North Florida Broadband Authority
Interim Business Plan

APRIL 2010

Table of Contents

Introduction

The North Florida Broadband Authority (NFBA) was notified of a Round 1 Broadband Technology Opportunities program (BTOP) award on February 18th, 2010 and is in the process of establishing contracts, developing processes for ensuring full grant compliance, and determining the full engineering and deployment strategy for the project. Concurrently, the statutory process for providing "A Communications Service" in the State of Florida requires any governmental entity to hold no less than 2 public hearings, no less than 30 days apart, with appropriate notice, to consider whether the governmental entity will provide communications services.

Further, the statute (FS 350.81) requires that at one or more of the public hearings, the governmental entity must make available to the public a written business plan for the proposed communications venture containing: 1) The projected number of subscribers to be served by the venture; 2) The geographic area to be served by the venture; 3) The types of communications services to be provided; 4) A plan to ensure that revenues exceed operating expenses and payment of principal and interest on debt within 4 years; 5) Estimated capital and operational costs and revenues for the first 4 years; and 6) Projected network modernization and technological upgrade plans including estimated costs.

Subsequent to the public hearings, and after making specific findings regarding the requirements and impact of providing such a service, the governmental entity may authorize by a majority recorded vote, providing a communications service.

Pursuant to these statutory requirements, this interim business plan has been prepared to provide the specific information listed above. The full Federal Grant Application, submitted by the NFBA, established a fully supported and compelling case for funding a Middle Mile Fixed wireless network that would serve the entire 14 County Rural Area of Critical Economic Concern (RACEC). The application provided a detailed project plan, a technically sound network design, a proposed set of services and a sustainable financial model, all fully vetted and tested during an extensive period of due diligence by the National Telecommunications and Information Administration (NTIA – Department of Commerce). The full grant application is available on the NFBA website (www.nfba-fl.org) for viewing and/or download.

Consequently, the open and public procurement of a Project Management Firm, and a Project Engineering Firm, is fully underway. Extensive planning efforts – moving from initial project plans and system design to specification and extensive deployment detail – are still in progress. Since this is a new Federal Program, the NTIA is still establishing all of the requirements for reporting, documentation and analysis for the awardees, leaving a number of process questions and reporting requirements yet to be determined. Firm contract pricing has yet to be established for many of the project components and service providers, because the Project team is not yet in a position to create the detailed specifications for procuring them.

Thus, this document must be fully understood to be an interim business plan that has been developed specifically to meet the statutory requirements of FS 350.81. As a governmental entity operating in the State of Florida, the progress of the system deployment, the development of formal service offerings and pricing structures, and financial statements will all be made available through the Federal reporting requirements or on the NFBA website as they become available and are approved.

NFBA OVERVIEW

The North Florida Broadband Authority (NFBA) was awarded a Federal Grant under the Broadband Technology Opportunities Program (BTOP) as part of the 2009 American Recovery and Reinvestment Act (ARRA). The NFBA project will build a new Middle Mile broadband infrastructure, which will link the enormous capacity of the Internet backbone "superhighways" to the rural and underserved areas in North Florida. While incumbent service providers have built and own some Middle Mile components that are private and serve primarily their own networks, there are no other open access wholesale Middle Mile networks that serve the entire region.

In 2003, former Governor Jeb Bush created the third and largest of Florida's three Rural Areas of Critical Economic Concern (RACEC). The North Central Florida RACEC (designation re-certified in 2008) encompasses 14 counties including Baker, Bradford, Columbia, Dixie, Gilchrist, Hamilton, Jefferson, Lafayette, Levy, Madison, Putnam, Suwannee, Taylor and Union. The area is home to more than 380,000 Floridians and contributes resources to five metropolitan statistical areas. The North Florida RACEC was so designated because of the challenges faced in creating job growth, attracting new businesses, and enhancing the economic opportunities in the region.

Now the Region has been even harder hit - thanks to the recent economic downturn. Small communities with a handful of employers suffer tremendously when even one or two of their key businesses reduce their workforce close. Workforce migration to larger cities where there are more employment options leaves an even bleaker picture when trying to attract new businesses to the region.

The North Florida Broadband Authority is a newly formed government entity, based on Florida Home Rule statutes which allow governments to create a single entity by interlocal agreements – the membership now totals 15 counties and 8 cities. The assets provided from the federal government will not be owned or controlled by commercial interest, but rather owned by the Authority, and managed through outside contracts. It will be a utility-like infrastructure similar to sewer, water and electrical companies, but focused on delivering wholesale Middle Mile broadband. The counties included in the region are: Columbia, Baker, Bradford, Dixie, Gilchrist, Hamilton, Jefferson, Lafayette, Levy, Madison, Putnam, Suwannee, Taylor and Union and Wakulla.

The North Florida Broadband Authority project, when completed, will provide the first-ever -- and only -- open, ubiquitous, Middle Mile access to broadband Internet services for both Last Mile (retail) providers and public institutions in the underserved areas of northern Florida. This network will pass 154,258 households, and 26,893 businesses. In addition, the project will pass 1,573 critical facilities, and 265 health care entities, according to the Florida Agency for Health Care Administration. The NFBA will deliver up to 1,000 times the existing capacity to these counties within the stipulated 3-year time frame

The NFBA Middle Mile project will spur additional private investment in Last Mile infrastructure to provide constituents of the 14-county RACEC with new, enhanced and/or redundant high-speed broadband access to critical broadband services. In fact, there is a Last Mile provider, Main Street Broadband, who has already received $8 million in Federal loans and grants to deliver retail services in 13 of the 15 counties (including Wakulla). They have been unable to deploy service because there has been a lack of Middle Mile infrastructure to provide high speed connections from their facilities to the Internet backbone. The NFBA deployment will not only allow this to occur but will speed up their deployment by 50-75% and ensure a broad retail service area is deployed in the region. Most importantly, NFBA will accomplish these goals at a reasonable cost and in an open and neutral network, in accordance with the Federal requirements.

The concept of an open and government owned Middle Mile network is not widely used. There are few if any examples of where this has been done on such a broad scale before. Most government owned networks have been built to serve the operations of government agencies first and as an additional service, will operate to deliver services to private agencies. Perhaps one of the closest examples would be the Gainesville Regional Utility Network (GRUCOM) which provides Middle Mile services in Alachua

County. They have been successful in delivering Middle Mile services to City, County and private agencies for over a decade. The NFBA model has a distinct advantage, in that there is the unique opportunity to leverage Federal funding to deploy the network – giving us a distinct advantage in establishing a sustainable business model.

From a cost perspective, the proposed revenue model will reduce the cost for capacity for Last Mile providers by typically 50-75%. Market rates for this Middle Mile capacity, when available from incumbent providers, will cost around $200 to $400 per Mbps (often more, depending on distance). The NFBA revenue model will charge no more than $100 per Mbps for the smallest increment of capacity – 10Mbps, which is more than 6 times the capacity than what is typically available to or purchased by anchor institutions from incumbents in the same price range.

The NFBA network is being designed to conform to the technical, and service level requirements established by the Florida DMS telecommunications network Suncom, to provide Internet access and other transport services to State of Florida Agencies. Being a qualified service provider to Suncom, allows this Middle Mile network to distribute much needed capacity to State agencies throughout the region and is a key component of the business model. The NFBA network will allow greater capacity access at a reduced cost to the State agencies in the region.

NATIONAL PERSPECTIVE

Across the country, an increasing percentage of the Middle Mile infrastructure being deployed is through fixed wireless networks like that of the NFBA. Much of this is infrastructure is privately funded and serves to connect the cellular networks to the Internet, enabling the handset connectivity through the cellular providers. However, because the low cost and speed of deployment of fixed wireless networks, they area also becoming more popular for bridging the Internet backbone - to independent Last Mile provider (including Internet Service Provider) gap.

The Broadband Stimulus funding has created an opportunity to deploy otherwise cost-prohibitive networks. If the NFBA network did not have a Federal grant to cover the costs of deployment, it would not meet traditional lending or even venture capital investment criteria. However, the vast majority of the entire project cost is grant eligible and therefore, does not contribute to the on-going operating cost of the network. The rate of customer acquisition and service pricing allows for a very conservative growth model. With a dramatically reduced outlay, the sustainability of the network operations is achieved at a much earlier point in the business model.

Building a new Middle Mile network is widely understood to be far more cost-effective than upgrading and expanding upon legacy (telephone-based) infrastructure. As a result, many of the incumbent service providers are now looking to the NFBA network, and those similar Middle Mile efforts around the country, as a way of avoiding the heavy investment necessary to deliver greater capacity at competitive prices. New Middle Mile networks create opportunities for incumbents to extend the reach of their core services beyond their own networks and deliver advanced applications. The bottom line is that by connecting the local access (retail) networks to the Internet backbone, the Middle Mile networks become critical components in the nation's communications infrastructure, becoming the links for smaller cities and rural areas across America to access information, markets, and economic opportunities otherwise available only in the largest metro areas.

THE REGIONAL/NFBA INVESTMENT

Why is it that these Counties, among some of the most beautiful and livable areas in the State, are having such a difficult time creating economic activity and growth? The answer is the "digital divide". The unseen information super-highways that cross and loop through most of the State of Florida have few off-ramps in the region. Those that exist have little or no secondary infrastructure to extend across the more than 9,100 square miles of this region. The sheer size of the North Florida RACEC, as large as the states of Connecticut, Delaware and Rhode Island combined, make it virtually impossible to justify the expense of serving the entire geography of the region by incumbent service providers, through traditional wire- line technologies.

The Federal Government identified specific infrastructure sectors in urgent need of investment. Among those was the information infrastructure that has become so critical to the way we now communicate, learn, do business, provide healthcare and deliver critical first responder services. The American Recovery and Reinvestment Act of 2009, designated $7.2 billion to expand access to Broadband services in the United States. In so doing, it emphasized the profound importance that access to information, markets, education, healthcare, emergency services, via broadband, is to the economic development and quality of life to Americans in every part of the country.

In concert with the initiatives strategy developed by the State of Florida, the North Florida Economic Development Partnership took the lead role, commissioning a study, to determine the feasibility of developing a new Broadband access network that would extend the reach and quality of services available throughout the 14 County regions. As part of that project, the selected team committed to preparing a Federal Broadband Grant Application for funding a Middle Mile Fixed Wireless network to enhance the capacity and access in the region. In that effort, the North Florida Broadband Authority was created, through interlocal agreement, to act as the applicant tin the grant process. The Authority was made up of City and County members from the RACEC and has recently added Wakulla County as a member of the Authority.

On February 18, 2010, the Authority was notified of the award of a $30,142,676 Broadband Grant, the only Round 1 Infrastructure award in the State of Florida.

Assessment of Regional Needs

Limited access to broadband services is one of the fundamental factors that continues to trump the success of many of the traditional methods for attracting new businesses to the region. The State of Florida, in the development of a state-wide Broadband strategy, emphasizes the degree upon which all other economic development efforts depend. Describing Broadband connectivity as "an essential utility… that has become the central nervous system of our economy" has become next to impossible for an individual or entity to participate in mainstream economic or social activity without access to Broadband connectivity.

Broadband infrastructure is critical to the region and its citizens in order to provide 21st century education, health care, public safety and business development opportunities for the communities within the NF RACEC. Availability and access to reliable, high-speed internet and other network connectivity is a critical infrastructure component necessary to attract new business and industry into the NF RACEC and to ensure that existing residents and businesses are competitive in today's state, national and global business and industrial environments.

