



Person County Telecom Inventory Update 2/24/14

ECC Technologies



- Pioneers in community wide Broadband planning and analysis since 1995
- Strong partners for the development of technology led economic development programs which create global competitiveness in rural America
- Marketing partner for the MCNC Statewide Fiber Initiative.
- Performed Broadband assessments in over 50 counties covering 4 states, 20 of which are located in NC
- Consultants for the State Department of Commerce on Broadband infrastructure
- Strategic Partners with NC's energy providers
- Technology consultants with an entrepreneurial attitude

Building smarter schools, richer corporations, and integrated communities.

Our work in NC

Inventory Studies, Fiber Assessments and other projects support many entities across the State

- NC Department of Commerce
- Individual counties
- MCNC
- Duke Energy
- City of Raleigh
- ARC (rural funding / grant source)
- Greenfield Consulting (ED site consulting org)
- The Timmons Group (ED site consulting org)
- Working with various Electrical Coops

Community involvement in Broadband and Telecommunications



- 10 years ago thought to be someone else's problem
- Communities are:
 - Marketing their strengths and working on weaknesses
 - Taking a leadership role to develop strategies and plans
 - Becoming effective at developing Public Private Partnerships (PPP)
- Without local involvement rural areas are being left behind – no ROI for the incumbents
- We still have the Digital Divide with 18 million people in rural areas with no or limited access while our cities working on gigabit solutions

