

AGENDA
NELSON COUNTY BROADBAND AUTHORITY
February 10, 2015

**THE CONTINUED MEETING CONVENES AT 1:00 P.M. IN THE
GENERAL DISTRICT COURTROOM, OF THE COURTHOUSE, LOVINGSTON**

- I. Call to Order**
- II. New/Unfinished Business**
 - A.** Consideration of Change to Schedule of Rates, Fees, and Charges to Eliminate the Discount of Nonrecurring Charges **(R2015-01 Deferred)**
 - B.** Definition of Broadband **(R2015-03)**
 - C.** Comprehensive County Broadband Plan & Regional Broadband Initiative
- III. Other Business (As May Be Presented)**
- IV. Adjournment**

**Nelson County Broadband Authority
Schedule of Rates, Fees, and Charges
As Proposed as of October 14, 2014**

Local Access Rates (Rates for Providers to Utilize the Network for Transport to an End User):

Class of Service		Speed (Mbps)	MRC
<u>Tier 1</u> Last Mile (E7 to ONT)		25x5	\$ 25
		50x10	\$ 50
<u>Tier 2</u> Last Mile or Service Provider Middle Mile (OLT to ONT/OLT)		25x25	\$ 75
		50x50	\$ 150
		100x100	\$ 300
		250x250	\$ 700
		500x500	\$ 850
		1,000x1,000	\$ 1,000
<u>Tier 3</u> Private WAN	Two Site WAN "P2P" (ONT to ONT)	25	\$ 250
		100	\$ 800
		500	\$ 1,280
		1,000	\$ 1,660
	Three or More Site WAN "Cloud" (per node)	100	\$ 500
		500	\$ 800
		1,000	\$ 1,040

Non-recurring charges (NRC) are those costs incurred in connection with the installation of the fiber drop and ONT. The customer will be responsible for the payment of these costs which may be amortized over the term of the original contract.-on the following terms.

~~NRC not exceeding \$1500 will be discounted as follows:~~

Term of Contract	Discount
12 months	none
24 months	10%
36 months	20%
48 months	35%
60 or more months	50%

~~The undiscounted balance of NRC together with any NRC in excess of \$1500 may be amortized over the term of the original contract.~~

Colocation Charges for Providers within NCBA shelters:

Quantity	Monthly Cost
2 RU	\$75.
One-half rack	\$200.
Full Rack	\$350.

All rentals are based on a space available basis. Rental will include access to one 20 amp, 120 volt circuit. Redundant CC power (-48 volt) will be available as well. The Colocation charges include up to 20 amps of DC power. Additional DC power, subject to availability, will be priced at \$6.25 per amp in 10 amp increments.

Tower Access:

Location on Tower	Price per Month per Customer
Top thirty feet in 10 foot sections	\$275 per antenna for first three antennas (includes cables and ancillary equipment such as tower mounted amplifiers) \$150 per additional antenna installed by the same lessee.
Next thirty feet in 10 foot sections	\$175 per antenna for first three antennas (includes cables and ancillary equipment such as tower mounted amplifiers) \$90 per additional antenna installed by the same lessee.
Remaining access in 10 foot sections	\$50 per antenna (includes cables and ancillary equipment such as tower mounted amplifiers)

All tower access charges are in addition to a site access fee of \$200 per month. Site access fee entitles lessee access to electric power (contracted for by lessee) and ground space for cabinet (10 square feet). Shelter colocation charges and local transport charges are additional as are lease space for placing shelters, generators or other equipment. Items not specifically addressed will be priced on an individual basis.

Preference will be given to providers wishing space higher on the towers. The NCBA may limit the size of antennas or duration of leases for antennas located below the top 80 feet.

Tower leases will be accepted based on maximum allowable loading of a tower. If, in the sole discretion of the NCBA, an analysis of the structural integrity of the tower is deemed necessary, then the costs of the analysis will be borne by the lessee.

The tower access charges for wireless internet service providers, also known as fixed wireless broadband services, shall be one-half of the tower access charges set forth in the chart above but in any event, not less than \$50.00 per antenna. This reduced rate shall apply for no more than three years from the date of the initial structural lease agreement with each such provider.

These rates apply to towers operated by the NCBA. Rates for towers leased by the NCBA may be subject to approval by the lessor.

Dark Fiber Leases:

The NCBA will have a limited number of fibers available for dark fiber leasing at an annual rate of \$1250 per leased fiber per mile for durations longer than 60 months. Leases for 60 months or less will be priced at an annual rate of \$1550 per leased fiber per mile. Fiber will not be leased for periods of less than 24 months. These leases will be subject to prior allocation for other uses and are made at the discretion of the NCBA board.

Increase in Rates:

Rates are firm for a contract or lease term which does not exceed five years.

For contract and lease terms exceeding five years, payments shall be adjusted every year commencing with the first annual anniversary of the lease Commencement Date and thereafter on the subsequent anniversaries of that date (the Adjustment Date). Such adjustments shall be for the purpose of reflecting the increase, if any, in the cost of living. The adjustment, if any, shall be calculated based upon the United States Department of Labor, Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U) for the South, Size D-Nonmetropolitan (less than 50,000) (the "Index").

The Index published as of the most recent month prior to the Adjustment Date shall be compared with the Index twelve (12) months immediately preceding. On the Adjustment Date the annual payment shall be increased by the percentage equal to the change, if any, in the Index between the two specified months. The Adjusted payment shall then become the new Base payment for the following twelve month period and be used to calculate the next annual payment adjustment.

Penalty and Interest:

Any sum due NCBA and unpaid by the due date shall be assessed a 10% penalty and carry interest at the rate of 12% per annum.

**RESOLUTION R2015-01
NELSON COUNTY BROADBAND AUTHORITY
SCHEDULE OF REVISED RATES, FEES AND CHARGES
ELIMINATION OF THE DISCOUNT OF NON-RECURRING CHARGES**

WHEREAS, Pursuant to §15.2-5431.25 (B) and (C) of the Virginia Wireless Service Authority Act, the Nelson County Broadband Authority may fix and revise rates, fees and other charges after a public hearing at which all of the users of such facilities; the owners, tenants or occupants of property served or to be served thereby; and all others interested have had an opportunity to be heard concerning the proposed rates, fees and charges; and

WHEREAS, on **October 14, 2014**, the Nelson County Broadband Authority resolved to set forth the preliminary schedule or schedules fixing and classifying such rates, fees and charges so as to remove the discount of non-recurring charges and authorize a notice of a public hearing setting forth the revised proposed schedule or schedules of rates, fees and charges, given by two publications, at least six days apart, in a newspaper having a general circulation in the area to be served by such systems at least 60 days before the date fixed in such notice for the hearing and conduct of said public hearing to be on January 13, 2015;

NOW, THEREFORE, BE IT RESOLVED, by the Nelson County Broadband Authority that the revised schedule fixing and classifying proposed rates, fees, and charges, is as follows:

Local Access Rates (Rates for Providers to Utilize the Network for Transport to an End User):

Class of Service		Speed (Mbps)	MRC	
<u>Tier 1</u> Last Mile (E7 to ONT)		25x5	\$ 25	
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Non-Recurring Charges:

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Colocation Charges for Providers within NCBA shelters:

Quantity	Monthly Cost
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Increase in Rates:

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For contract and lease terms exceeding five years, payments shall be adjusted every year commencing with the first annual anniversary of the lease Commencement Date and thereafter on the subsequent anniversaries of that date (the Adjustment Date). Such adjustments shall be for the purpose of reflecting the increase, if any, in the cost of living. The adjustment, if any, shall be calculated based upon the United States Department of Labor, Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U) for the South, Size D-Nonmetropolitan (less than 50,000) (the "Index").

The Index published as of the most recent month prior to the Adjustment Date shall be compared with the Index twelve (12) months immediately preceding. On the Adjustment Date the annual payment shall be increased by the percentage equal to the change, if any, in the Index between the two specified months. The Adjusted payment shall then become the new Base payment for the following twelve month period and be used to calculate the next annual payment adjustment.