Broadband networks provide a fundamental platform upon which the nation's economy, educational system and critical government services rely. It has now become the central nervous system – the primary communications and information exchange – in American society.

Through the 2009 American Recovery and Re-investment Act (ARRA), the Federal Government has demonstrated that the expansion of Broadband access throughout the United States is a priority. The stimulus package identifies $7.2 billion in funding for Broadband infrastructure projects. The United States Department of Agriculture and the Department of Commerce have both been charged with administering the funding and oversight of their respective programs. Funding for Broadband projects would be awarded based on the merits of each application, but the States were to provide input on the priority of the projects across the state. Key to their analysis was the degree to which the projects were in alignment with the State of Florida strategy and geographic needs.

THE NORTH FLORIDA REGIONAL AREA OF CRITICAL ECONOMIC CONCERN (RACEC)

The 14-Counties that make up the North Florida RACEC are Baker, Bradford, Columbia, Dixie, Gilchrist, Hamilton, Jefferson, Lafayette, Levy, Madison, Putnam, Suwannee, Taylor and Union.

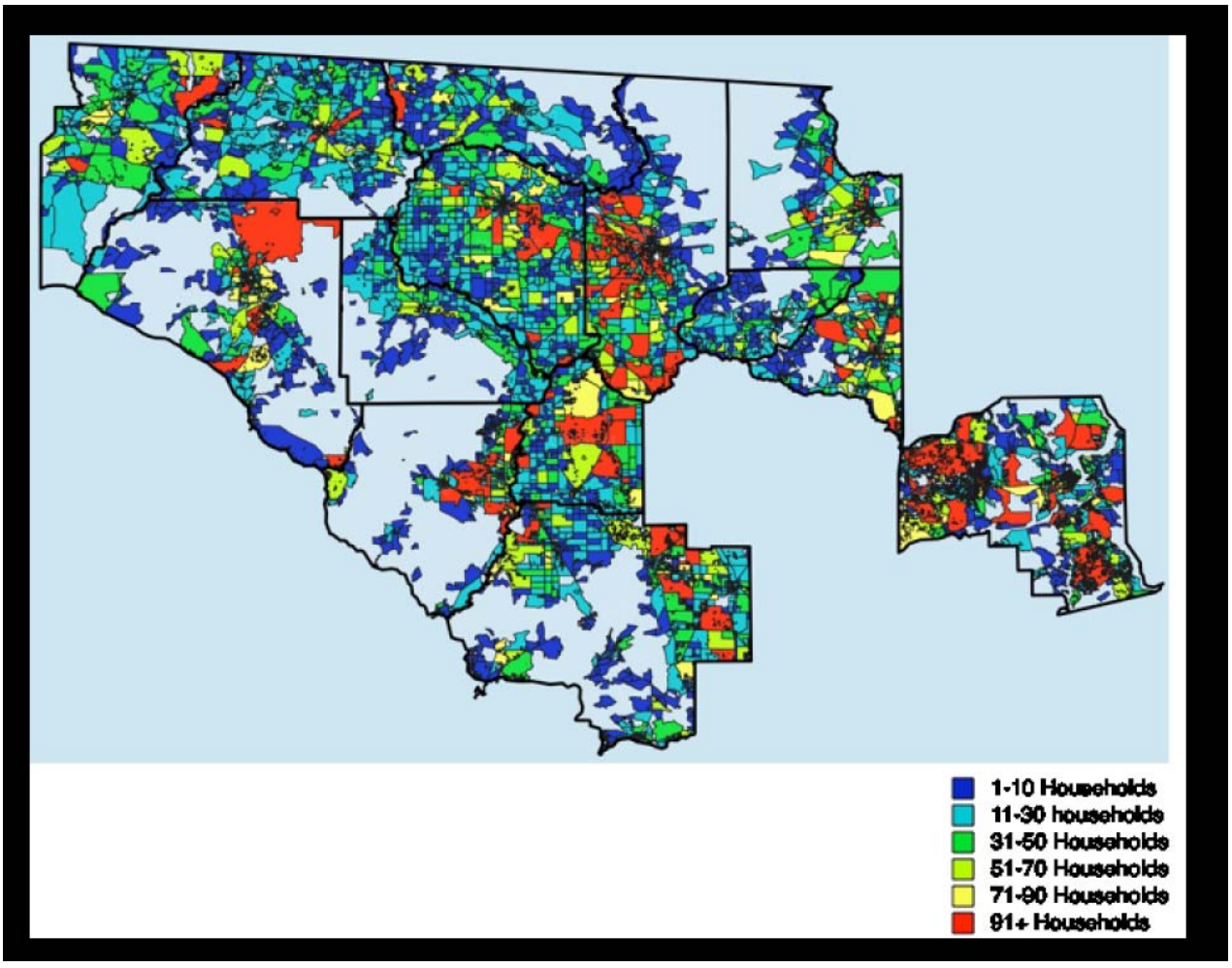
This 9,197-square mile area is characterized by socio-economic, economic development, and quality of life metrics that demand improvement:

- High unemployment and underemployment
- Low per capita income
- Low wages compared to more urban areas and the state average
- Higher percentages of families living below the poverty level and receiving public assistance
- Lower housing values compared to the state average
- Lack of volume, diversity, and access to higher wage/quality business, industry jobs and economic development

- Highest percentage of underperforming public schools, including 2 of the 3 lowest graded districts;
- Largest ratio of eligible families for free and reduced lunch program services in the state

In addition to being classified as a RACEC, the counties within the NF RACEC are also designated as "fiscally constrained counties" (pursuant to section 218.67, Florida Statutes). This means that each fiscally constrained county is entitled to additional shares of state revenue sharing funds and priority for other state appropriations to help fund government operations and essential services in these economically challenged areas. The fiscally constrained designation of these communities demonstrates the financial limitations of each of the member governments. These governments are struggling daily to provide essential public services such as fire protection, emergency medical services, and solid waste collection and disposal and transportation improvements.

Households Per Census Block



These communities are among the poorest in the nation. Five out of fourteen counties are designated Empowerment Zones. The annual income of the people in these counties stands at 33% under the national average, and these communities get poorer every year.

ECONOMIC DRIVERS

Part of the problem with expanding Broadband access within the region is that the existing carriers have little economic incentive to expand access and capacity or build additional Middle Mile infrastructure. The lack of competition throughout most of the region and the lack of return on their investment are the primary obstacles. The weak local economy is exacerbated by the inability to attract new businesses to the region – as a result of the lack of cost effective broadband internet access. Further, the geographic expanse/terrain, poor economic climate, the current and expected prolonged recession and seasonal weather conditions within the 14 counties is difficult enough but when you factor in the limited population in the cities and towns there is not a large enough customer base over which to allocate the costs of such an investment for a private carrier to receive an adequate return on their investment. The "catch 22" will remain until an investment in Middle Mile infrastructure that can cost effectively distribute capacity and connect key anchor institutions. Up to this point, few incumbent providers have been able to justify their investment.

Key industries in the region include agriculture, distribution, manufacturing, utilities, and public services. Interstate highways I-4 and I-75 traverse the region offering ideal access to regional markets and inter-modal facilities. State and local access roads provide excellent and uncrowded access to the region's cities and counties. Manufacturing businesses also find the transportation infrastructure to suit their need to conveniently access markets.

ECONOMIC DEVELOPMENT

Today, it's not just physical or transportation access that is critical to the success of a company. Immediate access to information, electronic market data, real–time inventory management, and a virtual presence in distant markets, has turned the flow of information into the competitive life blood of business. Without high speed/high capacity Broadband networks, it becomes nearly impossible for businesses to compete. As a result, the lack of existing Broadband infrastructure has become a "show-stopper" when it comes to attracting new businesses to the region.

Office-based businesses have also undergone a transformation. It is now unusual to find an office-based business that does not take advantage of home offices, telecommuting, and part-time support from remote consultants or contractors. Flexible office hours – as a result of remote connectivity - have become a means of reducing office expense and overhead. Once again, access to high-speed Broadband infrastructure becomes a critical factor in the competitiveness of today's businesses; and with more than half of the region lacking Broadband availability; office-based businesses can't take advantage of this efficiency.

Even agriculture has adapted the information super-highway to monitor moisture content in the soil to manage irrigation, nutrient monitors identify fertilizer needs and real-time access to market prices allow farmers to proactively manage their agribusinesses.

Great attention is being given to controlling healthcare costs. Digitization of medical records has been touted as a critical step in that direction. Rural hospitals and clinics must meet increasingly stringent modernization and technology requirements to maintain (or achieve) accreditation or their prospects for remaining a viable businesses are grim. High-speed broadband access (and not the Federal Government's current standard) is a critical element in ensuring these facilities remain open to serve their communities.

Local healthcare providers and medical testing facilities rely heavily on immediate access to information. Doctor's offices place more requests for boosting their Internet speeds than any other industry or type of business. They are demanding greater speeds to deal with the combined burden of very large files and increased reimbursement administration. Laboratories and testing facilities in major cities are equipped with high speed Broadband and are accustomed to immediate transmission of results. Smaller, rural

hospitals and doctor's offices often have to wait for days to get results, limiting their ability to make complete and timely treatment decisions. (More to come on this section)

BARRIERS TO GROWTH AND INVESTMENT

The Telecom landscape is sometimes described as the First Mile – Middle Mile – Last Mile. The First Mile refers to the Internet backbone – the vast collection of ultra high capacity fiber optic networks that link major metropolitan areas around the country and around the world. Florida is fortunate to have several of these backbone routes traverse the state. Incumbent service providers purchase capacity from the backbone and distribute that capacity to their subscribers. Within a specific or small area of decent population density, the physical infrastructure by which service is delivered to their customers is called the Last Mile. When substantial distances need to be covered in order to deliver Last Mile connections (which are the actual copper, co-axial, or fiber cables to your home or business) the service provider must use a somewhat different approach, either via fiber or wireless transmission to efficiently carry portions of the backbone capacity to where it can be effectively distributed by Last Mile technologies. This interim transport is called the Middle Mile. Incumbent service providers have built some Middle Mile infrastructure, but it is not widely available and is intended to serve only their customers.

Unlike urban areas, the delivery of Broadband services to rural areas inevitably requires using a Middle Mile infrastructure to extend the reach of the ultra-high speed fiber backbones that provide the long-haul distribution of Internet traffic. It is normally cost-effective to build or co-locate local distribution facilities in urban areas simply because of the numbers and density of the customer base. An Internet Service Provider (ISP) in a metro area can justify spreading the cost of buying a large-capacity connection and remain competitive in their pricing. Unfortunately, that is not the case with rural and small town Florida. Purchasing large capacity connections at the backbone is only the beginning – now you have to get the capacity to the customers who are distant, spread out and are less likely to tolerate the cost of the service when it gets there.

TELEPHONE ARCHITECTURE

Because of past and current Federal Funding processes, basic dial tone telephone infrastructure is almost ubiquitous in the United States and throughout the RACEC region. Telephone companies have built fewer central offices in rural areas due to the fact that there are fewer households per square mile. More than a few miles from a central office (without amplifying equipment), and telephone infrastructure to deliver broadband Internet services is not possible. Therefore, bringing broadband internet to an un-served community often means choosing between building an entirely new system using fixed wireless technology or upgrading an existing telephone or cable system. This is not feasible with the low population density per square mile.

