

New Hampshire  
**FastRoads**



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**DATE:** March 7, 2014

**FROM:** New Hampshire FastRoads and Cheshire County, New Hampshire

**TO:** Federal Communications Commission (FCC) Staff

**SUBJECT:** Expression of Interest – Rural Trials  
Docket No. 10-90

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**Background**

New Hampshire FastRoads, LLC is a wholly own subsidiary of Monadnock Economic Development Corporation. It is also a Competitive Local Exchange Carrier in New Hampshire. The organization was established to develop an open-access, active Ethernet, fiber to the premise, broadband network in Western New Hampshire with the 43 towns and cities of the Monadnock and Upper-Valley Regions of New Hampshire. Currently, it has a fiber middle-mile network through 19 of those towns, directly connecting 237 Community Anchor Institutions. In addition, it has two FTTH builds that allow this active Ethernet network to reach 1,300 residences. The current network was built with \$5.3 million in BTOP funds and \$2.3 million in matching funds as sub-award of the Network New Hampshire Now ARRA grant. These funds build out 161 miles of middle mile fiber placing equipment in 19 town hub locations and directly connecting the community anchor institutions in those towns. This request will build off of this middle mile fiber from east to west to connect another 4 towns and over 2,000 premises, including FTTP to all businesses and residences in the Town of Marlow (292) and 46 community anchor institutions and 1,668 businesses and homes in Alstead, Langdon, Walpole, and Surry. Please see attachments 1-7.

New Hampshire FastRoads is a wholesale last-mile provider. The New Hampshire FastRoads' open access model encourages multiple service providers and open competition. It encourages innovation and creativity in the development of new types of service provider businesses.

Cheshire County, New Hampshire covers 23 towns and 729 square miles in the southwestern corner of the state of New Hampshire. The Connecticut and Ashuelot rivers run through the county and the most hiked mountain in the world, Mt. Monadnock (3,165ft.) is found in Cheshire County. Cheshire County 2011 estimated population is 76,918. The county seat and largest city is Keene, NH with a population of 23,272. The remaining towns range in population from as low as 229, averaging 2,500. This rural area of New Hampshire has been losing industry and population.

Cheshire County is a rural county with an average of 103 people per square mile vs. the statewide average of 142. The weekly wages in the County are approximately 85% of the statewide average (\$779.66 vs \$901.31). The poverty rate in the County is 10.6% vs. 8.4% for the state as a whole and the County is simultaneously both graying and losing population with 15.9% of the County population over 65 and an overall drop of 0.3% in population in the years from 2010 – 2012. (2010 population 77,177 – 2012 population 76,851)

The median value of owner-occupied housing from 2008 – 2012 was \$199,200.00 vs. the \$245,600.00 statewide average. Homes that do not have competitive broadband choices often languish in the marketplace and are valued lower than communities that have a broad spectrum of high-speed broadband choices. Some of this impact can be measured by noting that only 93 new building permits were issued in all of 2012 for the entire County.

Many of the jobs in the County are lower paying personal service, retail, and construction positions. Specifically, 5.9% of all County jobs are construction vs. 3.9% statewide. Health Care and Social Assistance jobs account for 14.6% of all jobs, and Retail Trade jobs account for 9.4% of all positions. The cumulative total of all lower paying positions is 29.9% of all jobs in the County.

Conversely, information jobs (high tech) in the County accounts for 2.0% of jobs vs. 2.9% statewide. For information jobs much of the gap can be attributed to the lack of competitively priced broadband services available to communities in the county. Additionally, in many cases even where true broadband is available (>4 GB download) there is often only one vendor that underserves the area. Unserved and underserved areas do not attract high tech business or promote work at home professionals. If the appropriate broadband services were available at competitive prices individuals would be able to work from home or expand a home-based business. Supporting this statement is the fact that 13.3% of all County workers commute to work outside of the State in order to find employment.

