NC Broadband
Neighborhood On-boarding Package

WiMAX High Speed Wireless
Internet Services

Prepared by Jigsaw Security and NC Broadband
www.ncbroadband.net
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Welcome

Thank you for your interest in NC Broadband and our expansion into rural and under-served communities. As part of our initiative to support high speed Internet roll-out of services in smaller communities, we have put together this package to help homeowners associations, small communities and interested parties in learning about what technologies we can provide and how communities can band together to purchase their own Internet solutions at fractions of the cost of what they pay other carriers.

There are advantages and disadvantages to our method of rolling out Internet services. Some of the advantages include:

- High quality service since dedicated frequencies are used
- Non saturated network since we limit the number of connections on our network
- Customer owned equipment (see disadvantage below) so you are not charged monthly rental fees
- Ability to purchase more bandwidth should congestion occur
- Low priced equipment cost
- Lower monthly cost since it is a shared cost
- Jigsaw Security is grandfathered in with the FCC so we have until 2024 to use this service

Here are some of the disadvantages to our model:

- Customer owned equipment so when something fails, customers must replace the hardware
- Coverage area’s are smaller cells so 2-3 miles is our typical deployment area but we do this so we can provide a high quality of services
- Our license expires in 2024 so you will have to find another solution prior to our license expiration although we intend on acquiring new licensing between now and 2024

We hope that has provided some information on what we feel are the advantages and disadvantages of this type of service. We will outline some additional information that we feel is important to be able to make an informed decision if our solution is right for your neighborhood.

If at any time you have any questions please email Kevin Wetzel (kwetzel@jigsaw-security.com) any questions you may have or call 800-447-2150 Ext. 1. Please keep in mind that many times I'm in the field so I'll have to get back in touch with you when I return to our office.

We thank you for your interest in NC Broadband and we look forward to answering your questions and building out a reliable and cost effective Internet solution for your location.

Kevin E. Wetzel, CEO
NC Broadband Project
Jigsaw Security Enterprise Inc

What is our deployment strategy?

In short it’s simple. In a normal arrangement the FCC carrier needs to know that they can make a profit in an area prior to making the commitment to service the community and providing service. Our model is a little bit different in that we want to build out community owned networks. What this means for the consumer is that you provide the cost and infrastructure to provide your own network which is community owned and shared by the community.

When a carrier builds out a network it is costly because they have to provide services as a carrier. That means we have to support a much higher level of service than what the community needs by FCC rule. However when we build out privately owned networks, we can simply build the network size needed saving the consumer or the carrier large amounts of money in the process. Instead of rolling out million dollar switches, the installer can install 48 port switches which cost 1/1000th the cost of a large industrial and complex switching facility. Since we are only interested in providing Internet service, we don’t have to deploy DSL, Phone, Cable or other services required of most installations.

As we go through this document we will more directly provide information on options available and cost estimates, we will share some stories of successful installations and some failures and give tips for avoiding issues. Again as always if you have any questions please get in touch with us via email or phone.

Steps to Deployment

There are several steps in the deployment process to consider before signing contracts and moving forward with installation. It is important to do the steps in order, completely and document everything accurately. It will take approximately 2 months start to finish to do some of the required work to make the project a success.

Below we outline the steps and provide information on what occurs at each phase of the project.

The very first step is finding affordable bandwidth in your area that can be routed to service your deployment. Let's look at what has to happen in this step.

Finding Sufficient Bandwidth (1-5 days)

The first step in any deployment is finding out what bandwidth is available in the area to be serviced. In many cases and in most cases wholesale bandwidth is available in most of the United States. In rural areas the bandwidth is priced higher because there is no demand but that's why we have come up with this cost sharing concept of a community owned network, to make it affordable. In short an individual probably cannot afford to spend $800 a month to get bandwidth but if you have 50 subscribers the cost for each subscriber to share this cost is $16 per month per subscriber. This is the advantage of community owned Internet. By sharing the cost we can make it affordable for the community to do what carriers won't do because they won't make money in the community.

Step 1 – Qualify Internet Service at Service Location

This step verifies that there is wholesale Internet near enough to the service area to deploy the network.

Site Surveys for Wireless (7-14 days)

The second step is to ensure that the wireless coverage in the area will be able to service the majority of customers wishing to have service. It is helpful to have a list of customers but this step will create a map of the area showing signal strength, interference observed and other WiMAX operators in the area. It is important to accurately perform this step in the event that there are interference issues in the future. If we have a valid site survey and a new WiMAX provider interferes with the deployed network, it is easier to petition the FCC to get the new provider to remedy the situation if we have a site survey showing the date that network was installed, signal strength before and after any issues.