Penalty and Interest:

Any sum due NCBA and unpaid by the due date shall be assessed a 10% penalty and carry interest at the rate of 12% *per annum*.

BE IT FURTHER RESOLVED that the revised schedule fixing and classifying proposed rates, fees, and charges is effective upon adoption.

Approved: _____, 2015

Attest: _____, Secretary
Nelson County Broadband Authority

Candy McGarry

From: Debbie McCann
Sent: Friday, February 06, 2015 9:40 AM
To: Steve Carter
Cc: Candy McGarry
Subject: Broadband Discounts

The discount cost absorbed by the NCBA are as follows:

FY14	\$25,500
FY15 (through Jan. 2015)	<u>\$21,825</u>
Total	\$47,325

Debbie McCann
Director of Finance & Human Resources
Nelson County
PO Box 336
Lovingson, VA 22949
434-263-7136
dmccann@nelsoncounty.org

§ 15.2-5431.25. Rates and charges.

A. The authority may fix and revise rates, fees and other charges (which shall include, but not be limited to, a penalty not to exceed 10 percent on delinquent accounts, and interest on the principal), subject to the provisions of this section, for the use of a project or any portion thereof and for the services furnished or to be furnished by the authority, or facilities incident thereto, owned, operated or maintained by the authority, or facilities incident thereto, for which the authority has issued revenue bonds as authorized by this chapter. Such rates, fees and charges shall be so fixed and revised as to provide funds, with other funds available for such purposes, sufficient at all times (i) to pay the cost of maintaining, repairing and operating the project or systems, or facilities incident thereto, for which such bonds were issued, including reserves for such purposes and for replacement and depreciation and necessary extensions, (ii) to pay the principal of and the interest on the revenue bonds as they become due and reserves therefor, and (iii) to provide a margin of safety for making such payments. The authority shall charge and collect the rates, fees and charges so fixed or revised.

B. No rates, fees or charges shall be fixed under subsection A until after a public hearing at which all of the users of such facilities; the owners, tenants or occupants of property served or to be served thereby; and all others interested have had an opportunity to be heard concerning the proposed rates, fees and charges. After the adoption by the authority of a resolution setting forth the preliminary schedule or schedules fixing and classifying such rates, fees and charges, notice of a public hearing, setting forth the proposed schedule or schedules of rates, fees and charges, shall be given by two publications, at least six days apart, in a newspaper having a general circulation in the area to be served by such systems at least 60 days before the date fixed in such notice for the hearing. The hearing may be adjourned from time to time. A copy of the notice shall be mailed to the governing bodies of all localities in which such systems or any part thereof is located. After the hearing the preliminary schedule or schedules, either as originally adopted or as amended, shall be adopted and put into effect.

C. A copy of the schedule or schedules of the final rates, fees and charges fixed in accordance with subsection B shall be kept on file in the office of the clerk or secretary of the governing body of the locality, and shall be open to inspection by all interested parties. The rates, fees or charges so fixed for any class of users or property served shall be extended to cover any additional properties thereafter served which fall within the same class, without the necessity of a hearing or notice. Any increase in any rates, fees or charges under this section shall be made in the manner provided in subsection B. Any other change or revision of the rates, fees or charges may be made in the same manner as the rates, fees or charges were originally established as provided in subsection B.

D. Connection fees established by any authority shall be fair and reasonable. Such fees shall be reviewed by the authority periodically and shall be adjusted, if necessary, to assure that they continue to be fair and reasonable. Nothing herein shall affect existing contracts with bondholders which are in conflict with any of the foregoing provisions.

(2003, c. [643](#).)

Candy McGarry

From: Larry Saunders <larrya5819@aol.com>
Sent: Monday, January 05, 2015 9:34 AM
To: alan@patrickbrothers.net; Candy McGarry
Subject: Re: January 13th NCBA Meeting

Alan No problem Thanks for all you work that you do for NCBA

Larry

-----Original Message-----

From: Patrick Brothers <alan@patrickbrothers.net>
To: Candy McGarry <CMcGarry@nelsoncounty.org>
Cc: Larry Saunders <larrya5819@aol.com>
Sent: Mon, Jan 5, 2015 9:18 am
Subject: Re: January 13th NCBA Meeting

Hi Candy, Larry,

I have a few items that I would like to discuss at the broadband meeting on January 13th. I assume that I can bring them up under the new business section of the agenda so the items do not necessarily have to be included in the official agenda. I'm new at this so I'm still learning the Authority's procedures for introducing new topics.

Items that I would like to discuss:

- The Authority's Definition of Broadband
- Recommendation for a Comprehensive Broadband Plan for the County
- Recommendation for a Regional Broadband Initiative

I have information on each of these topics that I would like to present to the board.

Thanks,

—Alan

Alan Patrick
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Mobile: 434-260-9473

On Dec 31, 2014, at 1:43 PM, Candy McGarry <CMcGarry@nelsoncounty.org> wrote:

Good Afternoon,

The Broadband Authority will meet at 1pm on January 13th just prior to the BOS meeting. The Authority is scheduled to re-organize and set its 2015 meeting schedule that day; so I have attached the history of Officers and meeting schedule for your review. The apparent Chair and Vice Chair are listed; however this is of course the Authority's choice. I've also attached the draft agenda for your review with the main item being the public hearing on revising the rate schedule to remove the discount to non-recurring charges. Please let us know if there are any changes you'd like to see. We have not yet heard from DHCD on the CDBG grant but will let you know as soon as we do. Thanks!

Candy
Candy McGarry
Nelson County Administrator's Office
Administrative Assistant/Deputy Clerk
PH: (434) 263-7002
Fax: (434) 263-7004

<2015 Officers & Meeting Schedule.doc>

<Agenda NCBA January 13, 2015.doc>



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Closing the Digital Divide in Rural America

by: [Tom Wheeler](#) ^[1], FCC Chairman

November 20, 2014 - 03:39 PM

Author: Tom Wheeler
FCC Chairman

High-speed Internet access has become fundamental to modern life, whether we're on the job, at home, or going to school. Broadband connectivity can overcome geographic isolation and put a world of information and economic opportunity at the fingertips of citizens in even the most remote communities. But the hard truth is there is a digital divide that particularly impacts rural America.

Americans living in urban areas are three times more likely to have access to Next Generation broadband than Americans in rural areas. An estimated 15 million Americans, primarily in rural communities, don't even have access to entry-level broadband in their homes. Forty-one percent of American's rural schools couldn't get a high-speed connection if they tried.

The FCC can play an important role in bridging these gaps, and today, I'm circulating two items that will expand access to robust broadband across rural America.

Bringing High-Speed Broadband to Rural Schools and Libraries

One proposal would close the digital divide in rural schools and libraries by modernizing the FCC's E-rate program. Since 1997, the program has helped connect schools and libraries to the Internet, but it's falling short of delivering the bandwidth required for 21st Century learning. That's particularly true in rural America, where 41% of schools lack access to the fast fiber connections required compared to 31% in urban areas.

Why does this Rural Fiber Gap exist? Fiber connection costs are much higher for rural schools and libraries. As a result, either there is no fiber, or that level of connectivity is only available at an unreasonably high price. It may not be unusual, but it is unacceptable that these realities are allowed to hurt students.

Thus, my proposal includes targeted updates to E-rate rules to help defray the high costs rural libraries and schools face in achieving high-speed Internet connectivity, particularly the one-time infrastructure upgrade costs that many simply can't afford today. For many low-income schools and libraries the challenge is one of affordability, so my proposal also

includes rule changes designed to increase the number of competitive options to these schools and libraries to ensure they have access to the most cost-effective solutions.

In July, we opened an inquiry into the future funding needs of the E-rate program. After our own analysis, as well as studies submitted to the record, we have concluded that additional investment is required to bring 21st Century digital learning to all schools and libraries. The E-rate's budget, set in 1997 and not adjusted for inflation until 2010, isn't up to the task. Now, we are rebooting E-rate for the digital age by proposing an increase in the size of the program to reflect the investment required to close the rural divide and keep American education competitive nationwide.