Logically, distance equates to higher cost. The architecture and the method of delivery also increase cost. The original telephone-based infrastructure utilized by most of the incumbent providers is not well-suited to delivering large amounts of capacity over great distances. By comparison – the telephone architecture would be similar to the water company running a separate pipe from the water plant to every customer premise in the region. Not practical and extremely inefficient. Instead they build water mains - large pipes that carry capacity over long distances and provide your direct water connection via smaller individual connections, an appropriate "Last Mile" mechanism.

Why don't more incumbents invest in expanding their Middle Mile infrastructure? The economics don't work for most incumbent providers, whose investment in existing infrastructure requires them to achieve a return on ***those*** assets. They have little incentive to spend a lot of money to deliver services for which they would never see an appropriate return. As a result, their motivation to build a network in advance of a customer commitment is justifiably non-existent.

LACK OF COMPETITION

The current lack of competition is a major disincentive to expanding investment in real Broadband connectivity. Many incumbents enjoy a vertically integrated monopoly for broadband services where price and available capacity are not driven by demand or competing value propositions. As a result these areas within the region remain the least served in both access and capacity.

Within the 15 county NFBA Service Area, there is little affordable Middle Mile infrastructure. What has been identified is concentrated in areas where incumbent providers have made substantial investment in their own networks and are successful in distributing real Broadband services to their subscribers. In much of the region however, accessing Middle Mile infrastructure owned by an incumbent can be prohibitively expensive, making it infeasible even for many government agencies and businesses to afford to buy the capacity they need. Bridging the distance between the internet backbone capacity and Last Mile networks is what is referred to as the Middle Mile problem.

COST FOR EXISTING SERVICE

Without available Middle Mile infrastructure, it becomes difficult and cost prohibitive for an incumbent service provider(s) to cover the expansive RACEC geography completely. While there have been efforts to extend wire-line and fiber infrastructure in some parts of the region, there remain vast areas that are not served or served by non-broadband services. Detailed and field verified database information concludes that more than 50% of the region's households do not have access to Broadband services (as defined by the Federal Government, is 728 Kbps down/receiving, 200 Kbps up/sending).

Cost is another factor in adoption of services. Even when it is possible to deliver broadband services to a group of customers, the incumbents frequently determine that they cannot recover their investment by charging rates that the customers can afford – without competition – they can't justify the investment. A typical cost for 3 Mbps Internet Service in a metro area is in the neighborhood of $40-50/month. The cost per Mbps/month in quantity and delivered to anchor government tenants by current providers is an average of $228/Mbps/month. The capacity may be available to deliver Broadband service, but this would hardly fall in the range of residents whose household income is 33% below the state average.

SCHOOL DISTRICT ANALYSIS AND COST

Data provided by the Department of Management Services shows that a total of 126 Mbps of capacity is provided to the region's school districts in the NF RACEC by AT&T thru the State of Florida DMS contract. Based on the increments of speed, these services are provided via T-1 (1.5 Mbps) Infrastructure. The total annual cost for all 14 county districts is $344,906 or $28,742 per month. The average cost per Mbps is $228/Mo.

Competitive Pricing was provided by the State of Florida's Department of Management Services. The following spreadsheet indicates the current annual cost of Direct Internet Access to school systems in the region.

North Florida RACEC School Systems

City	County	Zip	Internet Service Provider	Current Connection Speed to District DMARC	No of Connections Networked to School District	Annual Connection Cost
MACCLENNY	BAKER	32063	AT&T	9 MBPS	1	$27,946.44
STARKE	BRADFORD	32091	AT&T	6 MBPS	1	$19,019.28
LAKE CITY	COLUMBIA	32055	AT&T	12 MBPS	1	$30,536.04
CROSS CITY	DIXIE	32628	AT&T	9 MBPS	1	$27,946.44
TRENTON	GILCHRIST	32693	AT&T	9 MBPS	1	$27,946.44

City	County	Zip	Internet Service Provider	Current Connection Speed to District DMARC	No of Connections Networked to School District	Annual Connection Cost
JASPER	HAMILTON	32052	AT&T	6 MBPS	1	$19,019.28
MONTICELLO	JEFFERSON	32344	AT&T	3 MBPS	1	$10,328.64
MAYO	LAFAYETTE	32066	AT&T	6 MBPS	1	$19,019.28
BRONSON	LEVY	32621	AT&T	15 MBPS	1	$32,154.60
MADISON	MADISON	32340	AT&T	10 MBPS	1	$29,452.92
PALATKA	PUTNAM	32177	AT&T	15 MBPS	1	$32,154.60
LIVE OAK	SUWANNEE	32064	AT&T	6 MBPS	1	$19,019.28
PERRY	TAYLOR	32347	AT&T	14 MBPS	1	$31,343.88
LAKE BUTLER	UNION	32054	AT&T	6 MBPS	1	$19,019.28

The average cost per megabit on average of Direct Internet Access is $228 per Month. With costs like these the Federal standards for considering access to Broadband become somewhat distorted and unrealistic. While each school district and library system has access to Broadband, when compared to their urban, suburban counterparts, they get far less capacity at far greater cost. In reality, while the Federal Government hasn't stipulated an organizational definition of Broadband, it is clear that rural school districts and library systems are forced to operate at a major "value disadvantage" which will not change without greater capacity or competition in the region.

Most Costly Counties for Connectivity in Florida

Counties	Average Annual Cost per MBPS
1. Dixie County	$23,76 3/ Mbps
2. Union County	$8,910 / Mbps
3. Gilchrist County	$7,129 / Mbps
4. Putnam County	$6,256 / Mbps
5. Osceola County	$4,016 / Mbps
6. Santa Rosa County	$2,727 / Mbps
7. Monroe County	$2,521 / Mbps
8. Hamilton County	$1,642 / Mbps
9. Baker County	$1,594 / Mbps
10. Escambia County	$1,445 / Mbps
11. Miami-Dade County	$994 / Mbps
12. Alachua County	$922 / Mbps
13. Indian River County	$840 / Mbps
14. Taylor County	$760 / Mbps

Source: (April 29, 2009 –Information Use Management and Policy, Florida State University (http://www.ii.fsu.edu)

RELATED HEALTHCARE PROJECTS

In November 2007, the Federal Communication Commission awarded $9.6 million to the Big Bend Health and AHCA to build health care network in the Florida Panhandle, consisting of a gigabit fiber optical network connecting nine rural hospitals and a broadband wireless network connecting not-for-profit clinics in the rural counties of the Panhandle. This award will allow the Big Bend Health to connect the nine hospitals to the Tallahassee Private Medical Area Network (PMAN).

Specific objectives of the proposed project address connectivity, health care services and sustainability. The overall plan proposes to:

1. Build a dedicated optical fiber broadband network to connect health care facilities between Madison County and Bonifay County with urban hospitals in Tallahassee and in Pensacola.
2. Build a broadband wireless network to connect not-for-profit clinics in these counties with an encrypted wireless system that provides high speed broadband communications to these clinics.
3. Provide hospitals and clinics the opportunity of joining the Big Bend Health information exchange.
4. Create high-speed connectivity to specialists in Florida via a connection to the Florida Lambda-Rail.
5. Develop a funding formula for sustainability of services to eligible providers in rural counties and underserved areas.

In 2009, the Big Bend RHIO begin construction of gigabit fiber facilities from Florida Lambda-Rail interface points, to a constructed Point of Presence (POP) in each rural county, and then run broadband last mile connections to the rural hospitals and clinics in the project. The rural health care facilities in the year one construction plan include:

- Calhoun-Liberty Hospital, Blountstown, Calhoun County
- George Weems Memorial Hospital, Apalachicola, Franklin County
- Tallahassee Memorial Family Medicine Quincy, Quincy, Gadsden County
- Sacred Heart Hospital, Port St Joe, Gulf County
- Doctor's Memorial Hospital, Bonifay, Holmes County
- Campbellton-Graceville Hospital, Graceville, Jackson County
- Jackson Hospital, Marianna, Jackson County
- Marianna Veterans Clinic, Jackson County
- Madison County Memorial Hospital, Madison, Madison County
- Doctor's Memorial, Perry, Taylor County
- Northwest Florida Community Hospital Emergency Department, Washington County.

The project is in progress and may offer significant synergies in meeting the needs of rural county residents across the panhandle. Inter-connectivity to a new Middle Mile network has all kinds of potential to create medical information highways that may ultimately provide similar services across the entire State.

REMOTE, UNSERVED, UNDERSERVED

The Federal government has classified geographic areas with similar characteristics with regard to broadband services in order to prioritize the use of funds for Broadband. The characteristics are reflective of the degree to which the barriers to growth and investment have been greatest.

Remote area - means an unserved, rural area 50 miles from the limits of a non-rural area.

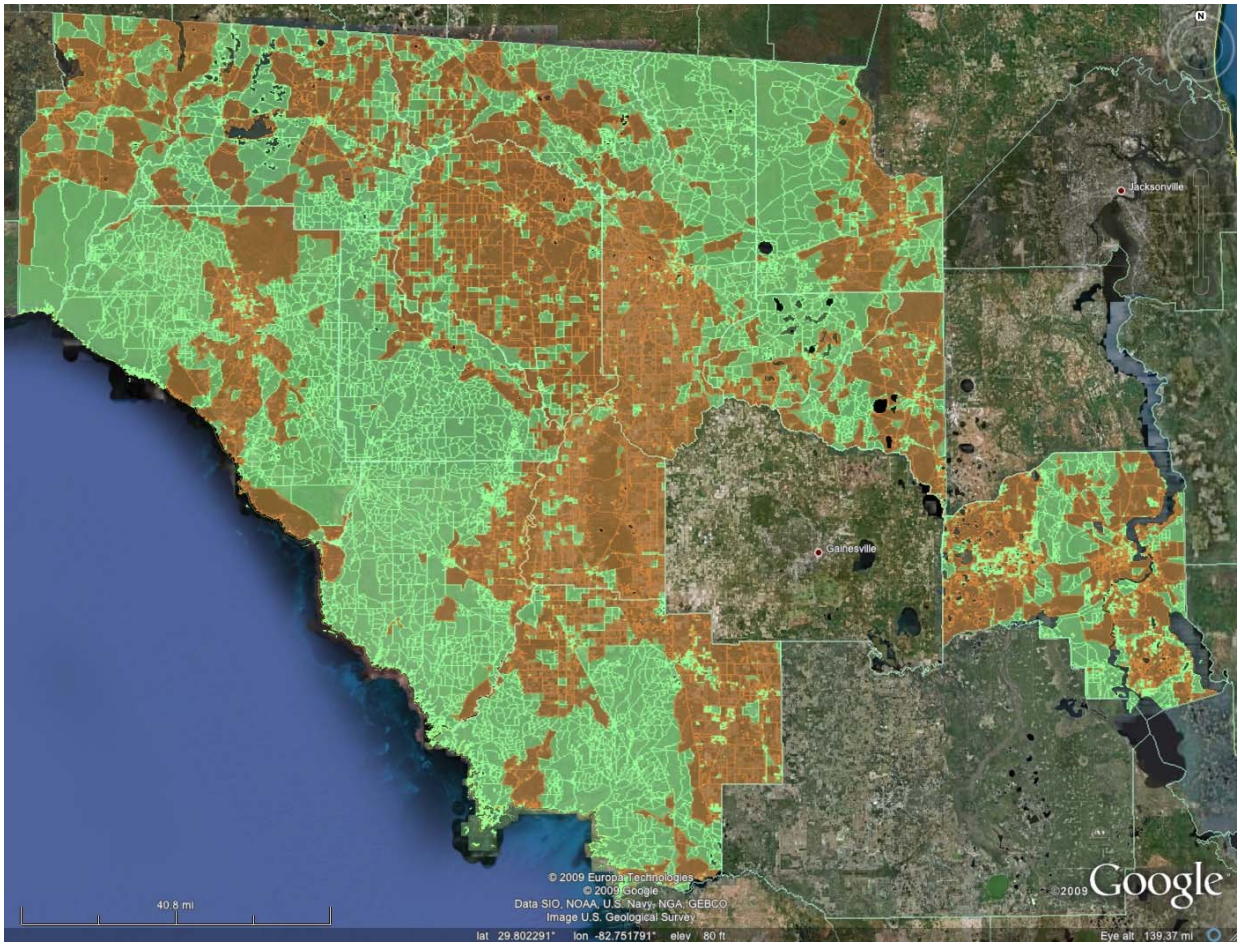
Rural area - means any area, as confirmed by the latest decennial census of the Bureau of the Census, which is not located within: 1. a city, town, or incorporated area that has a population of greater than 20,000 inhabitants; or 2. an urbanized area contiguous and adjacent to a city or town that has a

population of greater than 50,000 inhabitants. For purposes of the definition of rural area, an urbanized area means a densely populated territory as defined in the latest decennial census of the U.S. Census Bureau.