The Importance of Broadband

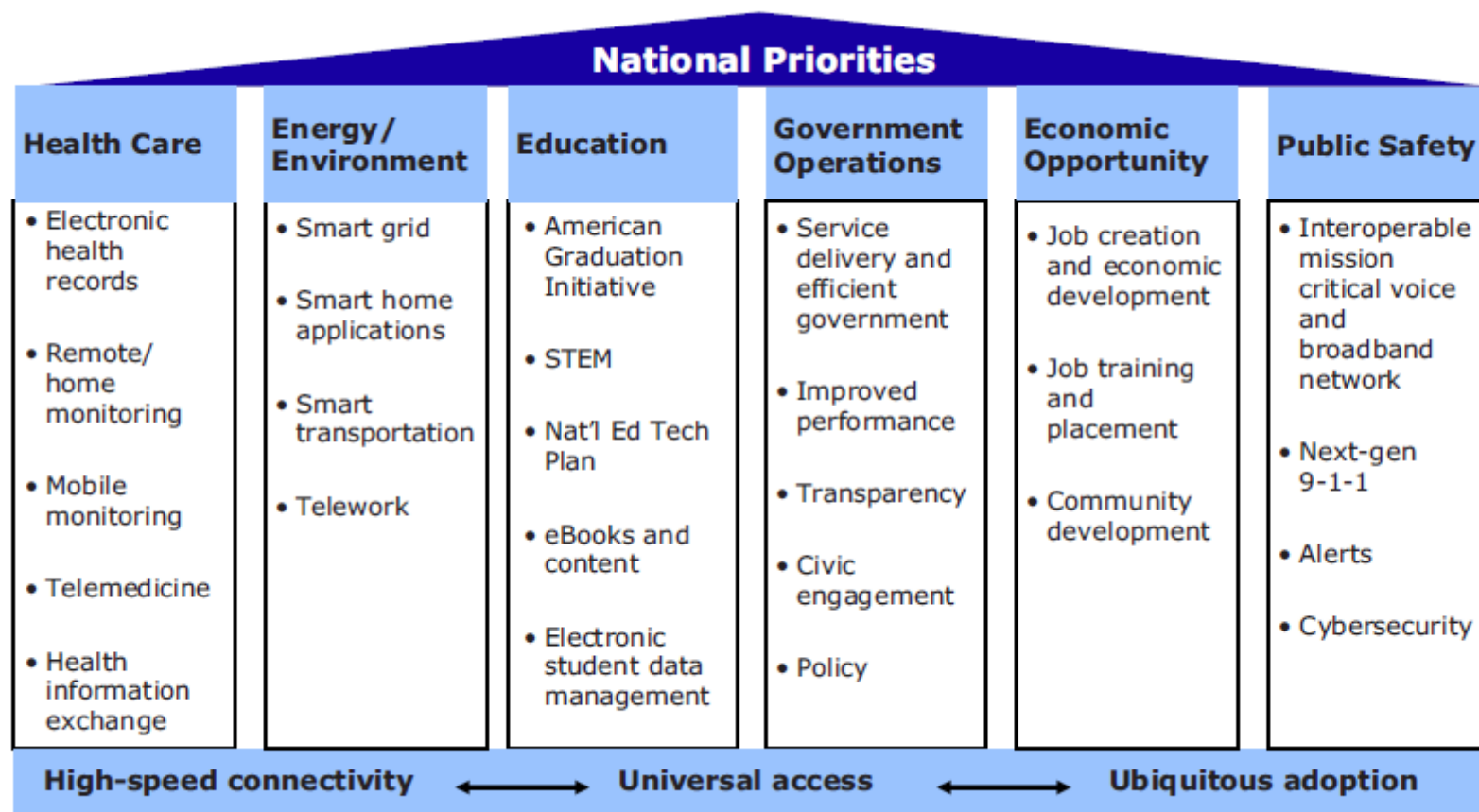


- State of NC 10 Year Jobs Plan – Broadband listed under Rural Prosperity
- Broadband is a major component that impacts the economic and global competitiveness of a community
- Broadband helps to level the playing field for rural areas when they have it but widens the gap if they do not
- Broadband impacts home values and in many cases impacts decisions on which home gets purchased
- Broadband impacts all aspects of our life



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Importance of Broadband



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Broadband Issues in Rural Communities



- Lack of investment by incumbents
- Antiquated Equipment and Cable Plant
- Lack of Redundancy and Diversity
- Lack of Infrastructure Development
 - Particularly Fiber Cable
 - Perceived by the industry as having insufficient market demand
 - Doesn't fit Business Model for a Return of Investment (ROI) of 3 Years
- Limited Competition resulting in higher prices

Rural communities are being left behind in the Global Economy

ECC's Broadband Inventory for Person County

We have ;

- Inventoried Broadband infrastructures and service throughout the County
- Created a GIS based mapping tool for County Planning - A blueprint of what the county looks like today, the ability to model for tomorrow
- The Inventory has identified strengths and weaknesses within the County
 - We will market the strengths while we develop programs to address the weaknesses

ECC's Broadband Inventory for Person County



The Inventory;

- Provides telecommunications related marketing information for economic development (focus sites)
- Allows the County to model Broadband infrastructure for potential new business and other entities
- Lays the groundwork for improvement plans and grant opportunities
- Serves as a foundation for technology led development culture

Sources of Information



- Telecom Providers: Identify providers, Interviews and Questionnaire
- Telecommunication industry professionals: outside plant engineers and copper and fiber plant engineers.
- Industry Researchers: GeoTel's data sets included information from telecommunication providers, Telcordia industry databases
- Public Information: FCC, NC Broadband (formerly e-NC), and the NCTIA
- Other Resources: Provider websites

The inventory involved

Providers

- ILECs
- CLECs
- Cable Providers
- Network Service Providers
- Wireless System – Cellular, WISPs and Satellite Technology
- ISP – land line and wireless

Information Gathered included



- Contact Information
- Provider Territories and Services
- Central Office – type of switches
- Fiber Optic & Coaxial Cabling
- Remote Terminals
- Wireless Towers
- Number of Customers
- Future development Plans

Owners of Broadband and Fiber Cable Infrastructure



ILECS

- CenturyLink

Cable TV

- Charter

Others

- AT&T (long haul)
- MCNC – Broadplex, RST & others
- Person County



What did we find?