Closing this connectivity gap will require raising the E-rate spending cap. Now, let me be clear. We have looked long-term to forecast the funding needs going forward and based the spending cap on those forecasts. What will actually be spent – and the rate Americans will be asked to contribute – will vary from year-to-year. Most certainly, the contributions from Americans won't immediately jump to the cap.

I am proposing to my colleagues that we increase the cap on what all Americans contribute to the E-rate fund by 16 cents a month for a telephone line. Let's put that in perspective. Over the course of the year that represents one cup of coffee or a medium soda at McDonald's. Per year.

E-rate is funded by fees on consumers' phone bills. I take the fiduciary responsibility to invest those contributions wisely and very seriously. That's why we placed an emphasis on improving cost-effectiveness earlier this year. But the fact is that the E-Rate budget hadn't received an annual inflation adjustment for 13 years. The majority of the proposed new cap accounts for the lack of inflation adjustments, with the rest going to new growth if needed.

This is the reality: while many schools and libraries have benefitted from the E-rate program, rural and low-income schools and libraries have not shared proportionally in the opportunities. The investment I am proposing enables the FCC to fulfill its responsibility to advance digital learning in all American schools and libraries.

Bringing Broadband to Rural Americans

Beyond our schools and libraries, the Commission has been working to re-orient its universal service fund program for rural communities to support broadband networks in unserved rural areas through the new Connect America Fund. The Connect America Fund has already invested hundreds of millions to bring broadband to unserved rural communities, and is poised to invest more than \$20 billion over the next five years. Today, I am circulating an Order to move the Connect America Fund forward to get these communities the connectivity they need to stay competitive in the digital world.

My proposal would bring the minimum broadband speed for receiving USF support to 10 Mbps for downloads, from 4 Mbps – the first adjustment since 2011. We need to make sure rural consumers have the service they need to support modern applications and uses as we expand networks to the 15 million unserved rural Americans. And it's time to move forward to implement Phase II of the Connect America Fund.

Incentive Auction

We continue to make steady progress toward implementing an incentive auction of low-band

spectrum, which is a critical input for rural wireless broadband network coverage.

Broadcaster participation will be key to the auction's success. Since we released an [information package](#) [2] last month about the unparalleled business opportunity the incentive auction represents, numerous broadcasters have reached out to us to learn more about the incentive auction. And as the Incentive Auction Task Force [announced last week](#) [3], we will continue our dialogue with broadcasters in field visits covering every region of the continental U.S. including larger and smaller television markets.

Marking another major milestone, we are now initiating the process by which we will develop the specific procedures to carry out the incentive auction. Later today, we will circulate the Incentive Auction Comment Public Notice (PN) for consideration by the full Commission.

In the Incentive Auction Report & Order the Commission adopted last May, the Commission established the rules and policies for the incentive auction. The Comment PN seeks public input on detailed proposals about how important aspects of the auction will work, including the methodology for setting opening prices for both the forward and reverse auction; components of the "final stage rule" which must be met in order for the auction to close; and defining impaired markets and how to set an initial clearing target.

The public input we receive in response to the Comment PN will be incorporated into a final Procedures PN that will spell out the specific procedures necessary to carry out the auction.

Updated: November 20, 2014 - 04:51 PM

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Federal Communications Commission

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Links:

- [1] [http://www.fcc.gov/blog/author/Tom Wheeler](http://www.fcc.gov/blog/author/Tom%20Wheeler)
- [2] <http://wireless.fcc.gov/incentiveauctions/learn-program/>
- [3] <http://www.fcc.gov/blog/taking-broadcaster-outreach-road>
- [4] http://disqus.com/?ref_noscript
- [5] <http://disqus.com>
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NEWS

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This is an unofficial announcement of Commission action. Release of the full text of a Commission order constitutes official action.
See MCI v. FCC, 515 F.2d 385 (D.C. Circ 1974).

FOR IMMEDIATE RELEASE:
December 11, 2014

NEWS MEDIA CONTACT:
Mark Wigfield, 202-418-0253
E-mail: mark.wigfield@fcc.gov

FCC INCREASES RURAL BROADBAND SPEEDS UNDER CONNECT AMERICA FUND

Rural Consumers Must Receive Broadband Delivering At Least 10 Mbps Downloads, 1 Mbps Uploads from Providers Who Benefit from Connect America Support

Washington, D.C. – Broadband for rural consumers that is supported by the Connect America Fund must deliver the same speeds that 99% of urban Americans enjoy, the Federal Communications Commission said in an Order adopted today.

The FCC will now require companies receiving Connect America funding for fixed broadband to serve consumers with speeds of at least 10 Mbps for downloads and 1 Mbps for uploads. That is an increase reflecting marketplace and technological changes that have occurred since the FCC set its previous requirement of 4 Mbps/1 Mbps speeds in 2011.

According to recent data, 99% of Americans living in urban areas have access to fixed broadband speeds of 10/1, which can accommodate more modern applications and uses. Moreover, the vast majority of urban households are able to subscribe to even faster service.

Congress directed the FCC to make available in rural areas communications services that are reasonably comparable to those in urban areas. Increasing the Connect America speed requirement means that rural Americans, like urban Americans, can tap the benefits provided by broadband through faster web downloads, improved video streaming, and service capable of supporting multiple users in a household.

In 2011, the FCC reformed its universal service program for rural telephone service so it can more effectively support networks delivering both broadband and voice. With the adoption of today's Order, the FCC is prepared to make offers of support totaling up to nearly \$1.8 billion annually to a class of larger carriers known as price cap carriers in early 2015, which will potentially expand service to over 5 million rural Americans.

The Order makes a number of adjustments to the 2011 reforms to accommodate the higher speed requirement and better target Connect America funds to efficiently expand broadband into rural areas that would not otherwise be served. These changes include:

- Increasing the terms of support for price cap carriers from five years to six years, with an option for a seventh year in certain circumstances
- Providing increased flexibility in the build-out requirement, while still ensuring that support recipients are reaching out to Americans that were previously unserved

- Forbearing from certain universal service obligations in low-cost census blocks where price cap carriers are not eligible to receive Connect America support, as well as census blocks where the carriers face competition
- Requiring recipients that decline Connect America support in a state to continue to deliver voice service to high-cost census blocks until replaced through a competitive bidding process by another subsidized carrier that is required to deliver voice and 10/1 broadband.

The Order also makes changes that will distribute traditional universal service support for small carriers more equitably and curb waste. Finally, the Order helps ensure that carriers adhere to voice and broadband service obligations by setting clear consequences for failing to meet these standards.

Action by the Commission December 11, 2014, by Report and Order (FCC 14-190). Chairman Wheeler and Commissioner Rosenworcel, Commissioners Clyburn and Pai approving in part and dissenting in part and Commissioner O’Rielly concurring. Chairman Wheeler, Commissioners Clyburn, Rosenworcel, Pai and O’Rielly issuing statements.

Docket No.: 10-90

-FCC-

More information about the Connect America Fund is available at
<http://www.fcc.gov/encyclopedia/connecting-america>



NEWS

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FOR IMMEDIATE RELEASE:
January 29, 2015

NEWS MEDIA CONTACT:
Mark Wigfield, 202-418-0253
Email: mark.wigfield@fcc.gov

FCC FINDS U.S. BROADBAND DEPLOYMENT NOT KEEPING PACE

Updates Broadband Speed Benchmark to 25Mbps/3 Mbps to Reflect Consumer Demand, Advances in Technology

Washington, D.C. – Broadband deployment in the United States – especially in rural areas – is failing to keep pace with today’s advanced, high-quality voice, data, graphics and video offerings, according to the 2015 Broadband Progress Report adopted today by the Federal Communications Commission.

Reflecting advances in technology, market offerings by broadband providers and consumer demand, the FCC updated its broadband benchmark speeds to 25 megabits per second (Mbps) for downloads and 3 Mbps for uploads. The 4 Mbps/1 Mbps standard set in 2010 is dated and inadequate for evaluating whether advanced broadband is being deployed to *all* Americans in a timely way, the FCC found.