Underserved area - means a proposed funded service area, composed of one or more contiguous census blocks meeting certain criteria that measure the availability of broadband service and the level of advertised broadband speeds. These criteria conform to the two distinct components of the Broadband Infrastructure category of eligible projects—Last Mile and Middle Mile. Specifically, a proposed funded service area may qualify as underserved for Last Mile projects if at least one of the following factors is met, though the presumption will be that more than one factor is present: 1. no more than 50 percent of the households in the proposed funded service area have access to facilities-based, terrestrial broadband service at greater than the minimum broadband transmission speed (set forth in the definition of broadband above); 2. No fixed or mobile broadband service provider advertises broadband transmission speeds of at least three megabits per second ("mbps") downstream in the proposed funded service area; or ***3.*** **The rate of broadband subscribership for the proposed funded service area is 40 percent of households or less.** A proposed funded service area may qualify as underserved for Middle Mile projects if one interconnection point terminates in a proposed funded service area that qualifies as unserved or underserved for Last Mile projects.

Unserved area - means a proposed funded service area, composed of one or more contiguous census blocks, where at least 90 percent of households in the proposed funded service area lack access to facilities-based, terrestrial broadband service, either fixed or mobile, at the minimum broadband transmission speed (set forth in the definition of broadband above). A household has access to broadband service if the household can readily subscribe to that service upon request.

According to these definitions, the North Florida RACEC is a predominantly rural area. Methodology used for establishing the baseline analysis of served vs unserved and/or underserved areas was as follows:



Served = Brown; Underserved = Green The data indicates the underserved areas, using the third criteria established by the National Telecommunications and Information Administration (NTIA) and recorded in the Notice of Funds Available for this program. The Region qualifies as underserved because the uptake or adoption rate is less than 40%. While portions of the region qualify as served, the entire region is considered underserved when taken as a whole.

The NFBA Network

A NEW, OPEN-ACCESS, MIDDLE MILE NETWORK

Recognizing how much competition there was for Broadband Stimulus Grant funding, it was necessary to take a low cost/high-value approach to selecting the most appropriate solution for the network. With roughly $4 billion in first round funding available, and more than 7 times that amount requested, it was clear that there would at some point be an analysis of "greatest return" on the allocated funds. In other words, those applications that demonstrated greatest need AND delivered a proposed solution that cost-effectively solved the problem would logically have the greatest opportunity for success. A Wireless Middle Mile Solution - detailed in this section - was the type of solution that was the best case to evaluate for feasibility (contingent on grant award).

Having described the problems associated with extending access across the Middle Mile – the goal was to configure a network that by design eliminated the ability for incumbent providers to control/restrict/excessively charge for access to the backbone, or other vital network infrastructure. The proposed network would be a new, independent and open pipeline to Last Mile providers and anchor institutions. Avoiding the incumbent control and legacy technology is accomplished through establishment of a fixed wireless ring and consecutive point network that leverages high-capacity packet-based Ethernet radios. This technology solution, developed by Wireless Infrastructure & Network Services (WINS), allows the NFBA to tap directly into the main backbone of the Internet and avoid the "special access" fees that have historically restricted growth and uptake by customers. This places upstream costs at true wholesale levels and avoids costly delays. A more detailed description of the network solution follows.

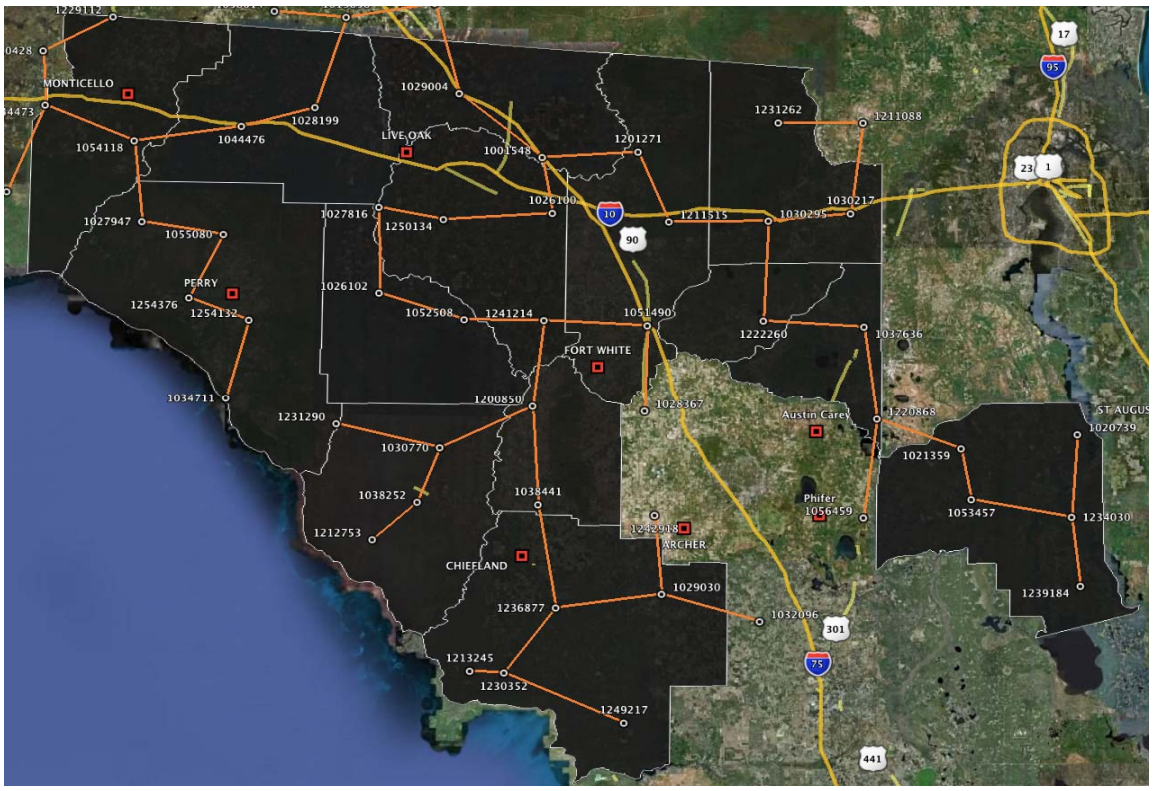
The key network components involved in this proposed solution for Middle Mile Access, are the Microwave Ring Topology and the Microwave Point-to-Point (PTP) link to the Last Mile provider or anchor tenant premise. This is primarily a new deployment to areas that currently don't have public high-capacity bandwidth options. The funding requested in the Broadband grant application is intended to cover the capital costs of building out the Middle Mile Access, Microwave Ring Topology and some Microwave PTP links to customer premises. The Fiber connection structures (often referred to as "huts") and Fiber routes through the counties already exist and will not require capital.

RELIABLE MICROWAVE RING TOPOLOGY

The Microwave Ring Topology uses licensed frequencies at 11, 18 and 23 GHz, the selection of which is determined by the distance connected across each link and the bandwidth requirements. These are frequencies that combine the best characteristics for distance, minimal weather interference and are easily licensed from the FCC on a per link basis. Though these are licensed Frequencies, spectrum is readily available. These radios will distribute the bandwidth among the fourteen counties using a ring topology. This topology creates a highly available bandwidth because if one link goes down for some reason, the network will automatically switch to the other link. On top of the horizontal ring topology of the microwave network, we also have vertical ring topology that allows the existing fiber to not only be the source of Direct Internet Access (DIA), but also redundant links that would be part of the self-healing topology.

The NFBA ring topology considers two contributing factors to wireless unavailability, which are the equipment, and the path or air unavailability. The equipment unavailability can be avoided by using two redundant, parallel links, which protects against equipment failures. This would increase the service availability of the 99.978% service up to 99.99%, which is equal to the availability to which the path is engineered. Similarly, if the path was engineered to 99.995%, equipment redundancy will increase the service availability to also be 99.995%. For optical services, the fiber path becomes the limiting factor, with a resulting availability of 99.986%

North Florida RACEC Network



The diagram above is a visual representation of the minimum link coverage (orange) for the region. Additional radio links will be installed to complete the rings and create dual-path connections to the Mid-stage or POP (fiber backbone connection points, (also called a “Point of Presence”) locations at Chiefland, Perry, Monticello, Live Oak, Fort White, Archer, – and ultimately St. Augustine to the east.

In order to increase the service availability to 99.999%, link diversity is required. One way of doing this is to introduce a relay site on the redundant link. However, this introduces additional cost. This is why the NFBA network is based on a ring topology. It is a more efficient way of providing this diversity.

Lastly for wireless links, the major factor effecting availability is the rain. Providing diverse paths and using different frequencies, the impact of rain on a path is dramatically reduced. The path diversity improvement factor (PDIF) provides a measure of the joint probability of two connecting links failing simultaneously.

Finally, at these microwave tower sites, battery backup for a minimum of eight hours has been designed into the system, as well as vandal resistant and hardened concrete features described for the backbone access point (the network Point of Presence, or POP). After evaluating the morphology clutter data, the FCC tower sites with clear line of site, ability to look over tall trees and other obstructions, were selected to create an unobstructed Fresnel zone. The industry standard tool, Pathloss, was used to engineer 99.999% availability at a minimum of 100Mbps full duplex, for each link.