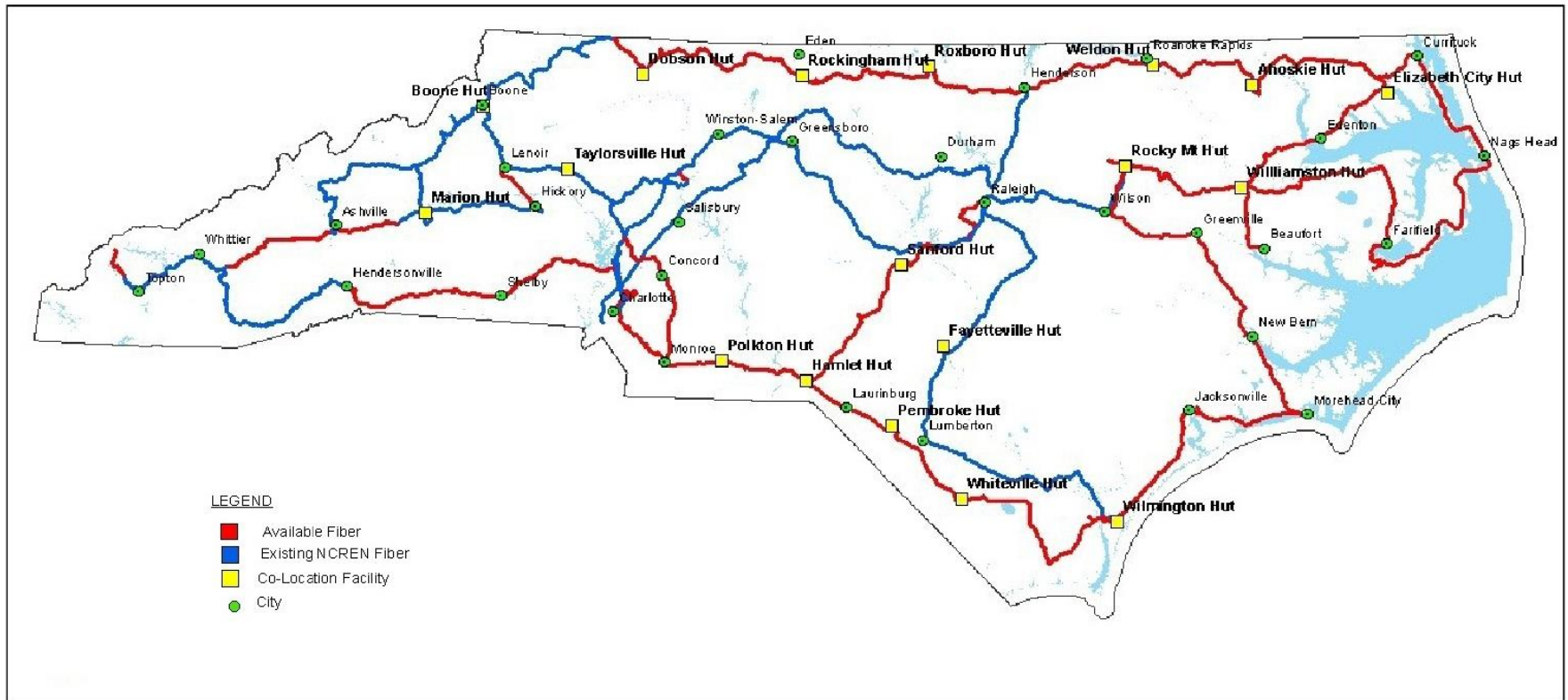
- Most of the County is served with pockets of unserved
- Cable TV based infrastructure is widely available in the developed areas
- Tele fiber and DSL is also widely available
- Fiber owned by others is also present in the County
- MCNC Statewide fiber backbone runs through the County and is an Open Access Model
- MCNC fiber can be a strong foundation to launch economic development opportunities from