Using this updated service benchmark, the 2015 report finds that 55 million Americans – 17 percent of the population – lack access to advanced broadband. Moreover, a significant **digital divide** remains between urban and rural America: Over half of all rural Americans lack access to 25 Mbps/3 Mbps service.

The divide is still greater on Tribal lands and in U.S. territories, where nearly 2/3 of residents lack access to today’s speeds. And 35 percent of schools across the nation still lack access to fiber networks capable of delivering the advanced broadband required to support today’s digital-learning tools.

While significant progress in broadband deployment has been made, due in part to the Commission’s action to support broadband through its Universal Service programs, these advances are not occurring broadly enough or quickly enough, the report finds. The report concludes that more work needs to be done by the private and public sectors to expand robust broadband to all Americans in a timely way, and the accompanying Notice of Inquiry seeks comment on what additional steps the FCC can take to accelerate broadband deployment.

Key findings include the following:

- 17 percent of all Americans (55 million people) lack access to 25 Mbps/3 Mbps service.
- 53 percent of rural Americans (22 million people) lack access to 25 Mbps/3 Mbps.
 - By contrast, only 8 percent of urban Americans lack access to 25 Mbps/3 Mbps broadband.
 - Rural America continues to be underserved at all speeds: 20 percent lack access even to service at 4 Mbps/1 Mbps, down only 1 percent from 2011, and 31 percent lack access to 10 Mbps/1 Mbps, down only 4 percent from 2011.

- 63 percent of Americans living on Tribal lands (2.5 million people) lack access to 25 Mbps/3 Mbps broadband
 - 85 percent living in rural areas of Tribal lands (1.7 million people) lack access.
- 63 percent of Americans living in U.S. territories (2.6 million people) lack access to 25 Mbps/3 Mbps broadband.
 - 79 percent of those living in rural territorial areas (880,000 people) lack access.
- Overall, the gap in availability of broadband at 25/3 closed by only 3 percentage points last year, from 20% lacking access in 2012 to 17% in 2013
- Overall, the broadband availability gap closed by only 3 percent last year.
- Americans living in rural and urban areas adopt broadband at similar rates where 25 Mbps/ 3 Mbps service is available, 28 percent in rural areas and 30 percent in urban areas.
- Approximately 35 percent of schools lack access to fiber, and thus likely lack access to broadband at the Commission’s shorter term benchmark (adopted in its July 2014 E-rate Modernization Order) of 100 Mbps per 1,000 users, and even fewer have access at the long term goal of 1 Gbps per 1,000 users.

Section 706 of the Telecommunications Act of 1996 requires the FCC to report annually on whether broadband “is being deployed to all Americans in a reasonable and timely fashion,” and to take “immediate action” if it is not. Congress defined broadband as “high-quality” capability that allow users to “originate and receive high-quality voice, data, graphics, and video” services.

Action by the Commission January 29, 2015, by Report and Notice of Inquiry (FCC 15-10). Chairman Wheeler, Commissioners Clyburn, and Rosenworcel with Commissioners Pai and O’Rielly dissenting. Chairman Wheeler, Commissioners Clyburn, Rosenworcel, Pai and O’Rielly issuing statements.

- FCC –

Previous Broadband Progress Reports are available at <https://www.fcc.gov/encyclopedia/archive-released-broadband-progress-notices-inquiry>

§ 56-1. Definitions.

Whenever used in this title, unless the context requires a different meaning:

"Broadband connection," for purposes of this section, means a connection where transmission speeds exceed 200 kilobits per second in at least one direction.

"Commission" means the State Corporation Commission.

"Corporation" or "company" includes all corporations created by acts of the General Assembly of Virginia, or under the general incorporation laws of this Commonwealth, or doing business therein, and shall exclude all municipal corporations, other political subdivisions, and public institutions owned or controlled by the Commonwealth.

"Electric vehicle charging service" means the replenishment of the battery of a plug-in electric motor vehicle, which replenishment occurs by plugging the motor vehicle into an electric power source in order to charge or recharge its battery.

"Interexchange telephone service" means telephone service between points in two or more exchanges that is not classified as local exchange telephone service. "Interexchange telephone service" shall not include Voice-over-Internet protocol service for purposes of regulation by the Commission, including the imposition of certification processing fees and other administrative requirements, and the filing or approval of tariffs. Nothing herein shall be construed to either mandate or prohibit the payment of switched network access rates or other intercarrier compensation, if any, related to Voice-over-Internet protocol service.

"Local exchange telephone service" means telephone service provided in a geographical area established for the administration of communication services and consists of one or more central offices together with associated facilities which are used in providing local exchange service. Local exchange service, as opposed to interexchange service, consists of telecommunications between points within an exchange or between exchanges which are within an area where customers may call at specified rates and charges. "Local exchange telephone service" shall not include Voice-over-Internet protocol service for purposes of regulation by the Commission, including the imposition of certification processing fees and other administrative requirements, and the filing or approval of tariffs. Nothing herein shall be construed to either mandate or prohibit the payment of switched network access rates or other intercarrier compensation, if any, related to Voice-over-Internet protocol service.

"Mail" includes electronic mail and other forms of electronic communication when the customer has requested or authorized electronic bill delivery or other electronic communications.

"Municipality" or "municipal corporation" shall include an authority created by a governmental unit exempt from the referendum requirement of § [15.2-5403](#).

"Person" includes individuals, partnerships, limited liability companies, and corporations.

"Plug-in electric motor vehicle" means an on-road motor vehicle that draws propulsion using a traction battery that has at least four kilowatt hours of capacity, uses an external source of electric energy to charge or recharge the battery, has a gross vehicle weight of not more than 14,000 pounds, and meets any applicable emissions standards.

"Public service corporation" or "public service company" includes gas, pipeline, electric light, heat, power and water supply companies, sewer companies, telephone companies, and all persons authorized to transport passengers or property as a common carrier. "Public service corporation" or "public service company" shall not include (i) a municipal corporation, other political subdivision or public institution owned or controlled by the Commonwealth; however, if such an entity has obtained a certificate to provide services pursuant to § [56-265.4:4](#), then such entity shall be deemed to be a public service corporation or public service company and subject to the authority of the Commission with respect only to its provision of the services it is authorized to provide pursuant to such certificate; or (ii) any company described in subdivision (b)(10) of § [56-265.1](#).

"Railroad" includes all railroad or railway lines, whether operated by steam, electricity, or other motive power, except when otherwise specifically designated.

"Railroad company" includes any company, trustee or other person owning, leasing or operating a railroad.

"Rate" means rate charged for any service rendered or to be rendered.

"Rate," "charge" and "regulation" include joint rates, joint charges and joint regulations, respectively.

"Regulated operating revenue" includes only revenue from services not found to be competitive.

"Transportation company" includes any railroad company, any company transporting express by railroad, and any ship or boat company.

"Virginia limited liability company" means (i) any limited liability company organized under Chapter 12 (§ [13.1-1000](#) et seq.) of Title 13.1, (ii) any entity that has become a limited liability company pursuant to Article 12.2 (§ [13.1-722.8](#) et seq.) of Chapter 9 of Title 13.1 or pursuant to conversion or domestication under Chapter 12 (§ [13.1-1000](#) et seq.) of Title 13.1, or (iii) any foreign limited liability company that is organized or is domesticated by filing articles of organization that meet the requirements of §§ [13.1-1003](#) and [13.1-1011](#) and include (a) the name of the foreign limited liability company immediately prior to the filing of the articles of organization; (b) the date on which and the jurisdiction in which the foreign limited liability company was first formed, organized, created or otherwise came into being; and (c) the jurisdiction that constituted the seat, siege social, or principal place of business or central administration of the foreign limited liability company, or any equivalent thereto under applicable law, immediately prior to the filing of the articles of organization. With respect to an organization or domestication pursuant to clause (iii), the terms and conditions of a domestication shall be approved in the manner provided for by the document, instrument, agreement or other writing, as the case may be, governing the internal affairs of the foreign limited liability company in the conduct of its business or by applicable law other than the law of the Commonwealth, as appropriate, and the provisions governing the status, powers, obligations, and choice of law applicable under § [13.1-1010.3](#) shall apply to any limited liability company so domesticated or organized.