In short the FCC will help to ensure that the new operators comply with the rules which will help ensure the reliability of the deployed network. During the site survey it is possible to complete it sooner or for it to take longer to complete if there are issues

getting to the locations or if any problems are discovered. This is the time in which we resolve any issues with the FCC and other providers that may or may not be causing interference.

Step 2 – Site Survey Completion

This step verifies that there is no interference and that baselines of signal strength are adequately documented.

Site Selection and FCC Paperwork (2-30 Days)

Once we know we have good Internet and a good transmission point (or multiple points) we have to secure the site. Meaning we have to lease the site, contract with the site owner to allow us to deploy wireless equipment at that location. If you have a community owned water tower this is an easy process or if you live in a relatively flat location with several high buildings. If however you are located in a hill covered area or have to lease tower space, this step can be costly, time consuming and may require tower leases of up to 5 years. We really try and avoid leasing commercial tower space as it's cheaper to put up your own tower than to purchase space on a commercial tower.

Commercial tower lease will cost approximately $75,000 for 5 years (sometimes less and sometimes more) whereas putting up your own 120 ft tower will cost approximately $7500 and is a one time expense. Since the goal is to provide community access, the best scenario is when a town will provide access on existing structures that are high enough or when somebody donates tower space. In addition permits may be required locally to deploy the service.

Step 3 – Site Selection and Licensing

This step is where we complete all of the paperwork and licensing applications, designate the sites (or secure the sites needed through leases) to provide the service.

Equipment Purchase (7-15 days)

During this step we purchase the tower site equipment, run cabling, order the Internet circuit(s) and begin the process of rolling out the tower site or sites (multiple in some cases). During this step we place the order for the hardware and begin the process of cabling the tower site. While we wait on the hardware to come in, we wire power, power over Ethernet and also out of band management equipment.

Step 4 – Order Hardware, Order Circuits, Wire & Cabling

This step is in preparation for turn up. We get the equipment and Internet circuits ordered and then wire as much of the facility as possible prior to the equipment showing up.

Mounting and Turn Up - Tower (1-3 days)

Once the equipment has arrived we then mount the tower site, turn up the connection and begin live testing of the network.

Step 5 – Turn Up

The network is brought online but not available to subscribers, engineers will test and ensure everything is working correctly, perform additional surveys and determine if there are any issues that need resolved with licensing, paperwork or permits.

Testing Phase

One of the most important things to do is to fully test the newly deployed network. During the next 30-60 days we put on as many clients as we can to fully stress test the network equipment to identify any issues that need resolved. Once the NC Broadband Team is confident that the network is fully operational, redundant hardware and connectivity is in place and that everything is working we then will clear the build out for general customer usage and subscribers can connect to your new community owned network.

Jigsaw Security's Role in the Deployment

Jigsaw Security is the license holder (FCC: WQVC235) for all NC Broadband projects. NC Broadband is a service name we are utilizing to provide this capability. While the name of our deployment strategy is NC Broadband, all contracts and legal documents will be filed and processed by Jigsaw Security which ultimately owned the rights to the FCC license. So even though we call the service initiative NC Broadband, the legal FCC license holder is and all contracts will be processed by Jigsaw Security Enterprise Inc.

Legal Information

Jigsaw Security Enterprise Inc holds FCC license WQVC235 which is available for use in most but not all of the US. Jigsaw Security will deploy in non grandfathered areas whenever possible. There are certain areas within the US that are problematic and in which those providers that operate satellite communications will receive priority. This is out of our hands and/or control.

All legal notices should be sent to the following address of record:

Jigsaw Security Enterprise Inc

Attn: Kevin Wetzel

125 Eagleton Circle, Moyock, NC 27958

Rates for Deployment (negotiable)

Jigsaw Security bills the subscribers $75 per hour for the deployment. An average deployment will incur approximately 200 hours at a billable rate of $75 or $15000.00 for the installation and configuration. This installation charge is the only fee that we charge those wishing to roll out this

community Internet and is spread out over 12 months. In many cases it is much less but we want to see your project become a success. We will work with you to the best of our ability to make this work for your community.

Our Promise to You and your Community

Jigsaw Security promises to:

- Treat the community equal to every other community in regard to priority or deployment
- Charge a reasonable rate for our services (negotiable in some cases)
- Treat the community as we would wish to be treated if it were our community deploying a network
- Provide assistance to the best of our ability and within the law
- Carry adequate insurance and bonding if required to ensure the project is protected
- Work hard, complete projects on time and within budget
- Only bill for actual time worked, while working on-site and documented by video and GPS recording

Final Notes

We estimate that based on 50 subscribers in a neighborhood that the cost for Internet per month would be between $35 and $50 per month. Financing is available and authorized on most projects. Owning the network is a great step and some communities can even turn their networks into profitable income for the community.

We thank you for your interest and wish you a great day!