MCNC Fiber Project

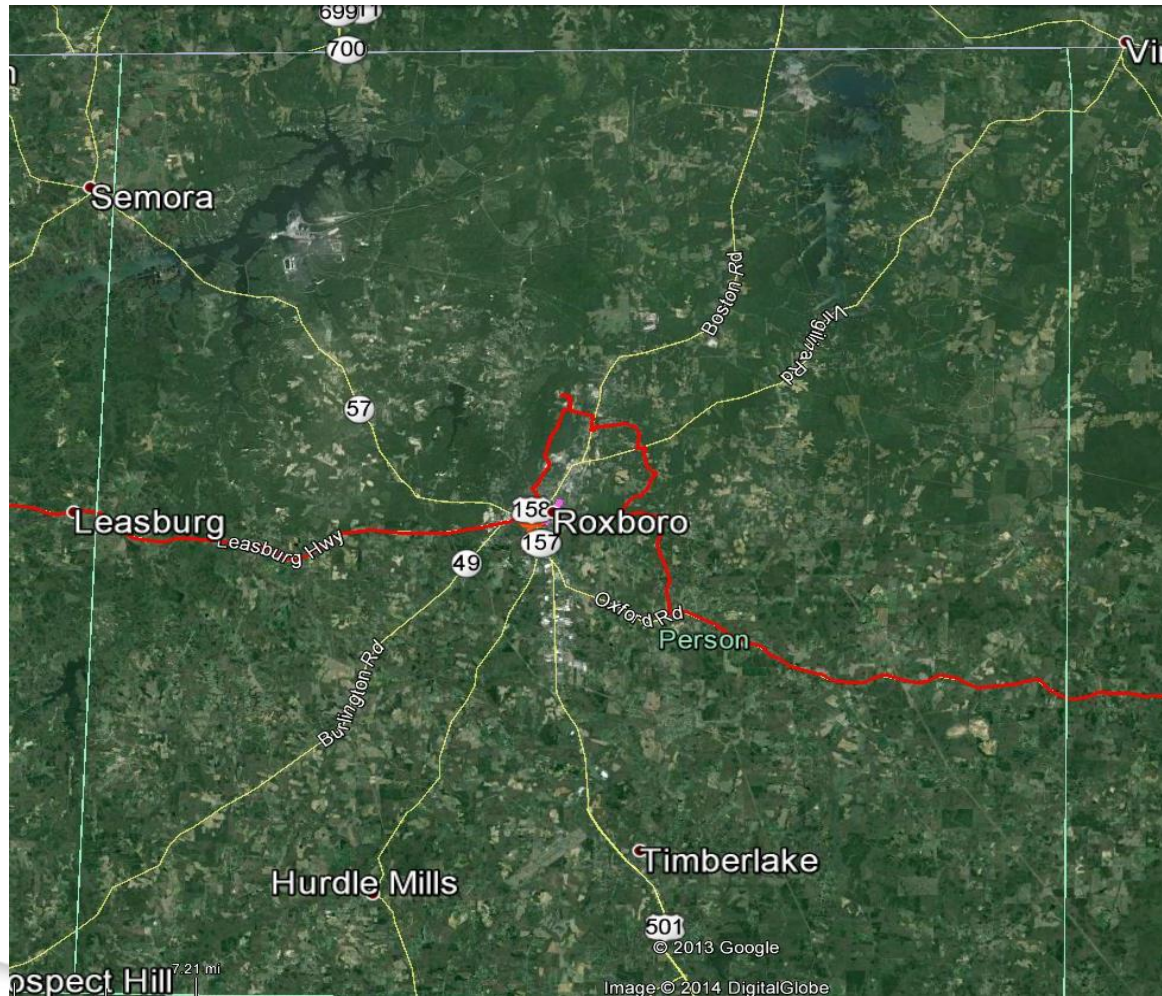
- State wide -1,800 Miles Routes through 82 Counties
- Awarded \$140M Broadband Funds with the help of Golden Leaf
- MCNC operates the NCREN
- Fiber optic based – 144 strands backbone
- Majority installed underground, and overhead as needed
- Dark fiber only, they will not compete with the service providers
- Allows new providers into new markets!

MCNC Fiber Backbone



Building smarter schools, richer corporations, and integrated communities.

MCNC Fiber in Person County



Building smarter schools, richer corporations, and integrated communities.