"Voice-over-Internet protocol service" or "VoIP service" means any service that: (i) enables real-time, two-way voice communications that originate or terminate from the user's location using Internet protocol or any successor protocol and (ii) uses a broadband connection from the user's location. This definition includes any such service that permits users generally to receive calls that originate on the public switched telephone network and to terminate calls to the public switched telephone network.

(Code 1919, §§ 3693, 3881; 1971, Ex. Sess., c. 23; 1984, c. 382; 2002, cc. [479](#), [489](#); 2004, c. [1028](#); 2006, cc. [691](#), [912](#), [929](#), [941](#); 2007, c. [619](#); 2009, c. [746](#); 2011, cc. [408](#), [738](#), [740](#).)

● Conversion of Data Transfer Rate Units ●

In the analog transmission of information of the physical size, the corresponding data are continuously impressed.

Each value is in a specified interval admissible and relevant at all times.

In the digital transmission of information in the physical size of the corresponding data are imparted discretely.

Here are several noncontiguous areas intervals allowed that are only in certain not directly successive time intervals relevant.

Bits per seconds (bps)	<input type="text" value="200000"/>	Bytes per seconds (Bps)	<input type="text" value="25000"/>
Kilobits per seconds (kbps)	<input type="text" value="200"/>	Kilobytes per seconds (kBps)	<input type="text" value="25"/>
Megabits per seconds (Mbps)	<input type="text" value="0.2"/>	Kilobytes per minute (kBpmin)	<input type="text" value="1500"/>
	<input type="button" value="calculate"/>	Megabytes per minute (MBpmin)	<input type="text" value="1.5"/>
			<input type="button" value="reset"/>

The data transfer rate (bit rate) is the amount of digital data that is moved from one place to another in a second's time. It is the speed of travel given in "bps".

Baud - a unit of digital transmission signalling speed of information transmission. It is used to describe the rate of information flow. Given in bits per second (bps) the rate is the highest number of single information elements (bits) transferred between two devices in one second - such as modems or fax machines.

Decimal System

1000 bit = 1 kb = kilobit
1000 kilobit = 1 Mb = 1 megabit
1000 byte = 1000 B = 1 kilobyte
1000 kilobyte = 1 MB = 1 megabyte

1 bps
= 0.001 kbps (kb/s)
= 0.125 Bps (B/s)
= 0.45 kBph (kB/h)
= 0.0075 kBpmin (kB/min)

1 kbps = 1000 bps
 = 1 kbps (kb/s)
 = 125 Bps (B/s)
 = 450 kBph (kB/h)
 = 7.50 kBpmin (kB/min)

1 Mbps = 1000000 bps
 = 1000 kbps (kb/s)
 = 125000 Bps (B/s)
 = 450000 kBph (kB/h)
 = 7500 kBpmin (kB/min)

Binary:

1 Kibibyte (KiB) = 1024 byte = 2^{10} B = 1024 B (byte)

1 Mebibyte (MiB) = 1024 KiB = 2^{20} B = 1 048 576 B

1 Gibibyte (GiB) = 1024 MiB = 2^{30} B = 1 073 741 824 B

Decimal:

1 Kilobyte (kB) = 1000 byte = 10^3 byte = 1000 byte

1 Megabyte (MB) = 1000 kB = 10^6 byte = 1 000 000 byte

1 Gigabyte (GB) = 1000 MB = 10^9 byte = 1 000 000 000 byte

Multiples of bytes					
Decimal			Binary		
Value	Metric		Value	IEC	
1000	kB	kilobyte	1024	KiB	kibibyte
1000^2	MB	megabyte	1024^2	MiB	mebibyte
1000^3	GB	gigabyte	1024^3	GiB	gibibyte
1000^4	TB	terabyte	1024^4	TiB	tebibyte
1000^5	PB	petabyte	1024^5	PiB	pebibyte
1000^6	EB	exabyte	1024^6	EiB	exbibyte
1000^7	ZB	zettabyte	1024^7	ZiB	zebibyte
1000^8	YB	yottabyte	1024^8	YiB	yobibyte

Conversion: bits and bytes

Not only take something from this website to enhance your knowledge.
 Please, also give some feedback to the author to improve the performance.

[back](#) 

[Search Engine](#) 

[home](#) 

Broadband download and upload speed ranges (in megabits per second)

Download	0.256	0.768	1	3	7	10	15	20	25	50	100
Upload	0.256	0.384	0.384	0.768	0.768	1	2	2	5	10	10

Satellite

Wireless

Digital Subscriber Line (DSL)

Cable

Fiber-optic

Speeds required for good results* from selected applications

Web browsing

E-mail large attachments

Download small files

Download large files

Videoconferencing streaming at 384 kilobits per second (single user)

Videoconferencing streaming at 768 kilobits per second (multi-users)

Upload videos, presentations (1 gigabyte)
(27 min.)

Download high-definition video in real time (2 gigabytes)
(5 min.)

Speeds required for good results* from selected off-site activities

Teleworking*

Distance Learning*

Telemedicine*

FiberWorks - Nelson County

We sell fiber in packages.

...Go Light Speed.

TIER 1 FIBER

Tier 1 is our basic fiber Internet package. This is the service that most of our clients start with. It is offered at many speeds. As the levels increase, your ability to upload and download Internet content expands.

DOWN/UP	COST
Orange 25/5	\$59.95
Green 50/10	\$109.95

TIER 2 FIBER

Tier 2 is designed for uploaders. This includes "Static IP" addresses and delivers you symmetrical uploading and downloading. If you are in the media business or require heavy use of digital files Tier 2 is the arena where you should begin.

DOWN/UP	COST
Red 10/10	N/A
Blue 25/25	\$195.00
Yellow 50/50	\$380.00
Violet 100/100	\$725.00
250Mbps-10Gbps	Contact us

For Nelson County



Call Carrie
Fiber Internet
434.817.0707

	TIER 1 "BASIC"	TIER 2 "ADVANCED"	TIER 3 "PRIVATE WAN"
High Speed Fiber Network	Yes	Yes	Yes
Static IP	optional	included	N/A
Routed Subnets	N/A	Optional	N/A
Symmetrical Speeds	N/A	Yes	Yes
Advanced BGP Routing	N/A	Yes	N/A
Layer 2 VLANs Transported (QinQ)	N/A	N/A	Yes
Discount for Connection to BRI Colo	N/A	N/A	Yes (CHO, LEX)
Prioritized Traffic	No	Yes	Yes

Blue Ridge InternetWorks – Because it absolutely has to work.

Live Chat

support@briworks.com 877.658.4146 434.817.0707



434-263-4805



Nelson Cable is reaching more of the county than ever before providing higher-speed internet via new fiber optic lines

If you live near the Nelson County fiber optic lines going south on Route 151, turning down Route 6 and running south on Highway 29 to the Colleen area, you can turn to Nelson Cable to tap into this state-of-the-art internet technology where you'll work with experienced, high-integrity and caring customer service and technical professionals who can easily answer all of your questions.