New Hampshire FastRoads and Cheshire County, together a public/private partnership, seeks grant funds to extend a fiber-optic, open-access network through the rural areas of these small towns. This network will open the doors for new economic development activity, increase the value of residential properties, support the efforts of our many home-based businesses, and encourage new business development. As an open-access network, the communities will have broadband choices in a competitive environment.

### **Geographic Territory**

This broadband expansion project will build optical fiber into 5 of the most rural towns of the county, through the towns of Marlow, Langdon, Alstead, Surry and Walpole. The census blocks related to these areas are in the chart below. The project will directly connect 46 Community Anchor Institutions, giving most of these anchors a FTTP active-Ethernet service for the first time. In addition, the open-access environment of this network will introduce competition in area where there is none today. All businesses and residences along the planned route through Alstead, Langdon,

Walpole, and Surry, NH will have an opportunity to connect directly to this network. In the Town of Marlow, all 292 residences and businesses will be connected.

Town	Census Block	Population	Households	Premises	Population Density /sq. mile	CAIs	Sq. Miles	Town Rd Miles	State Rd Miles
Alstead	9701	1937	771	414	49	11	39.3	5.2	7.8
Langdon	9756	688	237	172	42	8	16.3	4.1	3.
Marlow	9701	742	292	292	28	5	26.4	17.0	11.8
Surry	9701	732	268	249	46	5	15.9	2.8	2.6
Walpole	9702	3594	1,490	873	100	17	36.7	18.5	4.7
Keene (MM)								11.9	
<b>TOTAL</b>	<b>7005</b>	<b>7693</b>	<b>3,058</b>	<b>2,000</b>	<b>265</b>	<b>46</b>	<b>134.6</b>	<b>59.5</b>	<b>29.9</b>

### Marlow

Marlow, NH is a small rural town along Route 10 in Cheshire County. A New Hampshire FastRoads Hub was established and the community anchor institutions were connected in 2013 through the Broadband Technology Opportunity Program. Marlow has new, limited, low level DSL through the center of town and the New Hampshire FastRoads middle-mile fiber runs through town on Route 10. The new fiber build would be a fiber-to-the-premise (FTTP) to each residence and business in Marlow. This open-access network would connect 292 premises to the FastRoads active-Ethernet network making available gigabit broadband and a choice of multiple providers offering multiple services.

### Alstead

Alstead is a small town situated between Marlow and Walpole, NH in Cheshire County. It is a rural New Hampshire town with just under 2,000 residents and little business growth. The town was severely flooded in 2005 and much of its road infrastructure was rebuilt at that time. Alstead has limited cable broadband access up through the center of town on Route 12A (North/South). The new fiber build would come across from Marlow, NH, east to west, along Route 123 through those areas that remain unserved or underserved, and along the northern edge along Route 12A, connecting the eleven (11) community anchor institutions and allowing direct connections to all 414 premises along the route.

### Surry

Surry is just north of Keene, NH in Cheshire County. It is a very small New Hampshire town with under 300 residents. The town is home to many home-based businesses and small businesses. Surry has limited cable broadband access up through the center of town on Route 12A (north/south). The new fiber build would come across from Walpole, NH, west to east, along Joslin Road through those

areas that remain unserved or underserved, and along the southwest section of town before connecting with 12A to complete the fiber loop through to Keene, NH and the current FastRoads fiber network. It will connect five (5) community anchor institutions and allowing direct connections to all 249 premises along the route.

### Walpole

Walpole, NH is located on the western edge of New Hampshire, bordering the State of Vermont. The town has cable broadband access and limited DSL access along Route 12 and through the Town Center. The new fiber build would come across from Alstead and Langdon, NH (east to west) on Route 123, through the center of town to County Road which then goes west to east through to Surry, NH. These sections along the eastern side of Walpole are those that are unserved and underserved. Connections will be offered to the seventeen (17) community anchor institutions creating a competitive environment and to 945 premises directly along the route.