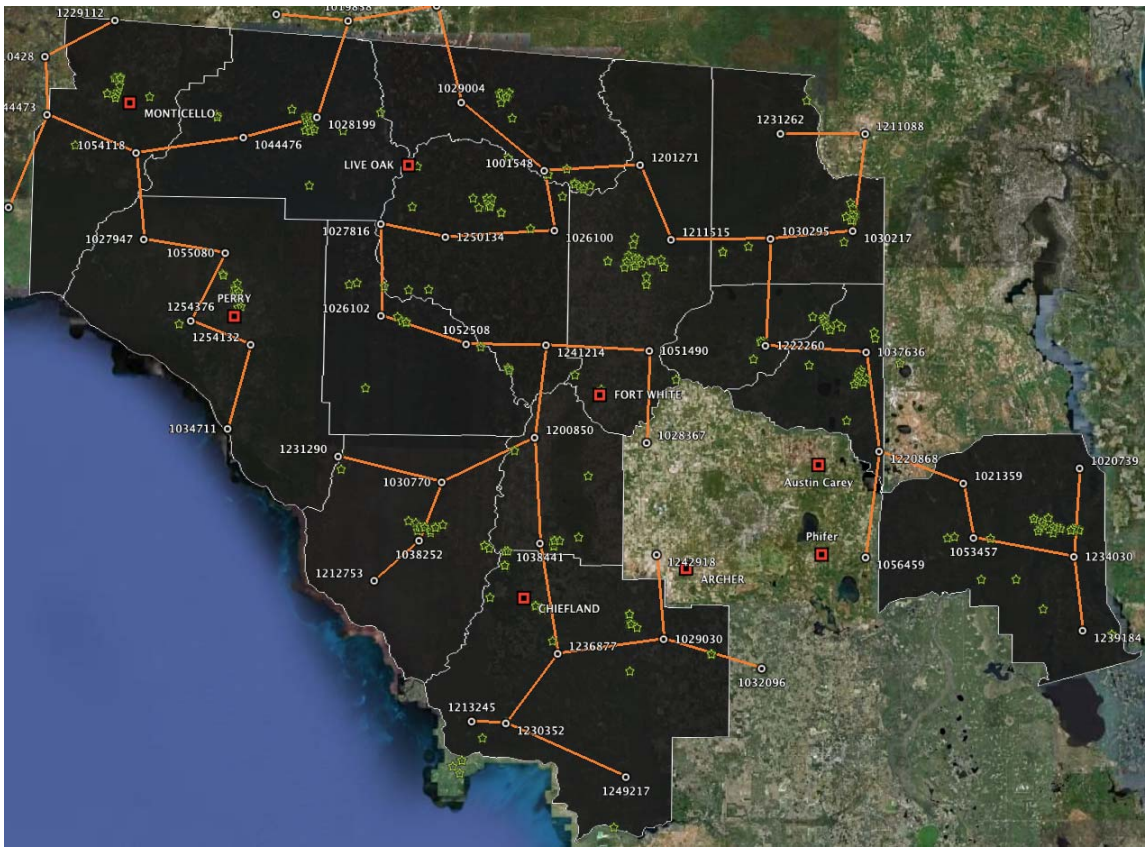
CUSTOMER PREMISE LINKS (END USER)

The microwave PTP customer premise link will vary based on the customers data rate requirements, but the spacing of the tower sites have been engineered to create a high level of availability to any site within the fifteen county footprint. As this is designed as a Middle Mile network, the focus is on providing a robust, reliable infrastructure to which a Last Mile provider or anchor tenant can connect. The planned Customer Premise Equipment (CPE) meets the critical needs demanded by carrier class customers by delivering wireless Gigabit Ethernet/100Mbps connections with up to 600 Mbps full duplex (meaning simultaneous capacity in both directions) over licensed or unlicensed frequencies. The equipment can scale from 10 to 600 Mbps in 10 Mbps increments via a simple software configuration. Typical transmit power of these devices will not exceed 26dBm. This system is designed to scale and deliver up to 1Gbps with a single wireless connection.

In simple terms, each radio connection from a network tower to a customer site is capable of providing up to 600Mbps (upstream and downstream) without adding additional radios. For critical service requirements, the customer may be connected in a ring to other customers or to other towers, which allow traffic in and out of the customer site in either direction, ensuring against downtime.

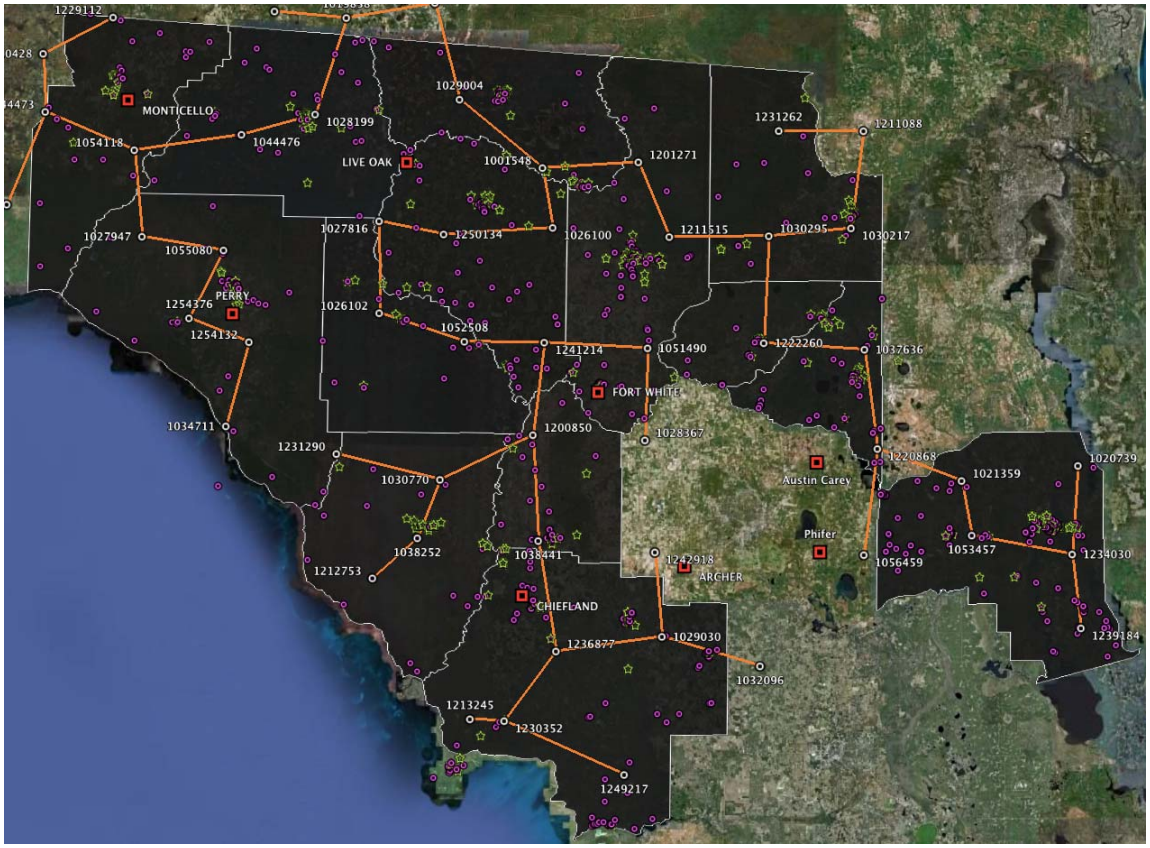
COVERAGE

My Florida.net Coverage



Proximity to Current MyFlorida.net Users (green dots). Existing Anchor Institutions currently being served via the Florida Department of Management Services (DMS) are well supported by the location of the proposed network towers/links.

Additional Anchor Institutions Coverage



Ability to Reach and Provide Service to Anchor Institutions (purple overlay). The purple dots indicate the locations of all other identified Anchor Institutions that are currently not served by MyFlorida.net. Again, they are well covered by the proposed Network assets.

WIRELESS NETWORK TECHNOLOGY ADVANTAGES

SPEED OF DEPLOYMENT

The NFBA wireless solution offers a fast, shovel-ready deployment. Rapid deployment enables the operator to meet the aggressive timelines dictated by the Federal Broadband grant programs. Each funded project must be substantially complete within 24 months of funding and fully completed in 36 months. Unlike wire line solutions such as fiber, wireless networks do not require extensive permitting, tunneling, rights of way and easements.

MICROWAVE CAN PROVIDE DISTRIBUTION AND ACCESS FUNCTIONS

A well-known, established technology, microwave can offer wide availability and extremely high capacity. For the NFBA network, microwave is leveraged in the access network to bring broadband connectivity to a number of public safety, education, utilities and other Last Mile provider facilities.

WIRELESS ADDRESSES RISING DEMAND FOR MOBILITY

Unlike wireline solutions, wireless access offers Broadband mobility. It can provide the equivalent functionality of traditional fixed Broadband over wireless access. Should the need arise to move a radio to another facility, to better serve the customer, add service, provide redundancy, follow a customer move, etc. It is a simple matter of disconnecting the radios and moving them to a new location, aiming, provisioning and testing.

WIRELESS LOWERS BARRIERS TO MARKET ENTRY – STIMULATING COMPETITION

With availability of stimulus funding and proven wireless solutions, the lack of extensive fixed networks is no longer an impediment to delivering Broadband solutions. In cases where network infrastructure already exists, wireless solutions can build on deployed equipment, providing seamless growth and lower overall costs.

WIRELESS DELIVERS HIGHLY RELIABLE TRANSPORT

Wireless solutions deliver fiber-like reliability at lower cost with faster deployments. Microwave is a proven technology with years of 99.999 percent availability running the most critical emergency voice and data services. Not subject to "backhoe fades", wireless transport solutions often exhibit superior uptime when compared to fiber.

PROPOSED SERVICE OFFERINGS

The North Florida Broadband Authority network will provide, support, and configure a versatile and feature-rich Microwave-based network. Users will be able to order and specify customized network connection arrangements and combinations of transport and Direct Internet Access (DIA). This is not intended to be an exhaustive or exclusive list of features and uses – for example, DIA can be combined with either VPLS or L3VPN services to create a hybrid design, customizable per customer.

A partial list of proposed services:

A. Intra-Network Transport Only
    1. 10 Mbps Transport Only (In-Net)
    2. 100 Mbps Transport Only (In-Net)
    3. 1000 Mbps Transport Only (Intra-Net where technology allows)
B. Transport Plus Direct Internet Access (DIA)
    1. 10 Mbps Transport + Internet (In-Net)
    2. 100 Mbps Transport + Internet (in-Net)
    3. 1000 Mbps Transport + Internet (Intra-Net where technology allows)
C. Transport & Direct Internet Access with CIR (Committed Information Rates)
    1. 10 Mbps Dedicated
    2. 100 Mbps Dedicated

ADVANCED SERVICES FOR FUTURE CONSIDERATION

- Direct Internet Access
- BGP-Based IP Transit Service
- Point to Point Transparent LAN Service
- Cellular and ISP Backhaul (TDM and Ethernet)
- Multipoint bridging (EoIP Central Ethernet Bridging)

PUBLIC & PRIVATE SECTOR SERVICE PROVIDER MIDDLE MILE (ETHERNET AND TDM)

The services are features that are predesigned and supported within the routing and switching devices within the NFBA network. These devices will be located locally at the tower sites, creating a uniform, Aggregation Node feature-dense topology. This is unlike most backhaul networks. In other words, each tower site (and associated radio pairs) will be "smarter" and capable of delivering a wide variety of additional features, including security, smarter traffic management, maintenance and troubleshooting, and billing verification.

The NFBA network will utilize routing/switching devices at all tower and POP sites, and the services offered will principally draw from the feature rich devices and VLAN management. The majority of the supported services will be implemented as applications riding on top of a Multi-Protocol Label Switched (MPLS) transport layer. This will minimize unique device count, (meaning the equipment at each site will be configured the same, making them interchangeable and easily replaceable) permitting NFBA to gain operational efficiencies.

DETAILED SERVICE DESCRIPTION

TLS (Transport Layer Security) and Multipoint Ethernet over Internet Protocol (EoIP) represent a novel application of MPLS (Multi-protocol, Label Switching) transport of Ethernet frames. For customers that have simple requirements, such as point to point Ethernet transport, each customer will receive a uniquely provisioned "Label Switched Path" – which will be configured to relay Ethernet frames directly between any pair of two Ethernet ports within the footprint of the NFBA network.