Standard residential service on fiber optic line

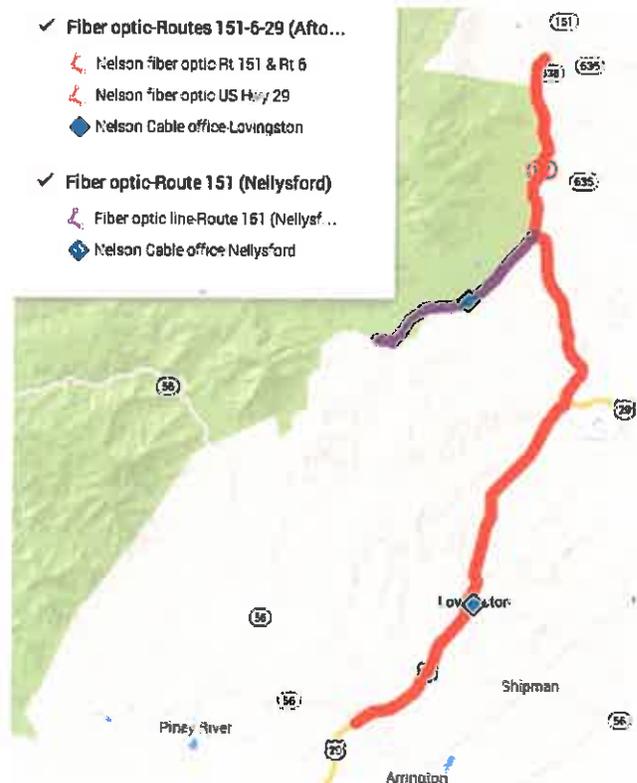
Residential Speeds & Monthly Rates

- Up to 4 Mbps down & 1 up \$44.95
- Up To 7 Mbps down & 2 up \$49.95
- Up to
- 10 Mbps down & 3 up \$54.95
- Up to 25 Mbps down & 5 up \$59.95
- Up to 50 Mbps down & 10 up \$109.95



Nelson Cable also offers Exede, a high-speed satellite internet service. Exede now offers download speeds at 12 Mbps to most any home, anywhere. [Learn more here](#)

- ✓ Fiber optic-Routes 151-6-29 (Afto...
 - Nelson fiber optic Rt 151 & Rt 6
 - Nelson fiber optic US Hwy 29
 - Nelson Cable office-Lovington
- ✓ Fiber optic-Route 151 (Nellysford)
 - Fiber optic line-Route 161 (Nellysf ...
 - Nelson Cable office Nellysford



The red line is the fiber option line running from the Afton area to Colleen via Routes 151, 6 and US 29. [click to enlarge map](#)). For information on the Route 151

Business Speeds & Monthly Rates

- Up to 25 Mbps up & down \$194.95
- Up to 50 Mbps up & down \$379.95
- Up to 100 Mbps up & down \$724.95

One-time connection charge of \$89 and one-time equipment charge of \$300, plus taxes. Optional wireless router, installed, \$79 plus tax.

Fill out the form below to submit a no-obligation request about your location, or call 434-263-4805

Note: If you live on Route 151 south of Route 6, go [here](#) instead. Those in the Wintergreen area should go [here](#).

New or existing Nelson Cable customer? *

New customer ▼

Service location *

Afton area (Northern 151) ▼

Internet service level desired *

All speed levels are maximum provided; speeds can vary depending on network demand. (Prices are per month. Installation cost will determine length of Service Contract. One Time Connection Charge \$89.00. One Time Equipment Charge \$300.00 plus tax. Wireless routers are \$79 if desired; Apple routers are available from Nelson Cable. Taxes may apply. Static IP address may be available, contact office for details. See agreement for details.)

Up to 4 Mbps down & 1 up \$44.95 a month ▼

Name *

First Name

Last Name

(purple) line running through Nellysford, [go here](#). Those in the Wintergreen area should [go here](#).

Service Includes

- Free Spam Filtering
- Unlimited online usage
- 24/7 System Monitoring
- 2 Local Sales & Customer Support Offices
- Free personal live Internet Phone Tech Support
- Local Professional On-Site Support for Service Call Charge **OR On Site Maintenance available for \$10.00 per month**
- Dynamic IP Address included with all Standard Service Plans
- Static IP Address included with all Business Service Plans upon request

- [Live on Route 151, south of Route 6? Click here](#)

- [Live in or near the Wintergreen Resort area? Please go HERE](#)

Fill out the form here to submit a no-obligation request about your location, or call 434-263-4805

*

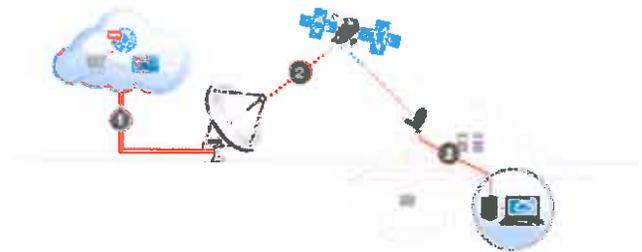


434-263-4805

High Speed Satellite Internet Service from Nelson Cable

In October 2011 Exede launched ViaSat-1, the most powerful communications satellite in the world. This new technology is now making internet service available to most any home anywhere.

- Exede offers internet download speeds up to 12 Mbps — 8X faster than Exede's original WildBlue service.
- Exede beams your Internet signal directly from ViaSat-1 — the most powerful communications satellite ever launched.
- The FCC's 2013 Measuring Broadband America report of U.S. Internet Service Providers found that Exede Internet is No. 1 at delivering on advertised speeds or better. (This was the first time any satellite Internet service was included in the survey.)
- Up to 4 times faster than average DSL.
- Great for streaming video, movies, video chat, sharing photos and files.



If you have been told you cannot have a faster internet connection, talk to Nelson Cable about professionally installing Exede satellite broadband technology at your home or business.

Call Nelson Cable at 434-263-4805





Data and Pricing

HARE™ Internet Plans	Download Range	Data Cap (Monthly)	One Time Professional Installation	Monthly Payment	Anr Payr Plan MOF
Plan 1 - Basic	1-2 Mbps	30 GB	\$198	\$29.95	Free I
Plan 2 - Premium	2-4 Mbps	60 GB	\$198	\$49.95	Free I
Plan 3 - Ultimate	4-6 Mbps	90 GB	\$198	\$69.95	Free I
Plan 4 - Extreme	6-8 Mbps	120 GB	\$198	\$89.95	Free I
Plan 5 - Home Business	8-10 Mbps	150 GB	\$198	\$109.95	Free I
Business Class 1	6 Mbps	None	\$298	\$149.95	N
Business Class 2	8 Mbps	None	\$298	\$199.95	N
Business Class 3	10 Mbps	None	\$298	\$249.95	N
Dedicated Business	Custom Plan 10-100 Mbps	None	CALL	CALL	N

Details

[Print](#)

Upload is 1/2 of the maximum download speed. Installation includes a guarantee on all outside equipment including radio and wiring. All parts and labor are included for life of service. There is NO equipment lease, nor do you have to purchase any of the outside equipment. Indoor router not included.

Our Data Cap is a SoftCap, meaning that we will not automatically charge you if go over your monthly limit. Instead, we will call you to inform you that you've gone over, check in with you, and see if you would like to upgrade your plan. We believe this is the best way to handle data caps, for instance, what if a virus on your computer that was using the bandwidth for malicious purposes and not you? These are the cases where we would like to work with our customer to resolve the issue, not against them. Please see our [Fair Access Policy](#) for more information.

*Download speeds stated are an average given as a minimum and maximum range. SCS strives to provide the maximum speed of each plan.

All business plans have 24/7 voice support and free onsite calls. All business plans are unlimited, no CAP, plans with the exception if any abusive usage effects the entire network for a given area.

All home plans have 8 AM to 5 PM live support Monday through Friday. All of the network is monitored 24/7.

Dedicated Business Plans are services where additional equipment is deployed to

give a direct, unshared path to our fiber connection points.

Installation

SCS requires an upfront fee of \$198 for installation and equipment costs for home plans. Business plans have a separate installation depending on plan and type of equipment required. This price includes a guarantee for life of service on all outside equipment and wiring, parts and labor free.

Cabling up to 30 feet will be run from the receiver down to your desired location and finished off cleanly with a network jack. (If more than 30 feet of cabling is needed there will be an additional charge of \$1 per foot of extra cable)

Next, all equipment will be hooked up, confirmed to work and any initial basic training needed will be performed.

Your installer will leave the work area as clean as when he arrived.

The Installation Fee includes:

- NO-Lease Wireless Radio and Antenna
- Basic mounting hardware
- Lightning surge protection
- Up to 30 feet of shielded CAT cable
- Pole and mount hardware if required
- Installation Labor (hardware mounting, cable run, etc.)
- Programming of broadband router
- Programming of one computer
- Basic usage training

Equipment	Cost
Wireless Router*	\$35.00, \$65.00 or \$99.00
Surge Protector	\$30.00
Ethernet Card	\$20.00
Wireless USB Adapter	\$25.00
Extra Mounting Hardware	Based on Application
Extra Cable (per foot)	\$1.00
Yard Mounting Pole	\$50.00

Ditching (per foot)

Assessed on Site

Notes:

*There are three different routers to choose from, each priced accordingly to their capabilities.