### **List of Anchor Institutions**

Please see the Attachment 8

### **Proposed technology**

- 1) Build an optical-fiber, middle-mile network that connects the New Hampshire FastRoads network in Marlow, NH west through Walpole, NH and then back east through Surry to Keene, NH.
- 2) Place hub cabinets in each area with gigabit switches with ports for FTTP connections allowing for future growth.
- 3) Optical network terminals (ONT) premise equipment capable of a gigabit connection to this fiber network to 2,000 businesses and residences.

Fiber provides the bandwidth, speed, and reliability needed to support education, public safety, and business applications. It is a stable long term asset that has a usable life of 30+ years. It is scalable, delivering the capacity needed today and far into the future. There are few limitations to future growth, upgrading only the equipment at the interconnection points.

In addition, this new middle mile fiber will form an additional 10 Gbps redundant ring from the Keene co-location facility. All electronic equipment will be capable of delivering 1Gbps to the premise (scalable to 10Gbps upon request), and a 10Gbps backbone creating capacity for long-term growth of increasing speeds.

The New Hampshire FastRoads network is designed to support a carrier class, fully redundant, self-healing core backbone capable of handling any bandwidth requirements needed for education, healthcare, business, and local government, including DWDM lightpaths and GigE, 10GigE, and 40GigE circuits and beyond.

### **State and/or Local or Tribal Government Participation in and/or Support for Project**

The County of Cheshire is committed to convene partners and collaborate with NH FastRoads. The Assistant County Administrator / Project Manager will be the contact for the project and complete all research needed, address any policy issues that arise with the County Administrator and Commissioners, and work closely with the towns on right-of-ways. Should Legislators be needed to accomplish any of these tasks, the Commissioners and Administrative staff has access to them through continual communications and quarterly public meetings where votes may be taken for official county business. Please see Attachment 9 for the Letter of Support from the County Commissioners.

The Towns of Marlow, Langdon, Alstead, Surry and Walpole will all collaborate with FastRoads and the County of Cheshire in aligning with the goals of this project as they appreciate and value the benefits this brings to their towns and the region. They have all provided Letters of Support which are provided as Attachment 10.

### **Existing Providers**

The current providers, Comcast, Time Warner, and Fairpoint DSL, offer services on the main thoroughfares through town leaving those premises outside that area without services or with low-level services. An open-access, fiber to the premise network will provide the needed broadband to those homes and businesses today and for years to come.

### **Project Timeline**

The New Hampshire FastRoads network is in place and operational. There are currently four service providers on this network that provide service to customers today and are ready to provide service to others. Engineering and Pole Access could begin July 1, 2014; Construction in the fall of 2014.

### **Scalability**

An optical fiber, active-Ethernet network is future proof. The upper limit of fiber has yet to be found and off the shelf hardware can handle thousands of times the needs of an average home or business well into the future. The network can be provisioned from 5MB symmetrical service to 1Gbps symmetrical service or more and at various levels in between. The New Hampshire FastRoads network offers wholesale pricing at 5, 10, 20, 50, 100, 250, and 500 Mbps and 1 Gbps. We can provision 10Gbps upon request. All of the optical equipment from core routers and switches down to the optical network terminals are capable of 1 - 10Gbps.

Community Anchor Institutions, businesses, and consumers can buy the appropriate service for today and increase their broadband as their needs change. The New Hampshire 10Gbps core can easily handle the growth of adding these towns. The middle-mile fiber 10Gbps ring is also able to handle the increased connections. The ports in the switched equipment in the hub locations can be increased as more FTTP is deployed.

**FastRoads Investment**

\$888,027: This amount represents the investment made by FastRoads for middle mile fiber from Marlow and Surry, NH to the Keene co-location facility.

**One Time Capital Infrastructure Investment Needed**

\$7,535,431

**Total Project Cost**

Marlow	\$2,,302,333
Alstead	\$1,250,346
Langdon	\$662,423
Walpole	\$2,394,337
Surry	\$921,730
Keene	\$892,289
<b>Total</b>	<b>\$, 8,423,458</b>