In the case of Multipoint EoIP, NFBA will configure an EoIP tunnel for each customer, or multiple instances per customer. Each tunnel will function as the equivalent of a network-wide, Layer2 transparent point to multipoint Virtual Ethernet Switch.

This means any customer can elect to include any two or more Ethernet ports, from any NFBA tower or pop location, into the same Ethernet switching instance. This will provide flexible, LAN (Local Area Network)-like Ethernet access, which can interface to customer sites via any Ethernet transport link (i.e. VLAN (virtual LAN) per customer over multipoint WiMAX links, or dedicated point-to-point Microwave links).

NFBA expects that the majority of public and private sector entities will utilize standard Direct Internet Access (DIA) via Point to Multipoint and Point to Point dedicated links. In the case of standard customer DIA configurations, NFBA will support full, per-customer customizable IP Quality of Service, based on

VLAN priority (802.1p) and DSCP values. These are the highest industry standards for service and reliability.

At tower sites that provide Point to Multipoint small business and Last Mile retail services for end-user DIA, several different Classes of Service will be established over the NFBA system. These classes will be used to provide application-agnostic, fair-user access over the network. This is achieved through the use of a novel "application intent" –based Quality of Service configuration.

The NFBA network will provide BGP (Border Gateway Protocol – routing based on path and programmed network policies) support for IPv4 and IPv6 customers. Each border router on the Level 3 Long Haul Fiber network will operate a "Route Manager Agent" (the "Agent" contains the preset routing policies established by the NFBA network)that manages and controls overall BGP signaling. Every tower site "Point of Presence" router will receive a full set of Internet IPv4 and IPv6 routes from the regional Route Manager Agent. This permits every POP site router to both accept customer routes and provide full Internet IPv4+6 routes to clients requesting BGP peering.

A similar BGP structure will be at the heart of the NFBA Level 3 fiber backbone. In other words, Level 3 will treat the traffic to and from the NFBA Network with the same rules and routing policies that we do. In this configuration style, the NFBA network will create a 'virtual routing table' across the network, and similarly to the multipoint Ethernet Transparent LAN Service, permit the inclusion of any port at any tower site. In contrast to the Point to Multipoint Ethernet services, the Layer 3 (refers to the security layer) VPN services will permit customers to have best-path, non-broadcast, routed topology which remains private and secure within the NFBA network.

Tier 1 Support:

Consists of routine, daily customer support issues from end users. The center will leverage the use of automated billing and customer care system that provides automated provisioning and network monitoring to ensure rapid service turn on and to provide proactive fault detection service. Leveraging the same technology used in the Department of Homeland Security and Tier 1 NOC's, customers will have three methods of support: 1) VoIP 2) web portal and 3) e-mail. Tier 1 support will also include trained technicians who live and work in the North Florida RACEC service area.

Tier 2 Support:

Issues that cannot be solved by Tier 1 support within 24 hours will be escalated to Tier 2 personnel. Tier 2 personnel will have extensive network hardware, software and engineering skills. Tier 2 personnel support customer and Tier 1 personnel in solving more complex issues. Tier 2 personnel may also be required to mobilize to a remote location to resolve network issues.

Tier 3 Support:

Established relationships with over 28 vendors assure assistance as required in order to resolve complex issues such as network, protocol, and vendor specific troubleshooting. These vendors will be called upon in the rare instance Network Operations personnel cannot resolve an issue.

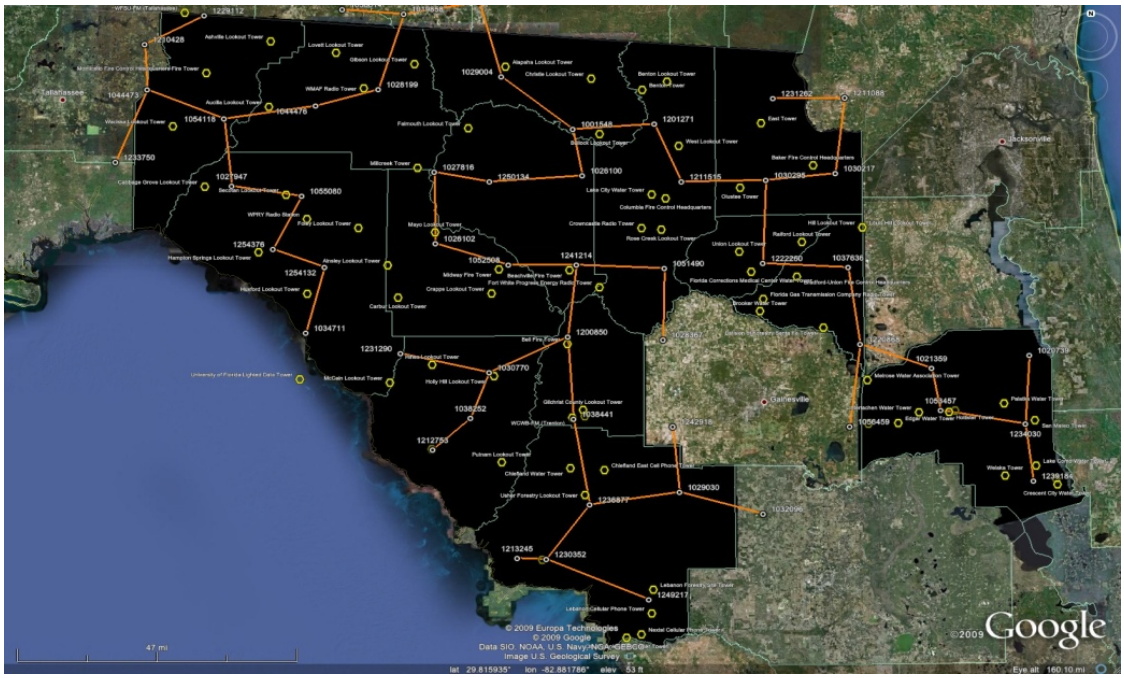
Other Support:

Billing services will be implemented in the same manner as other deployed networks. These billing processes have been in place for several years with large incumbent Telecomm companies.

USE OF MEMBER-OWNED ASSETS

This particular design will utilize as many City, County or State tower/rooftop assets as practicable. This allows for reduced capital expenditure and greater flexibility in providing customer premise connections

and additional upstream Middle Mile infrastructure for route diversity and ring capacity. The map below shows locations of County towers and other vertical assets. These are preferred over Commercial tower assets, as they do not impose recurring monthly charges to the NFBA. Many of these County assets will likely need to be upgraded with ARRA grant eligible funds.

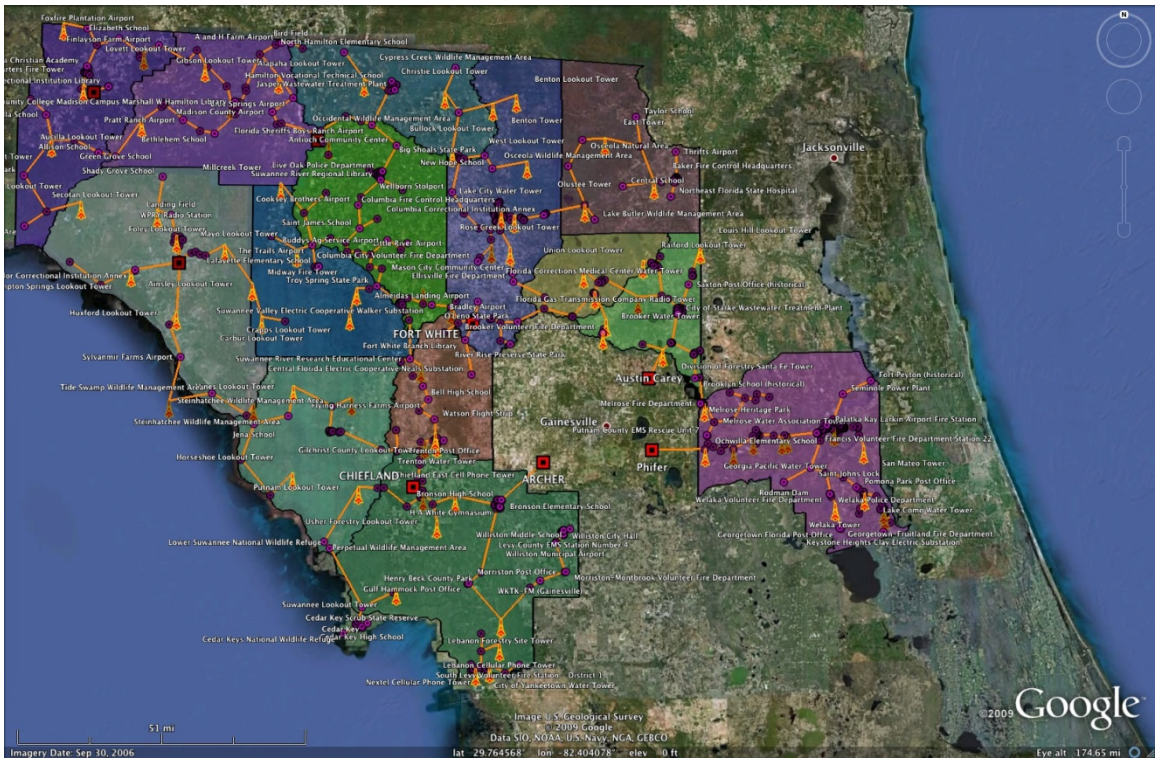


The orange lines represent the baseline network wireless links. Additional links to close rings and create redundant connections to the Level 3 POP's (Points of Presence) will be added as the network is deployed. Each link will be capable of a minimum of 300Mbps full duplex and up to 1Gbps to new and existing facilities and Last Mile providers. As technology continues to evolve, we anticipate that upgrades to this design will allow capacity additions simply and cost effectively over time.

NETWORK DENSITY INCREASES RELIABILITY AND CAPACITY

One of the greatest benefits of the ring and mesh architecture is its flexibility and design redundancy. As you can see from the graphic below, where several anchor tenants have been identified, it is easy to visualize the connectivity with these anchor institutions and Last Mile providers. By increasing the density of links, the path diversity for traffic also increases, benefitting the reliability of the system. Should a radio or link fail, the network routing automatically selects an alternate path and without interruption, the network continues to function normally. This self-healing feature ensures very high availability and truly meets the commercial and emergency services standards for performance.

Network Density



The graphic above shows a sample of how existing tower locations, anchor tenants and Last Mile providers, can be used to create greater network density and path diversity. Additional rings between Anchor Institutions, Last Mile Providers and Contributed Tower Assets enhance the density, reliability and capacity of the network.

Sustainable Financial Model

There is little argument that availability and access to reliable, high-speed Internet and other network connectivity is a critical infrastructure component necessary to attract new business and industry into the RACEC and to ensure that existing residents and businesses are competitive in today's state, national and global business and industrial environments. The expansion of publicly available Broadband infrastructure in the RACEC is unequivocally, a critical element in the growth and long term economic competitiveness of the North Florida region.

PROPOSED WIRELESS MIDDLE MILE NETWORK

The fastest, most cost effective means of delivering the needed Broadband capacity across the 9,137 square miles of the north Florida RACEC, is through an independent, open access and flexible Middle Mile network. Without a doubt, the proven high capacity wireless technologies cited will deliver on the advertised performance suggested in the plan.

