FOR LIMITED LIABILITY COMPANY

Pursuant to §57D-7-03 of the General Statutes of North Carolina, the undersigned limited liability company hereby applies for a Certificate of Authority to transact business in the State of North Carolina, and for that purpose submits the following:

1. The name of the limited liability company is Radius Capital Partners, LLC;

   and if the limited liability company name is unavailable for use in the State of North Carolina, the name the limited liability company wishes to use is _____.

2. The state or country under whose laws the limited liability company was formed is DE.

3. Principal office information: *(Select either a or b.)*

   a. ☒ The limited liability company has a principal office.

   The principal office telephone number: 212-735-8921

   The street address and county of the principal office of the limited liability company is:

   Number and Street: 1460 Broadway

   City: New York State: NY Zip Code: 10036 County: New York

   The mailing address, ***if different from the street address***, of the principal office of the corporation is:

   Number and Street: _____

   City: _____ State: _____ Zip Code: _____ County: _____

   b. ☐ The limited liability company does not have a principal office.

4. The name of the registered agent in the State of North Carolina is: C T Corporation System

5. The street address and county of the registered agent's office in the State of North Carolina is:

   Number and Street: 160 Mine Lake Ct., Ste. 200

   City: Raleigh, State: NC Zip Code: 27615-6417 County: Wake

6. The North Carolina mailing address, ***if different from the street address,*** of the registered agent's office in the State of North Carolina is:

   Number and Street: _____

   City: _____ State: NC Zip Code: _____ County: _____

7. The names, titles, and usual business addresses of the current company officials of the limited liability company are: *(use attachment if necessary) (This document must be signed by a person listed in item 7.)*

Name and Title	***Business Address***
Thomas W Watts IV, Managing Partner	1460 Broadway, New York, NY 10036
Gopi Sundaram, Managing Partner	1460 Broadway, New York, NY 10036

8. Attached is a certificate of existence (or document of similar import), duly authenticated by the secretary of state or other official having custody of limited liability company records in the state or country of formation. **The Certificate of Existence must be less than six months old. A photocopy of the certification cannot be accepted.**

9. If the limited liability company is required to use a fictitious name in order to transact business in this State, a copy of the resolution of its managers adopting the fictitious name is attached.

10. (Optional): Please provide a business e-mail addres[Privacy Redaction]. The Secretary of State's Office will e-mail the business automatically at the address provided above at no cost when a document is filed. The e-mail provided **will not** be viewable on the website. For more information on why this service is offered, please see the instructions for this document.

11. This application will be effective upon filing, unless a delayed date and/or time is specified: _____.

This the 16th day of October, 2018

Radius Capital Partners LLC
Name of Limited Liability Company

Thomas W. Watts IV
Signature of Company Official

Thomas W. Watts IV, Managing Partner
Type or Print Name and Title

Notes:
1. **Filing fee is $250**. This document must be filed with the Secretary of State.

Delaware

The First State

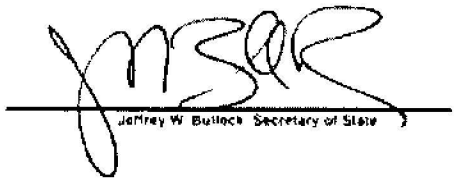
I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THAT "RADIUS CAPITAL PARTNERS, LLC" IS DULY FORMED UNDER THE LAWS OF THE STATE OF DELAWARE AND IS IN GOOD STANDING AND HAS A LEGAL EXISTENCE NOT HAVING BEEN CANCELLED OR REVOKED SO FAR AS THE RECORDS OF THIS OFFICE SHOW AND IS DULY AUTHORIZED TO TRANSACT BUSINESS.

THE FOLLOWING DOCUMENTS HAVE BEEN FILED:

CERTIFICATE OF FORMATION, FILED THE NINETEENTH DAY OF JANUARY, A.D. 2017, AT 5:09 O`CLOCK P.M.

AND I DO HEREBY FURTHER CERTIFY THAT THE AFORESAID CERTIFICATE IS THE ONLY PAPER OF RECORD, THE LIMITED LIABILITY COMPANY IN QUESTION NOT HAVING FILED AN AMENDMENT NOR HAVING MADE ANY CHANGE WHATSOEVER IN THE ORIGINAL CERTIFICATE AS FILED.

AND I DO HEREBY FURTHER CERTIFY THAT THE ANNUAL TAXES HAVE BEEN PAID TO DATE.



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You may verify this certificate online at corp.delaware.gov/authver.shtml

Authentication: 203620184

Date: 10-16-18

- Attachment B – Audited DNG Financial Statements and 5 Year Pro Forma Financial Statements

  Attachment B to be sent in a separate, confidential PDF

- Attachment C – Garrett County Project References

Contact Name & Title:	Kevin Null, County Administrator
Business Name:	Garrett County, MD
Address:	203 South Fourth Street
	Oakland, MD 21550
Email:	KNULL@GarrettCounty.Org
Phone # / Fax #:	(301) 334-8970
Number of Years Associated:	3
Type of Work Performed:	Public/Private Partnership to deploy and Operate Broadband network

Contact Name & Title:	Vickie Robinson, Director, Airband Initiative
Business Name:	Microsoft Corporation
Address:	901 K Street NW
	Washington, D.C. 20001
Email:	Vickie.Robinson@Microsoft.com
Phone # / Fax #:	(202) 263-5949
Number of Years Associated:	1
Type of Work Performed:	Strategic Partnership to close digital divide in United States

Contact Name & Title:	Cheryl DeBerry, Economic Development
Business Name:	Garrett County, MD
Address:	203 South Fourth Street
	Oakland, MD 21550
Email:	CDEBERRY@GarrettCounty.Org
Phone # / Fax #:	(301) 334-6968
Number of Years Associated:	3
Type of Work Performed:	Public/Private Partnership to deploy and Operate Broadband network