Use of this study for Economic Development



- Educate Economic Development Professionals
- Develop Site Telecommunication profiles
- Use information in New Business meetings, RFI responses and websites
- Identify sites that lack infrastructure
- Develop Technology Led Vision

Economic Dev Site Profiles



Some of these are strengths

- County selected 10 Sites – used mapping info to help select
- Detailed inventory and analysis for each site
- Looked for owners of fiber, distance to site, infrastructure redundancy and diversity
- Identify service capabilities at site
- Develop cut sheet for marketing of site



Person County, NC General Dynamics Site Telecom Focus Site #1








The General Dynamics Site: Located at 4540 Halifax Road, in Roxboro, North Carolina. This site is approximately 6 miles from the CenturyLink serving Central Office at 35 W Gordon Street in Roxboro. The NPA NXX is (336) 332, 330, 503, 597, 598, 599 within the Wire Center RXBONCXA.

Telecom Infrastructure Near Site

- CenturyLink is the Incumbent Local Exchange Carrier (ILEC). They have aerial fiber infrastructure positioned on Route 501 running north and south through to the east of the site. Additional fiber is on Mill Creek and Streets Store Road.
- Charter Communications is the incumbent Cable TV provider. They have aerial fiber infrastructure positioned on Route 501 running north and south through to the east of the site. Additional fiber is on Route 49 and Gentry Ridge Road to the south.
- MCNC, a state wide not for profit, has an underground 144 strand count fiber cable that is installed underground. The nearest point of this fiber to the site is located to the south on the corner of Memorial Drive and Rte 501. MCNC has a colocation telecom hut located at the Piedmont Community College approximately 1.5 route miles from the site.
- AT&T is a local telephone company and has underground fiber cable routing through open fields with marked road crossing to the southeast of the site. This route parallels Rte 49 and with the nearest road crossing at Lawson Chapel Church Road.
- There are 5 Cell Towers within a 5-mile radius of the site. According to their availability websites Verizon Wireless and AT&T Mobility have 4G LTE service at the site.

Legend

-  CL Fiber
-  Charter Fiber
-  MCNC Fiber
-  AT&T
-  Site Boundary





**Person County, NC
General Dynamics Site
Telecom Focus Site #1**

Fiber Availability/Services at Site

Approximate distance to nearest fiber infrastructure, by owner, is illustrated in the chart to the right. CenturyLink has fiber infrastructure that routes directly to the east of the site. Charter also has fiber cable that routes to the east of the site. MCNC has open access fiber routes directly south of the site, which will allow service providers such as Broadplex and RST access to the site. All four can provide ready access to high bandwidth services. AT&T fiber cable to the east.

Fiber Owner	Distance from Site
CenturyLink	.25 miles
Charter	.25 miles
MCNC	2.2 miles
AT&T	2 miles

Fiber Diversity and Redundancy

Redundancy and diversity can be achieved through one or multiple providers. There are two Service Providers; CenturyLink, and Charter, that have fiber infrastructure just west of the site with MCNC fiber just over 2 miles away to the south. In addition to the fiber on Route 501 Charter has fiber on Route 49 south of the site that could make physical level diversity attainable at this location. MCNC has fiber along the Rte 158 and could provide a diverse route off their backbone that runs east to west across the county and crosses the state. Lastly AT&T fiber that parallels Route 49 could be investigated as another alternative.

A combination of the four providers will allow diverse fiber access from no less than three directions to this location. To provide redundancy Centurylink and Charter have aerial cable and MCNC and AT&T have underground

Competitive Services

CenturyLink stated they have the "network capability to do whatever a customer could want".

Dependent on a lateral build from MCNC fiber:

Broadplex can provide Broadplex can provide legacy TDM voice services as well as IP voice services such as SIP Trunks to the site. Broadplex can provide data services over its fault tolerant, self-healing fiber optic rings of a capacity to meet any customer requirements including resilient native Metro E or SONET services.