The requisite parameters for a network solution are all fully addressed (or facilitated) by a microwave network. In the context of the only identifiable source of financing, the BIP/BTOP Broadband Grant Programs, this network proposal meets delivers completely on the parameters required for funding consideration:

- Serves all five statutory purposes (only need to serve one)of the ARRA Federal Stimulus bill.
- Project is "shovel-ready", preliminary design completed and prepared to begin work within 120 days of grant award
- Project can be substantially completed in 2 years, totally finished in 3 years.
- Network proposes to offer service which meets the Federal Broadband minimum standards (will greatly exceed the guidelines)
- Project has been deemed technically feasible by a licensed professional engineer
- Applicant has committed to the policies of Non-discrimination and Interconnection obligations required by the grant programs
- Applicant network is designed to ensure available capacity can be distributed via Last mile providers) to all census blocks within the proposed service area.

As an applicant for Middle Mile infrastructure funding, the non-discrimination and interconnection stipulations ensure that this remains a neutral, wholesale network enterprise. Last Mile providers and anchor institutions are eligible purchasers of wholesale capacity, whether it is their primary, augment, or redundant source of capacity. The intent is not to compete with incumbents or Last Mile providers, but rather provide them with an abundance of capacity and connectivity options they can then cost-effectively provide for their customers.

PERFORMANCE CRITERIA TO BE MET OR EXCEEDED BY THE PROPOSED NETWORK

- The network provides linkable coverage to the entire 9,137 square mile region.
- A minimum available bandwidth of 100Mbps will be available at every customer connection point (customers may select smaller increments of 10Mbps) and up to 1Gbps per link.
- Multiple backbone points of connection will ensure redundant network access to the Internet. Ring and consecutive point architecture allow increased density and path diversity.
- Carrier grade services available throughout network. Industry standards for availability and mean time to repair (MTTR) will be maintained.
- Direct Internet Access and transport available to anchor tenants and Last Mile providers
- Network is scalable to meet increasing demand. Enables sustainable business model.
- The network is quite flexible in both design and growth. Result is that demand can generally be met wherever it exists, not just where the point of connection happens to be.
- Costs to connect and for high-speed capacity are a fraction of today's costs and facilitate the business models of Last Mile providers.

As evidenced above, all of the technical performance parameters established by the Federal Broadband grant programs and by the NFBA, are fully addressed with the proposed network.

Without a doubt, the network that has been proposed is not only technically feasible, but an efficient and comprehensive approach to ensuring the distribution of Broadband capacity is available for Last Mile providers to deliver high speed broadband services throughout the region.

FINANCIAL SUSTAINABILITY

Both a requisite for Federal grant award and a primary objective for this venture, is the determination of the long term sustainability of the network as a going concern. In order for the Federal Government to agree that an infrastructure project is worthy of investment, it must show a financial path to profitability and be able to sustain its operations over the long term. Projections for a five year period were required in order to demonstrate the entities sustainability.

DETAILED PROJECT COSTS

To begin with, the overall budget identifies the capital costs required to build the proposed network. The capital costs, eligible for funding through grant award, is not in the sustainability equation but provides a glimpse at why the capital investment presents such a challenging barrier to entry for the Middle Mile.

The detailed project costs in the following spreadsheet indicate the specific areas of capital expense. Many of the costs contained in the cost schedule are not yet fully determined as many of the preliminary tasks have yet to be completed. Currently in progress is the detailed evaluation and site specific installation requirements of designated network assets(towers), specification development for equipment and the final negotiation of IRU upstream backbone and tower capacity.

SUBSCRIBER ESTIMATES

The subscriber estimates indicate an expectation of substantial capacity required to serve MyFlorida.net customers, transport services purchased by first responder and emergency service agencies, and provision of service to incumbents and local service providers – extending service more cost-effectively through the NFBA network.

The North Florida Broadband Authority (NFBA) intends to provide several different types of Middle Mile broadband service offerings at various levels of capacity, including Direct Internet Access, transport only, and transport with Committed Information Rates. The NFBA will provide these services to both public and private entities. Additional categories of service offerings may be developed as the network design and deployment schedule is completed. No attempt was made to include these additional revenue estimates in the pro forma financial statements submitted with the grant application.

The following table, "Attachment B – Proposed Middle Mile Service Offerings," describes the type of service offering, the level of capacity, and the estimated rates and charges associated with each category. In addition, several assumptions were made as to the type of customer (public versus private) and the level of service needed by each type, including:

- Public sector subscribers (governmental and/or institutional entities) were assumed to demand usage consistent with 10 Mbps increments;
- Private sector Last Mile Providers (all non-public) were assumed to demand usage consistent with 100 Mbps increments;
- Subscribers demanding 1 Gbps were not captured in the revenue assumptions, but will be identified using the subscriber surveys in order to incorporate this usage into the final network utilization model and the budgeted revenue projections.
- The price points described in the Attachment B, do not incorporate any discounts for multiple connections, subscriber total volume, length of contract, special conditions, additional services, etc. It is the NFBA's intention to establish flat rate service offerings that will ultimately be available and advertised for all levels and types of service.

Attachment B - Proposed Middle Mile Service Offerings

NORTH FLORIDA BROADBAND AUTHORITY

Census Area	Code	Service Offering	Distance Band (Pt to Pt)	Price per Mbps	Maximum Peak Load (Mbps) Network Bandwidth Capacity Increments	Total Capacity Charge	Monthly Port Charge	Total Monthly Charges	NRC Installation
		(Best Efforts Transport)							
ALL	10T	10 Mbps Transport Only (In-Net)	Un-Limited In-Network	$ 75	10	$ 750	$ -	$ 750	$ 2,500
ALL	100T	100 Mbps Transport Only (In-Net)	Un-Limited In-Network	$ 75	100	$ 7,500	$ -	$ 7,500	$ 2,500
ALL	1000T	1000 Mbps Transport Only (In-Net)	Un-Limited In-Network	$ 75	1000	$ 75,000	$ -	$ 75,000	$ 2,500
		(Best Efforts Internet)							
ALL	10TIA	10 Mbps Transport + Internet (In-Net)	Un-Limited In-Network	$ 90	10	$ 900	$ 1,950	$ 2,850	$ 2,500
ALL	100TIA	100 Mbps Transport + Internet (in-Net)	Un-Limited In-Network	$ 90	100	$ 9,000	$ 3,400	$ 12,400	$ 2,500
ALL	1000TIA	1000 Mbps Transport + Internet (In-Net)	Un-Limited In-Network	$ 90	1000	$ 90,000	$ 6,000	$ 96,000	$ 2,500
ALL		Transport with CIR (Committed Information Rates)							
ALL	10D	10 Mbps Dedicated	Un-Limited In-Network		10	NA		$ 2,500	$ 2,500
ALL	100D	100 Mbps Dedicated	Un-Limited In-Network		100	NA		$ 5,500	$ 2,500

The following table, “Attachment H – Broadband Subscriber Estimates,” illustrates the type of subscribers and the estimated demand per quarter.

Subscriber surveys are expected to be incorporated into the final service plan by May 2010. During that time, the NFBA will retain an independent rate consultant to review and analyze the proposed service offering rate schedule to develop a final rate model. .

Attachment H - Broadband Subscriber Estimates

PUBILC SECTOR SUBS	Project	Year 1				Year 2				Year 3				Year 4				Year 5			
(More entities, lesser bandwidth)	Deployment	Quarter1	Quarter2	Quarter3	Quarter4	Quarter1	Quarter2	Quarter3	Quarter4	Quarter1	Quarter2	Quarter3	Quarter4	Quarter1	Quarter2	Quarter3	Quarter4	Quarter1	Quarter2	Quarter3	Quarter4
Transport Only (In-Net)				LAUNCH																	
Net Add-ons				28	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Cumulust/ve subscribers				28	34	40	46	52	58	64	70	76	82	88	94	100	106	112	118	124	130
Transport of Internet																					
Net Add-ons				42	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Cumulust/ve subscribers				42	50	58	66	74	82	90	98	106	114	122	130	138	146	154	162	170	178
TOTAL CUMULATIVE SUBS				70	84	98	112	126	140	154	168	182	196	210	224	238	252	266	280	294	308

PRIVATE SECTOR SUBS	Project	Year 1				Year 2				Year 3				Year 4				Year 5			
(Less entities, more bandwidth)	Deployment	Quarter1	Quarter2	Quarter3	Quarter4	Quarter1	Quarter2	Quarter3	Quarter4	Quarter1	Quarter2	Quarter3	Quarter4	Quarter1	Quarter2	Quarter3	Quarter4	Quarter1	Quarter2	Quarter3	Quarter4
Transport Only (In-Net)				LAUNCH																	
Net Add-ons				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cumulust/ve subscribers				2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
Transport of Internet																					
Net Add-ons				8	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Cumulust/ve subscribers				8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76
TOTAL CUMULATIVE SUBS				10	16	22	28	34	40	46	52	58	64	70	76	82	88	94	100	106	112

PUBLIC/PRIVATE SECTOR	Project	Year 1				Year 2				Year 3				Year 4				Year 5			
Full Committed Information Rates	Deployment	Quarter1	Quarter2	Quarter3	Quarter4	Quarter1	Quarter2	Quarter3	Quarter4	Quarter1	Quarter2	Quarter3	Quarter4	Quarter1	Quarter2	Quarter3	Quarter4	Quarter1	Quarter2	Quarter3	Quarter4
Transport Only (In-Net)				LAUNCH																	
Net Add-ons				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cumulust/ve subscribers				2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
TOTAL AGRREGATE SUBSCRIBERS		0	0	82	104	126	148	170	192	214	236	258	280	302	324	346	368	390	412	434	456
Incremental Subscribers		0	0	82	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22

Public Sector Market Size

Total MYFLN Subs	192	(State and Local Enties using Old PSTN State Network-See Main)
Total Public Sector	1393	(State and Local Enties not served by MYFL State Networkand/or using other facilities)

Private Sector Market Size

Mainstreet Broadband	1	(12 County RUS Business Plan)
Total Businesses	26893	

FINANCIAL STATEMENTS

The financial plan contemplates full grant funding for submitted (and eligible) capital costs. Project buildout is planned to take 10 quarters to fully complete with 85% completion by year 2. Conservative subscriber acquisition rates were used in order to ensure that the model would not reflect an overly optimistic view of the network's financial sustainability.

NORTH FLORIDA BROADBAND AUTHORITY

PROJECT BUDGET INFORMATION

NOTE: Certain Federal assistance programs require additional computations to arrive at the Federal share of project costs eligible for participation. If such is the case, you will be notified.