Radio, Antenna and Surge remains property of SCS who is responsible for repair or replacement!

Installation Policy

SCS does not charge a disconnect fee, but has a no-refund installation charge. That installation covers most of the labor and non-returnable parts, such as wiring and socket drops. All outside equipment, including poles, surges, radios and antennas belong to SCS, and SCS is responsible for replacing such equipment in any failure, including lightning. The customer buys the required router at installation as SCS can not verify that routers are surge protected and cannot be responsible for such equipment.

Wireless networks can become negatively effected by several environmental changes. These include, but not limited to, portable phones, baby monitors, wireless devices such as head phones and speaker systems, and foliage growth. SCS is responsible for trying to resolve foliage growth issues at no charge up to 90 days after installation. SCS will perform due diligent to resolve other environmental interferences, but may charge a nominal fee when the interference is caused by a customers new device.

There is no charge for collecting equipment when there is a disconnect requested. The customer is responsible for the cost of the equipment if the equipment is not returned in working condition.

Revision: August 2010



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RESOLUTION R2015-03
NELSON COUNTY BROADBAND AUTHORITY
DEFINITION OF BROADBAND
10 MBPS FOR DOWNLOADS AND 1 MBPS FOR UPLOADS

WHEREAS, The Nelson County Broadband Authority was established to operate an open access network over County owned broadband infrastructure (fiber, copper, towers) that enables Service Providers to provide broadband services to the rural residents and businesses of Nelson County; and

WHEREAS, the FCC will now require companies receiving Connect America funding to serve customers with speeds at least 10 Mbps for downloads, 1 Mbps for uploads, an increase from the prior 4 Mbps for downloads and 1 Mbps for uploads standard; and

WHEREAS, it is anticipated that the FCC will soon change its official “broadband” definition to mean a service with a minimum speed of 10 Mbps for downloads, 1 Mbps for uploads

NOW, THEREFORE, BE IT RESOLVED, that in an effort to keep pace with developments at the federal level and to eliminate inconsistencies in the use of the term broadband, the Nelson County Broadband Authority defines the term broadband as it applies to fixed (fiber, copper, wireless) internet services as having a minimum speed of 10 Mbps for downloads, 1 Mbps for uploads.

BE IT FURTHER RESOLVED,

- That the Nelson County Broadband Authority shall reevaluate its official definition of broadband on an annual basis to ensure that its definition meets or exceeds the official federal definition of broadband.
- That all Service Providers offering fixed broadband services on the Nelson County owned infrastructure (fiber, copper, towers) shall provide a minimum tier 1 broadband service that meets or exceeds the Nelson County Broadband Authority’s official definition of broadband: a minimum speed of 10 Mbps for downloads, 1 Mbps for uploads.
- That all Service Providers advertising the provision of telecommunication services on the Nelson County owned infrastructure (fiber, copper, towers) shall clearly communicate the Nelson County Broadband Authority’s official definition of broadband (a minimum speed of 10 Mbps for downloads, 1 Mbps for uploads) to its customers in all forms of advertising, including but not limited to, print and multimedia, and shall not advertise as “broadband” services of slower speeds than that contained in the definition.

- That all Service Providers offering fixed services on the Nelson County owned infrastructure (fiber, copper, towers) may offer services that do not meet the Nelson County Broadband Authority's official definition of broadband, however, services that offer speeds less than those contained in the Nelson County Broadband Authority's official broadband definition shall be clearly labeled as not meeting the Nelson County Broadband Authority's official broadband definition.
- That the foregoing definition and the disclosure requirements shall be made a term of new or renewed Service Provider contracts.

Adopted: _____, 2015

Attest: _____, Secretary
Nelson County Broadband Authority

RESOLUTION R2015-03
NELSON COUNTY BROADBAND AUTHORITY
DEFINITION OF BROADBAND
25 MBPS FOR DOWNLOADS AND 3 MBPS FOR UPLOADS

WHEREAS, The Nelson County Broadband Authority was established to operate an open access network over County owned broadband infrastructure (fiber, copper, towers) that enables Service Providers to provide broadband services to the rural residents and businesses of Nelson County; and

WHEREAS, as of January 29, 2015 the FCC updated its broadband benchmark speeds to 25 Mbps for downloads and 3 Mbps for uploads (25 Mbps/3Mbps) after determining that the previous standard of 4 Mbps/1Mbps set in 2010 is dated and inadequate as a benchmark:

NOW, THEREFORE, BE IT RESOLVED, that in an effort to keep pace with developments at the federal level and to eliminate inconsistencies in the use of the term broadband, the Nelson County Broadband Authority defines the term broadband as it applies to fixed (fiber, copper, wireless) internet services as having a minimum speed of 25 Mbps for downloads and 3 Mbps for uploads; and

BE IT FURTHER RESOLVED,

- That the Nelson County Broadband Authority shall reevaluate its official definition of broadband on an annual basis to ensure that its definition meets or exceeds the official federal definition of broadband.
- That all Service Providers offering fixed broadband services on the Nelson County owned infrastructure (fiber, copper, towers) shall provide a minimum tier 1 broadband service that meets or exceeds the Nelson County Broadband Authority's official definition of broadband: a minimum speed of 25 Mbps for downloads and 3 Mbps for uploads.
- That all Service Providers advertising the provision of telecommunication services on the Nelson County owned infrastructure (fiber, copper, towers) shall clearly communicate the Nelson County Broadband Authority's official definition of broadband (a minimum speed of 25 Mbps for downloads and 3 Mbps for uploads) to its customers in all forms of advertising, including but not limited to, print and multimedia, and shall not advertise as "broadband" services of slower speeds than that contained in the definition.
- That all Service Providers offering fixed services on the Nelson County owned infrastructure (fiber, copper, towers) may offer services that do not meet the Nelson

County Broadband Authority's official definition of broadband, however, services that offer speeds less than those contained in the Nelson County Broadband Authority's official broadband definition shall be clearly labeled as not meeting the Nelson County Broadband Authority's official broadband definition.

- That the foregoing definition and the disclosure requirements shall be made a term of new or renewed Service Provider contracts.

Adopted: _____, 2015

Attest: _____, Secretary
Nelson County Broadband Authority

Project Proposal

Prepared for: Nelson County Broadband Authority

Prepared by: Alan Patrick

January 13, 2015

EXECUTIVE SUMMARY

Objective

The Nelson County Board of Supervisors, County Staff, the Broadband Authority, the Citizen Advisory Committee, the Subcommittee and associated contractors and consultants have worked diligently to develop and deploy the broadband infrastructure (fiber and towers) for the county. To date, with the support of County Staff and BRI (the network operator) multiple service providers are serving local government offices, schools, residents, businesses, and community centers via fiber-to-the-home, -business (FTTH/FTTB) or wireless.

The success of this project has not gone unnoticed. During the Regional Broadband Meeting hosted by the Thomas Jefferson PDC in Charlottesville in November, Nelson County was lauded for their efforts in bringing broadband to the County. While the surrounding counties are just now beginning to consider broadband for unserved and underserved areas¹, the broadband project for the county will soon (assuming a successful response from the recent grant proposal) expand the fiber beyond the originally deployed ~31 miles of fiber to an additional ~8 miles.

Although significant work has been completed, there are many county residents and businesses who have not yet been reached. Much work remains to expand the network infrastructure to ensure that local residents and businesses gain access to broadband.

Access to broadband has quickly become a requirement for all homes throughout America. Local and home-based businesses require access to broadband for much needed resources to meet the day-to-day demands of their businesses. Given the increase in competition when applying to colleges and universities², students require access to education resources afforded by broadband access. Telemedicine is quickly gaining favor as an alternative means for healthcare in America and it is only available via broadband.