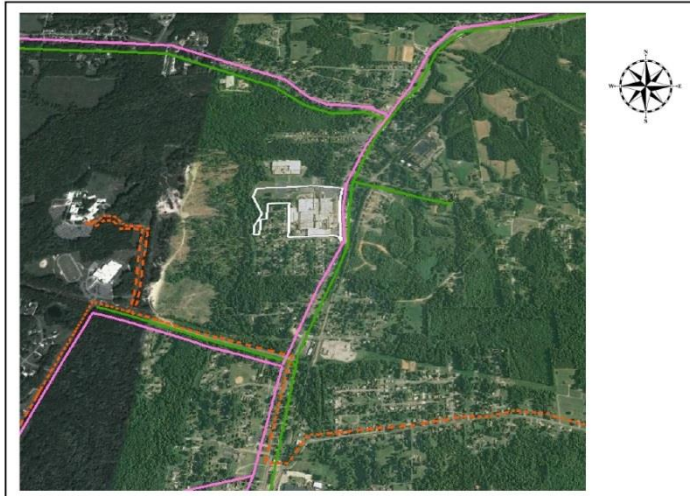
RST can provide 1 to 24 business POTS voice services as well as SIP trunking. RST can provide data services via a SONET ring. In addition RST can provide WDM and Ethernet / IP services and will provide dark fiber.

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**Person County, NC
N. American Aerodynamics
Telecom Focus Site #7**







Focus Site: Located at 1803 N Main St, in Roxboro, North Carolina. This site is approximately 2.9 miles from the CenturyLink serving Central Office at 35 W Gordon Street in Roxboro. The NPA NXX is (336) 332, 330, 503, 597, 598, 599 within the Wire Center RXBONCXA.

Telecom Infrastructure Near Site

- CenturyLink is the Incumbent Local Exchange Carrier (ILEC). They have aerial fiber infrastructure positioned on Route 501 running north and south through to the east of the site. Additional fiber is on Cavel Chub Lake Road to the north and Memorial Drive to the south.
- Charter Communications is the incumbent Cable TV provider. They have aerial fiber infrastructure positioned on Route 501 running north and south through to the east of the site. Additional fiber is on Cavel Chub Lake Road to the north and Memorial Drive to the south.
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- AT&T is a local telephone company and has underground fiber cable routing through open fields with marked road crossing to the east of the site. This route parallels Route 49 and with the nearest road crossing at Lawson Chapel Church Road.
- There are 6 Cell Towers within a 5-mile radius of the site. According to their availability websites Verizon Wireless and AT&T Mobility have 4G LTE service at the site.

Legend

-  CL Fiber
-  Charter Fiber
-  MCNC Fiber
-  Site Boundary





**Person County, NC
N. American Aerodynamics
Telecom Focus Site #7**



Fiber Availability/Services at Site

Approximate distance to nearest fiber infrastructure, by owner, is illustrated in the chart to the right. CenturyLink has fiber infrastructure that routes directly to the east of the site. Charter also has fiber cable that routes to the east of the site. MCNC has open access fiber routes directly southwest of the site, which will allow service providers such as Broadplex and RST access to the site. All four can provide ready access to high bandwidth services. AT&T fiber cable to the southeast.

Fiber Owner	Distance from Site
CenturyLink	At site
Charter	At site
MCNC	Less than .5 miles
AT&T	3 miles

Fiber Diversity and Redundancy

Redundancy and diversity can be achieved through one or multiple providers. There are two Service Providers; CenturyLink, and Charter, that have fiber infrastructure bordering the site to the east with MCNC fiber close by to the south. CenturyLink and Charter have fiber approaching this site from different directions making physical level diversity easily attainable at this location. In addition MCNC has fiber along the Rte 158 and could provide a diverse route off their backbone that runs east to west across the county and crosses the state. AT&T fiber also routes near Route 49 to the east.

A combination of the three providers will allow diverse fiber access from no less than three directions to this location. In terms of redundancy Centurylink and Charter have separate aerial cables on the same route but independent networks and MCNC and AT&T have underground.

Competitive Services

CenturyLink stated they have the "network capability to do whatever a customer could want".

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Broadplex can provide Broadplex can provide legacy TDM voice services as well as IP voice services such as SIP Trunks to the site. Broadplex can provide data services over its fault tolerant, self-healing fiber optic rings of a capacity to meet any customer requirements including resilient native Metro E or SONET services.

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Questions?