COST CLASSIFICATION	a. Total Cost	b. Matching Funds (Cash)	c. Matching Funds (In-Kind)	d. Federal Funding Request (Columns a-b-c)
1. Administrative and legal expenses	$542,568	$0	$0	**$542,568**
2. Land, structures, rights-of-way, appraisals, etc.	$20,247,000	$0	$9,227,000	**$11,020,000**
3. Relocation expenses and payments	$0	$0	$0	**$0**
4. Architectural and engineering fees	$1,536,000	$0	$0	**$1,536,000**
5. Other architectural and engineering fees	$384,000	$0	$0	**$384,000**
6. Project inspection fees	$753,432	$0	$0	**$753,432**
7. Site work	$129,500	$0	$0	**$129,500**
8. Demolition and removal	$0	$0	$0	**$0**
9. Construction	$0	$0	$0	**$0**
10. Equipment	$15,667,576	$0	$0	**$15,667,576**
11. Miscellaneous	$109,600	$0	$0	**$109,600**
12. SUBTOTAL (add #1 through #11)	$39,369,676	$0	$9,227,000	**$30,142,676**
13. Contingencies	$0	$0	$0	**$0**
14. SUBTOTAL (add #12 and #13)	$39,369,676	$0	$9,227,000	**$30,142,676**
15. Project (program) income	$0	$0	$0	**$0**
16. TOTAL PROJECT COSTS (*subtract #15 from #14*)	**$39,369,676**	**$0**	**$9,227,000**	**$30,142,676**
FEDERAL FUNDING				

PROJECT BUDGET

The development of allocated costs related to the final design and deployment of the NFBA Middle Mile network involves the identification of costs by functional area classification. Those functional areas include 1) administration and legal expenses; 2) land, structures, rights-of-way, appraisals, etc; 3) architectural and engineering fees; 4) other architectural and engineering fees; 5) project inspection fees; 6) site work; 7) equipment; and 8) miscellaneous items. Currently, NFBA staff is working in conjunction with the Network Project Manager and the Network Engineer to finalize engineering design plans and vendor related service commitments. These final estimates and calculations will affect several of the budget functional area classifications, such as land, structures, rights-of-way, appraisals, etc, architectural and engineering fees, and equipment. Once these areas are finalized, the project budget will be reviewed for any necessary changes of grant funding between the identified functional areas.

In the interim, the preliminary NFBA project budget as submitted under the grant due diligence review, represents best efforts towards costs according to budget functional area. A detailed and summarized illustration for these categories is attached. Those items highlighted in yellow relate to current discussions and negotiations with contractors and vendors to finalize commitment requirements and costs. Those items highlighted in blue relate to those costs associated with acquiring deployment equipment given preliminary engineering network design specifications.

The budget functional area totals are as follows:

1) Administration and legal expenses	$542,568
2) Land, structures, rights-of-way, appraisals, etc	$20,247,000
3) Architectural and engineering fees	$1,536,000
4) Other architectural and engineering fees	$384,000
5) Project inspection fees	$753,432
6) Site work	$129,500
7) Equipment	$15,667,576
8) Miscellaneous items	$109,600
Total Project Costs:	**$39,369,676**

NORTH FLORIDA BROADBAND AUTHORITY
Operating Forecast - Summary
Effective April 1, 2010

	Proposed Budget FY 2010 6 Months	FY 2011	FY 2012	FY 2013	FY 2014
Beginning Unrestricted Reserves	**-**	**214,697**	**1,764,232**	**4,747,691**	**9,230,655**
Revenues					
Charges for Services	-	2,396,200	3,946,600	5,497,000	7,047,400
Installation Revenues	-	240,000	220,000	220,000	220,000
Miscellaneous Revenues	-	-	-	-	-
Interest - Operation	-	-	-	-	-
Total Revenues	**-**	**2,636,200**	**4,166,600**	**5,717,000**	**7,267,400**
Expenses					
Board Expense	70,339	89,725	82,007	112,461	112,930
Operating and Management Services	194,200	494,440	616,584	629,942	644,637
Professional Services	197,265	284,000	285,050	286,132	287,245
Special Projects	53,000	28,000	18,000	33,000	18,000
Non-Operating Expenses	20,500	190,500	181,500	172,500	163,500
Total Expenses	**535,303**	**1,086,665**	**1,183,141**	**1,234,035**	**1,226,312**
Surplus/(Deficit)	**(535,303)**	**1,549,535**	**2,983,459**	**4,482,965**	**6,041,088**
Transfer from Line of Credit	750,000	-	-	-	-
Cash Reserves Unrestricted, Sept 30	**214,697**	**1,764,232**	**4,747,691**	**9,230,655**	**15,271,744**

NORTH FLORIDA BROADBAND AUTHORITY
Sources & Uses - Capital Funding
FY 2010

	GRANT FB01	InKind FB02
Estimated Beginning Fund Balance	**-**	**-**
ADD REVENUES:		
Grant Revenue	25,254,776	-
InKind	-	9,227,000
TOTAL REVENUES AVAILABLE	**25,254,776**	**9,227,000**
DEDUCT EXPENDITURES:		
Capital Improvement Projects FY 2010	6,418,479	9,227,000
TOTAL EXPENDITURES	**6,418,479**	**9,227,000**
FUND BALANCE, SEPTEMBER 30	**$ 18,836,297**	**$ -**

DETAIL OF PROJECT COSTS

PLEASE COMPLETE THE TABLE BELOW FOR THE DIFFERENT CATEGORIES OF EQUIPMENT THAT WILL BE REQUIRED FOR COMPLETING THE PROJECT. EACH CATEGORY SHOULD BE BROKEN DOWN TO THE APPROPRIATE LEVEL FOR IDENTIFYING UNIT COST

SERVICE AREA or COMMON NETWORK FACILITES:		Eligibility (Yes/No)	Unit Cost	No. of Units	Total Cost	Support of Reasonableness
NETWORK & ACCESS EQUIPMENT					$20,662,560	
Switching	Switching	Y	$ 4,000	128	$ 512,000	Switching equipment necessary to support Layer 2 Transport
					0	
Routing	Routing	Y	$ 5,900	9	$ 53,100	Routing equipment necessary to support Layer 3 Transport
					0	
Transport	Transport-Turnkey Microwave Links	Y	$ 58,945	154	$ 9,077,460	Turnkey Microwave links (350 mbps vs 100 mbps)
	Commercial Tower Capital Leases	Y	$ 90,000	54	$ 4,860,000	Commercial Tower Capital Leases
Access	IRU Transport & DIA	Y	$ 6,160,000	1	$ 6,160,000	See quote dated 12/18/09 from Level 3
					0	
OUTSIDE PLANT					$8,060,000	
Towers	Towers between 50 - 99 feet	Y	$30,000	24	$ 720,000	In-kind contribution from government
	Towers between 100 - 199 feet	Y	90000	54	$ 4,860,000	In-kind contribution from government
	Towers over 200 feet	Y	108000	20	$ 2,160,000	In-kind contribution from government
Other	County Land	Y	10000	32	$ 320,000	In-kind contribution from government
					0	
SERVICE AREA or COMMON NETWORK FACILITES:		Eligibility (Yes/No)	Unit Cost	No. of Units	Total Cost	Support of Reasonableness
BUILDINGS					$1,503,500	
Improvements & Renovation	Electrical/Air Conditioning	Y	$ 1,750	74	$ 129,500	Site improvements for electrical, stabilization, air conditioning and other site requirements
					0	
Other	Structural Analysis	Y	$ 3,000	128	$ 384,000	Engineering and structural improvements
	Building POP	Y	$90,000	11	990000	In Kind Contribution from government
CUSTOMER PREMISE EQUIPMENT					$4,800,000	
Modems	Modems/Customer premise link	Y	$ 25,000	192	$ 4,800,000	Critical Facility Microwave Links
					0	
BILLING SUPPORT AND OPERATIONS SUPPORT SYSTEMS					$100,000	
Billing Support Systems	Billing Support Systems	Y	$ 50,000	1	$ 50,000	Billing software & operations support systems
					0	
Customer Care Systems	Customer Care Systems	Y	$ 50,000	1	$ 50,000	Customer service software & operations support systems
					0	
					0	
SERVICE AREA or COMMON NETWORK FACILITES:		Eligibility (Yes/No)	Unit Cost	No. of Units	Total Cost	Support of Reasonableness
OPERATING EQUIPMENT					$960,016	
Network Management Equipment	WaVENOC	Y	$ 16,552	58	$ 960,016	Wireless and Virtual Entity Network Operations Center
					0	
					0	
PROFESSIONAL SERVICES					$3,009,000	
Project Mgmt/Engineering	Project Mgmt/Engineering Design	Y	$ 1,536,000	1	$ 1,536,000	On site engineers for deployment and turnup approval, mapping, network design for CPE
					0	
					0	
Program Management	Program Mgmt/Constr. Insp.	Y	$ 753,432	1	$ 753,432	Construction Inspection
	Contract Admin/Legal	Y	$ 542,568	1	$ 542,568	Contract Admin/Legal
					0	
Consulting	Donated ConsultingServices	Y	$ 177,000	1	$ 177,000	In-kind contribution from government
					0	

SERVICE AREA or COMMON NETWORK FACILITES:		Eligibility (Yes/No)	Unit Cost	No. of Units	Total Cost	Support of Reasonableness
TESTING					$274,600	
Network Elements	Network Elements	Y	$ 4,800	2	$ 9,600	Intermapper license
					0	
					0	
IT System Elements	IT System Elements	Y	$ 556	54	$ 30,000	Trouble-shooting workstations at backbone towers
					0	
					0	
User Devices	User Devices	Y	$ 10,000	2	$ 20,000	Digital meters/calibrating equipment
					0	
					0	
Test Generators	Test Generators	Y	$ 28,000	1	$ 28,000	Spectrum analyzer
					0	
					0	
Servers / Computers	Servers/Computers	Y	$ 3,900	10	$ 39,000	Test work stations
	Network Monitoring Stations	Y	$ 1,480	100	$ 148,000	Network Monitoring Stations
					0	
SERVICE AREA or COMMON NETWORK FACILITES:		Eligibility (Yes/No)	Unit Cost	No. of Units	Total Cost	Support of Reasonableness
OTHER UPFRONT COSTS					$0	
Site Preparation					0	
					0	
				PROJECT TOTAL:	$39,369,676	

SUSTAINABILITY ANALYSIS

The picture presented by the financial statements is clear. By year 2, the business model is both cash flow positive and by year 4, has repaid the LOC in full with substantial cash reserves for upgrading and adding capacity to the network. On-going maintenance, capacity upgrades and equipment replacement is part of a continuous plan that will establish a pro-active equipment replacement plan taking into account published and actual useful life expectancies of equipment. The enterprise is fully profitable, scaling efficiently and with enough positive cash flow to ably support a Robust Upgrade/Replacement Program. Subscriber rates are reasonably conservative and have not contemplated the upside of ready high-speed access to attracting new business to the region – an inevitable consequence as the economic growth curve bends upward again.

The capitalized Indefeasible Right of Use (IRU) contract permits capitalization of upstream capacity costs and is eligible to be covered under the Federal grant program. After the 5 year IRU, the capacity charges will revert to a yet to be negotiated usage/interconnection charge, unless other structured arrangements are reached.

Risks to Sustainability include much lower than anticipated subscription rates, extended construction time frames, equipment unavailability of equipment (or at substantially higher cost), failure to secure ample tower leases/locations to meet customer needs, failure to meet the reporting or performance requirements of the awarding Federal agency. Any or all of these scenarios could have a deleterious effect on the sustainability of the network as an independent enterprise.

Mitigating the risks stated above require diligence and continued effort to maintain the enthusiasm and commitment to success in the region. Awareness of buildout progress and anticipation of active portions of the network will ensure available subscription opportunities won't be missed. Continued solicitation of in-kind asset contributions can substantially lower both capital and operating costs and accelerates provision of service.

Considering the leverage that may be provided through Federal Grant funding, this is a uniquely strong operating position. Certainly without grant funding, there would be little hope for an undertaking like this in such a sparsely populated area. ***Provided the full grant award is disbursed and all identified capital costs are deemed to be eligible this is a strong and viable enterprise. Even allowing substantial room for varying subscription rates, proposed fees are well below what is currently available, (where it is available) this must be considered a sustainable business model.***