Given the technological advancements in many areas, one may no longer say that the world *is* changing, but rather, the world *has* changed, and in order for businesses and residents in rural communities to compete, access to broadband is no longer a nonessential, nice-to-have luxury, but rather, a necessity. It is critical that the county move forward to expand the fiber and tower infrastructure well beyond the currently deployed infrastructure.

¹ According to the United States Government Accountability Office, Report to Congressional Requesters, April 2014 Telecommunications Projects and Policies Related to Deploying Broadband In Unserved and Underserved Areas (Report: GAO-14-409), "In this report, we refer to areas that lack broadband as "unserved," and areas that have access to low quality broadband service and may have some households without access as "underserved."

² The Executive Office of the President, "Increasing College Opportunity for Low-Income Students, Promising Models and a Call to Action", January 2014, http://www.whitehouse.gov/sites/default/files/docs/white_house_report_on_increasing_college_opportunity_for_low-income_students_1-16-2014_final.pdf

The objective of this proposal is to consider options for moving forward. Specifically, to consider alternatives that will ensure continued development, deployment, and operation of the county's broadband infrastructure.

Goals

In order to meet current and future broadband needs of the county, its residents and businesses, the following is presented for consideration: 1) Develop a Comprehensive Broadband Plan that will aid in the expansion of the county owned infrastructure to ensure broadband access to all residents and businesses of Nelson County; and 2) Develop a Regional Broadband Initiative to address the broadband needs of the Region.

1.0 Comprehensive Broadband Plan

There will be many challenges associated with expanding the broadband infrastructure throughout the county. Given the unique requirements of some deployment areas, having a Comprehensive Broadband Plan in place that proactively addresses the concerns associated with infrastructure expansion will ensure that expansion is completed in an efficient and cost-effective manner.

Also, having a comprehensive plan in place will be of great benefit when pursuing grant funding. A significant point made during the Regional Broadband Meeting was that planning is paramount. Sandie Terry recommended that we plan first, then worry about where the funding will come from. It was even hinted that those who have completed the necessary planning steps in advance may be more likely to obtain available grant funding.

At a very high level, the Comprehensive Broadband Plan should include:

- provision for fiber deployment along all major and secondary highways throughout Nelson County.
- in areas where population densities do not justify deployment of fiber (i.e., it is not cost effective), develop plans to construct additional communication towers to ensure that residents and businesses in more remote areas have a means to gain access to broadband.
- detailed cost analysis by district, community, subdivision, etc. for all infrastructure deployment.
- detailed mapping for all proposed expansion.
- detailed mapping of current service provider infrastructures.
- proactively plan for broadband infrastructure deployment into areas with higher population densities. For example, consider options and costs for deploying fiber/tower infrastructure beyond the primary trunk installation into high population density communities and subdivisions.

With a Comprehensive Plan in place, infrastructure deployment can be prioritized. Having a plan in place with prioritize deployment goals will make it much easier to move forward when funding becomes available. Also, knowing this information in advance will ensure that available funding will be used effectively to reach the highest number of residents and businesses.

Recommendations:

- Immediately begin the process of pursuing planning grant funding to develop a Comprehensive Broadband Plan for Nelson County.
- Immediately begin the process of developing a Comprehensive Broadband Plan — one that addresses the needs of the county as a whole. The plan should not be one that favors a given service provider or technology (i.e., wireless, fiber), but rather, one that focuses on the technical aspects of infrastructure expansion. Given that the county-owned infrastructure is an open network architecture, it is critical that all options are considered. This will ensure that residents and business are provided as many options as possible for broadband access.
- Once a draft comprehensive plan is completed, make the information available to the community as a whole for comment. The plan can be adjusted and updated as needed. The focus at this point will be two-fold: 1) to inform the community of the broadband options that are planned for a given area, and 2) to receive feedback on the Comprehensive Broadband Plan.
- Once the Comprehensive Broadband Plan is formalized internally, begin working with current and prospective service providers to determine interest in providing services in the given expansion areas. This will provide an important opportunity to determine if service providers are interested in, or whether their business model precludes them from, providing broadband services in an area. Given the proposed expansion plans, if it is determined that service providers are unable to move into an area, adjustments can be made to the plan (further expansion of fiber or construction of additional towers) to ensure that all residents and business are provided options for broadband access.
- Prioritize expansion plans to ensure that the highest number of businesses and residents are reached.
- As soon as possible during development of the Comprehensive Broadband Plan, begin seeking funding options for expansion of the county-owned infrastructure. The funding source could be grant-only, or, grants combined with loans. All options should be considered.

2.0 Regional Broadband Initiative

During the Regional Broadband meeting in November 2014, we learned that there appears to be much interest in counties taking a regional approach when deploying broadband infrastructure. A brief review of the areas discussed and the benefits of considering a regional approach to infrastructure deployment follows:

- When purchasing bandwidth, work with counties and municipalities in the region to buy bandwidth in bulk. Purchasing a larger *pipe* will bring the benefit of lowering cost.
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- When deploying or expanding fiber infrastructure, work with others in the region to develop a *redundant loop* or *redundant ring*. The idea here is to think regionally when deploying broadband resources so that one or more *loops* or *rings* are created through the region that will provide alternative paths for backhaul in the event of failure. Redundant loops or rings should also be formed within the county.
- When purchasing equipment, fiber, or other resources, make plans to work with others in the region to help reduce cost.
- When making decisions on the type of equipment to be used, consider working with others in the region so that resources/services are similar or the same. This may be of benefit in the event of equipment failure where turnaround time for repair or replacement becomes an issue.
- Work with planning and zoning to eliminate hindrances to deployment of broadband resources. Develop plans in concert with other regions so that costs associated with deployments that cross county or regional boundaries are known in advance.
- Work with other counties in the region to cooperatively develop plans for backhaul.
- Consider cost-sharing or other cooperative agreements for fiber deployment or tower deployment, for backhaul or deployment along county boundaries. This will ensure that everyone receives the best price available for services.

There were many suggestions provided during the Regional Broadband Meeting. Taking a regional approach when making decisions for current and future deployments will be of significant benefit to individual counties and the region as a whole.

To address these needs, I recommend that we pursue the establishment of a Regional Broadband Initiative. One of the primary goals of the initiative would be to develop a Regional Broadband Plan. Much like the proposed Comprehensive Broadband Plan for the county, the Regional Broadband Plan would be to establish a comprehensive plan that addresses the broadband infrastructure needs of the region.

Given that other counties in the region are just now getting starting, the county should take a leading role in planning and deploying broadband infrastructure for the region. Following the electric coop model, the county should continue on course with its primary goal of deploying infrastructure within the county, while also beginning plans to expand the county network infrastructure into the region.

Benefits

- * additional funding opportunities may be available when a regional infrastructure design and deployment approach are considered.
 - * all the benefits detailed in the regional broadband meeting would be addressed.
 - * reduction in overall cost (buying bulk hardware, fiber, bandwidth, etc.) to support the region will result in reduced cost to the end user.
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- * homogeneous infrastructure deployment will reduce deployment costs; i.e., if everything is the same throughout the region, cost and complexity will be reduced.

Recommendations

- * Establish a committee to evaluate possible approaches to move forward on the establishment of a Regional Broadband Initiative.
- * Have the County Attorney determine if there are any legal considerations of having the NCBA develop and deploy broadband infrastructure that falls outside county boundaries. If so, recommend alternatives for moving forward.
- * Begin seeking planning funding to develop a Regional Broadband Plan.

3.0 Summary

Considerable work remains to ensure that county residents and businesses gain much required access to broadband. Development of a Comprehensive Broadband Plan will provide a significant step toward meeting the goal of expanding the Nelson County broadband infrastructure. Additionally, taking a regional approach — developing a Regional Broadband Plan and expanding the broadband infrastructure throughout the region — will not only benefit the region, but it also has the potential for reducing deployment, expansion, and operation costs for the county. The result will be a reduction in cost to the end user.

Grant funding should immediately be sought so that planning can begin on both the Nelson County Comprehensive Broadband Plan and the Regional Broadband Plan. In addition to smaller grants, larger deployment grants combined with long-term loans should be sought. Larger funding sources will ensure that the residents and business in the county (and the region) gain much required broadband access.
